

The identification of Smart Specialisation priority domains in Albania A mapping exercise

Fabbri, E., Gerussi, E., Hollanders H., Sinjari, I.

2022

SMART SPECIALISATION IN

Albania



EUR 31221 EN

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Contact information

Name: Elisa Gerussi

Address: Edificio Expo, C. Inca Garcilaso, 3, 41092 Sevilla, Spain

Email: elisa.gerussi@ec.europa.eu

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JRC 130660

EUR 31221 EN

PDF ISBN 978-92-76-56980-0 ISSN 1831-9424 [doi:10.2760/322286](https://doi.org/10.2760/322286) KJ-NA-31-221-EN-N

Luxembourg: Publications Office of the European Union, 2022

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How to cite this report: Fabbri, E., Gerussi, E., Hollanders, H. and Sinjari, I., *The identification of Smart Specialisation priority domains in Albania. A mapping exercise*. Gerussi, E., Hollanders, H. (editors), Publications Office of the European Union, Luxembourg, 2022, doi:10.2760/322286, JRC130660.

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Abstract

The mapping exercise described in this technical report contributes to gather evidence based information as a basis to select and define the priority areas of the Smart Specialisation Strategy of Albania.

The commitment of Albania in the Smart Specialisation process started in 2016, under the Ministry of Education, Sports and Youth, and currently strongly supported by the Prime Minister Office. In November 2017, Albania registered in the JRC Smart Specialisation Platform and since then the country has been implementing a roadmap for the definition of a National Strategy for Smart Specialisation, with the assistance of the EC and according to the JRC methodological framework for Smart Specialisation in the EU Enlargement and Neighbourhood countries.

The quantitative analysis was started end-2020 and finalized in 2021, and was followed by the qualitative analysis that was closed end-2022. It stressed the relevance especially of the ICT sector: in fact, by combining both the economic and innovation potential under the current and emerging perspective, the following subsectors appear: - J60.1 Radio broadcasting; - J60.1 Television programming and broadcasting activities; - J61.1 Wired telecommunications activities (current and emerging economic potential and innovation potential); - J61.3 Satellite telecommunications activities (Current and emerging economic potential and innovation potential).

The qualitative analysis refined the results of the quantitative mapping leading to the identification of five preliminary priority domains for the Smart Specialisation Strategy: Agriculture Fisheries and Aquaculture; Manufacturing; Energy; Accommodation and support service activities; Information and Communication; Administrative and support service activities.

Both quantitative and qualitative diagnostic stages dealt with relevant challenges related to data availability in the first case, and difficulties in reaching out with the stakeholders of the priority areas selected, for a number of reasons including mistrust, post-COVID effects and related constraints, as well as lack of information on Smart Specialisation.

To stress the opportunities emerged in digital transition and ecological transition the analysis has also identified as potentially interesting: Blue economy; Healthy food; Renewable resources energy; Extended BPOs.

Further exploration will be the goal of the next Entrepreneurial Discovery Process that is expected to be launched by the end of 2022.

Acknowledgements

We would like to acknowledge the commitment of the members of Albania's national Smart Specialisation team and to the Statistical Office of Albania, which provided necessary disaggregated datasets, which made the analysis possible.

Editors

Elisa Gerussi
European Commission, Joint Research Centre (JRC), Seville, Spain

Hugo Hollanders
Maastricht University, The Netherlands

Authors

Emanuele Fabbri
Regione Toscana, Italy

Elisa Gerussi
European Commission, Joint Research Centre (JRC), Seville, Spain

Hugo Hollanders
Maastricht University, The Netherlands

Isida Sinjari
Institute for sustainable policies, Albania

Executive Summary

Smart Specialisation is one of the flagship initiatives of the Western Balkan Agenda on Research, Innovation, Education, Culture, Youth and Sport. It is also included in other EU policy documents regarding the region, such as the 2021 Communication on EU Enlargement Policy and the Economic and Investment Plan for the Western Balkans.

The commitment of Albania to the Smart Specialisation process started in 2016, under the Ministry of Education, Sports and Youth, and is currently strongly supported by the Prime Minister's Office. In November 2017, Albania registered on the JRC Smart Specialisation Platform and since then the country has been implementing a roadmap for the definition of a National Strategy for Smart Specialisation, with the assistance of the EC and according to the JRC methodological framework for Smart Specialisation in the EU Enlargement and Neighbourhood countries.

This study supports a first identification of the economic and productive domains that might be considered in the selection of the priority areas for a Smart Specialisation Strategy in Albania, and it includes both quantitative and a qualitative analyses.

The Smart Specialisation approach encourages the combination of evidence-informed policy making with consultation of the key actors of a regional or national eco-system. The mapping phase is crucial to detect which sub-sectoral specialisations have appropriate critical mass, innovative activity as well as scientific and technological output to drive economic transformation in the medium-long term, and can therefore be the subject of important public investment. This technical report includes on the one side a statistical quantitative analysis mapping of the economic, innovation, scientific and technological potential of the Albanian economy by using a variety of statistical data and methodologies, and on the other side a qualitative analysis that enables consideration of market actors' perspectives and positioning. The outcomes of the study then provide inputs for the following phase of the Entrepreneurial Discovery Process (EDP). Both diagnostic exercises have been based on the recommendations of JRC and S3 Framework for EU Enlargement and Neighbourhood region, and have been carried out by a team of international and local experts with consolidated experience in innovation and smart specialisation related topics.

In the quantitative analysis, the economic potential has been explored by current (or static) and emerging (or dynamic) indicators that use data (employees, turnover, wages) for the period 2011-2018 at 2 and 3-digit NACE industrial classification level. The analysis identifies 13 industries with a current economic potential, and 16 industries showing an emerging economic potential, two of these having both current and emerging potential: J61.3-Satellite telecommunications activities; N82.2-Activities of call centres.

The mapping of the innovation potential uses the "Innovation activity survey" conducted by the Institute of Statistics in Albania (INSTAT) for the period 2017-2019. Data are available at NACE 1-digit level. The analysis identifies two NACE 1-digit industries with a current and emerging innovation potential: J-Information and communication technologies, and M-Professional, scientific and technical activities.

Finally, the scientific potential has been mapped by analysing Albanian scientific and technological production, as well as statistics related to education.

The quantitative analysis emphasised the particular relevance of the ICT sector. In fact, by combining both the economic and innovation potential under the current and emerging perspective, identifies the following subsectors: - J60.1 Radio broadcasting; - J60.1 Television programming and broadcasting activities; - J61.1 Wired telecommunications activities (current and emerging economic potential and innovation potential); - J61.3 Satellite telecommunications activities (Current and emerging economic potential and innovation potential).

The qualitative analysis combines an on-line survey with 60 in-depth interviews among relevant stakeholders of the territory in order to delve deeper into the sector dynamics, as well as to validate previous statistical results, and identify the sub-sectors and niches with high potential for innovation.

The qualitative analysis has indeed confirmed the outcomes of the quantitative mapping and integrated it with further details on the potentials. It has explored the following sectors: Agriculture Fisheries and Aquaculture; Manufacturing; Energy; Accommodation and support service activities; Information and Communication; Administrative and support service activities.

In particular, interesting development opportunities emerged in digital transition (with the automation of processes, the reorganization of supply chains and the digital transformation that can lead to new business models) and more in general in digital technologies (from applications of artificial intelligence, IoT (industrial Internet of Things) sensors, data analytics, to robotics). The ecological transition also shows high potential (which concerns, on the one hand, an intelligent use of renewable sources, energy efficiency solutions but also attention to business models that are aligned with international standards and requirements. Likewise, experiences related to sustainable tourism are considered positive, especially when integrated with quality agriculture and responsible food processing. In the case of horizontal integrations, positive experiences include the integration of BPO services with IT solutions.

The analysis has also identified the following subsectors as potentially interesting for further exploration during the EDP: Blue economy; Healthy food; Renewable resources energy; Extended BPOs (Business Process Outsourcing).

The availability of data, especially for the quantitative mapping was a relevant challenge, with detailed economic data not being directly available requiring the study team to construct aggregate NACE 2- and 3-digit industry data from firm level data made available by INSTAT. Also, detailed data on innovation activities were not available limiting the analysis and the interpretation to extending the results from NACE 1-digit to lower industry levels.

Likewise, in the case of the qualitative analysis, encouraging the participation of actors to take part in this type of exercise required considerable effort from the side of the expert team. Between data collection and data interpretation, the analysis took around five months.

The report comprises eight chapters. The first chapter gives an economic outlook of Albania, focusing on regional disparities, the agriculture sector and a short reference to the post-Covid situation. Chapters 2,3, 4, and 5 present the methodology used and results from the quantitative mapping for the economic, innovation and scientific potential, respectively. Chapter 6 and 7 describe the qualitative analysis that followed the quantitative one, and the last chapters draws some important conclusions from the whole exercise.

1. Introduction

This technical report has been drafted within the framework of the project “Support to Smart Specialisation in the Enlargement and Neighbourhood region” led by JRC and aimed at accompanying the Western Balkan economies in the design process of their Smart Specialisation Strategies. Smart Specialisation is one of the flagship initiatives of the Western Balkan Agenda on Research, Innovation, Education, Culture, Youth and Sport. It is also included in other EU policy documents regarding the region, such as the 2021 Communication on EU Enlargement Policy and the Economic and Investment Plan for the Western Balkans.

In 2018, JRC presented a Smart Specialisation Framework for the Enlargement and Neighbourhood region that is meant to be a guideline for the government towards the definition of their Smart Specialisation priority areas as well as related policy instruments. The Framework includes five main phases – institutional capacity building, diagnosis, stakeholders’ dialogue, definition of the policy mix, draft of the Strategy – and provides indications on how to define the main elements for an effective Smart Specialisation Strategy.

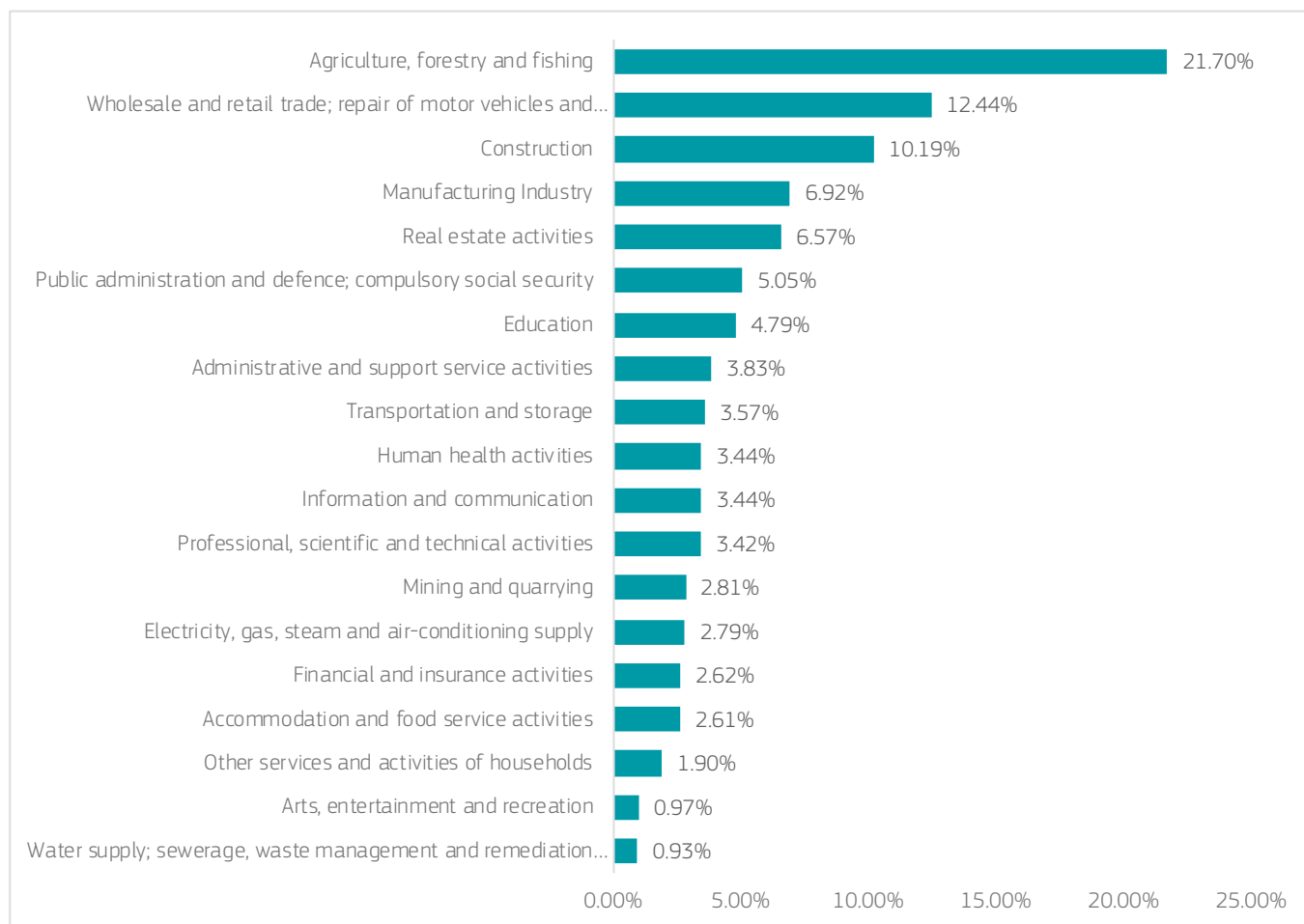
The focus of this report is the diagnosis phase of Albania, including the quantitative and qualitative mapping of the national economic, innovation, technological and scientific potential for Smart Specialisation. The study took most of one year and was supported by local and international experts with the close collaboration with the national government and the institutions involved in the design and implementation of the Smart Specialisation Strategy. The outcomes are meaningful not only with reference to the draft of a Smart Specialisation Strategy for Albania, but also for the opportunities and the weaknesses that the report stresses: the high potential of Albania’s economy on the one side, and the necessity of improving the availability of data on innovation on the other side. Therefore, besides the specific objectives that it provides, this report can be deemed as a useful tool to be updated in future by national authorities in charge of Smart Specialisation and to be integrated within the set of analytical instruments of the territorial potential.

The report describes the analysis first quantitative and then qualitative of the economic, innovation, technological and scientific potential of Albania for Smart Specialisation and identifies the preliminary priority areas to be included into the final strategic document. It will serve as a starting point for the following stakeholders’ dialogue phase of the EDP.

2. Economic Outlook

According to annual data, Gross Domestic Product (GDP) in 2020 was estimated at 1,644,077 million Albanian Lek (ALL) with a negative change from 2019 due to the pandemic situation. GDP per capita in 2020 reached 579 thousand ALL (or € 4,681) from 593 thousand ALL (or € 4,819) in 2019. Looking at the Gross Value Added (GVA), the largest percentage is occupied by *Agriculture, forestry and fishing*, followed by *Wholesale and retail trade, repair of motor vehicles and motorcycles* and *Construction* (Figure 1). Other large industries are *Manufacturing and Real estate activities*.

Figure 1: Gross Value Added at current prices by economic activity NACE Rev.2 – digit 1 (average values) 2016-2020



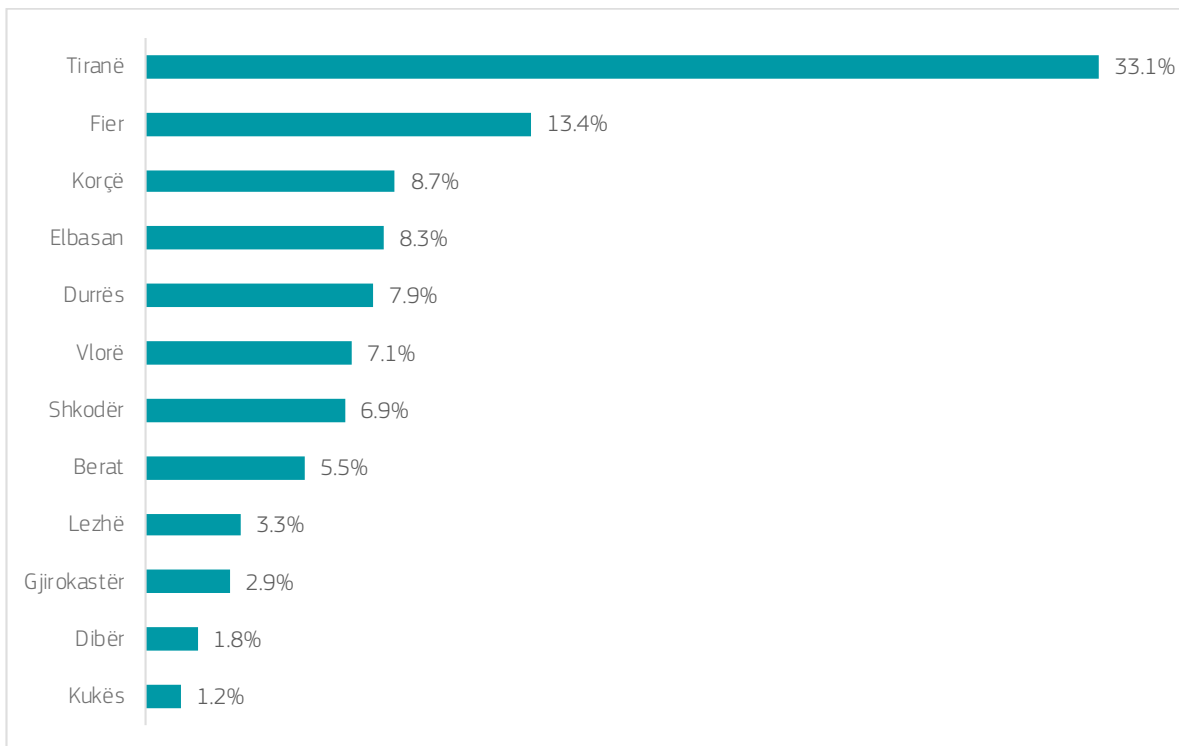
Source: INSTAT, author's elaboration

2.1 Regional Disparities

Albania is divided into 3 NUTS one-digit regions and 12 NUTS two-digit regions¹. Firms are normally concentrated in the East and the North, leaving the rest of the country with a significantly low productive activity. Figure 2 gives a picture of the regional distribution of enterprises: the highest number is located in Tirana, followed by Fier, and Korca.

¹ AL01 Northern Albania includes AL011 Dibër, AL012 Durrës, AL013 Kukës, AL014 Lezhë and AL015 Shkodër. AL02 Central Albania includes AL021 Elbasan and AL022 Tirana. AL03 Southern Albania includes AL031 Berat, AL032 Fier, AL033 Gjirokastrë, AL034 Korçë and AL035 Vlorë.

Figure 2: Number of active enterprises by NUTS 2-digit region, 2016-2020

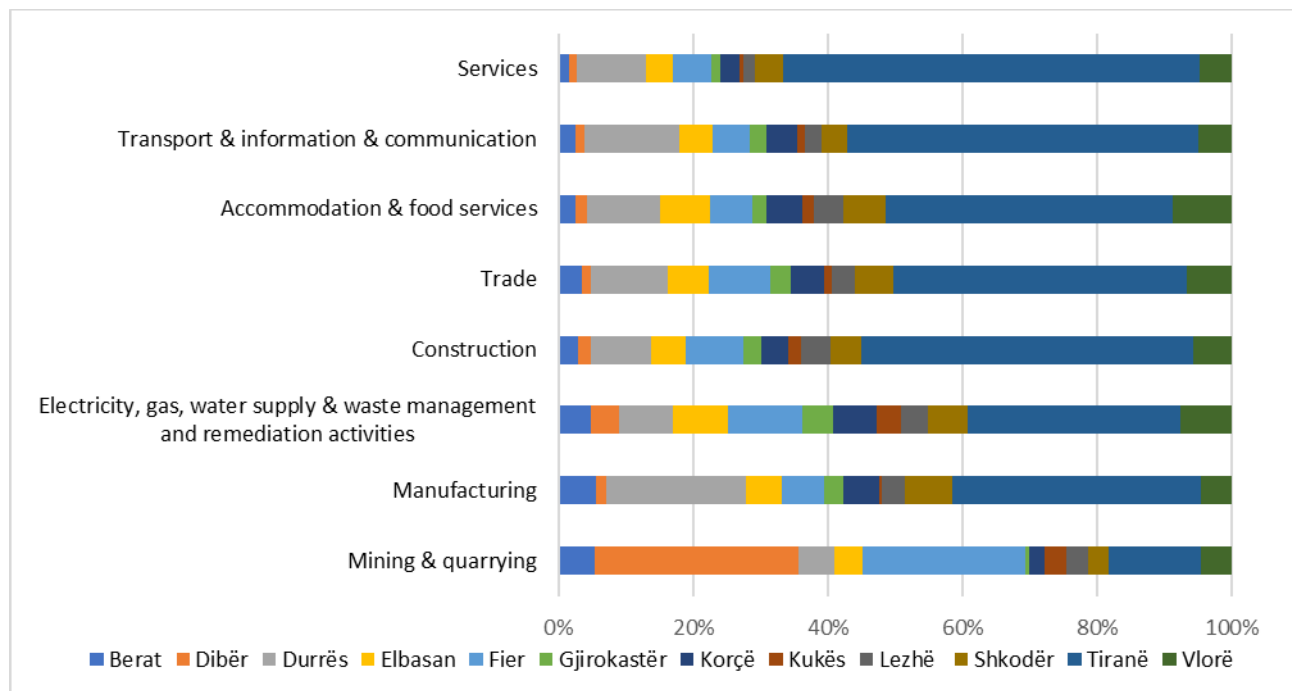


Source: INSTAT, author's elaboration

Figure 3 shows the employment structure by economic activity in each region. Mining & Quarrying employs most of its workers in Diber with 30% of employees followed by Fier and Tirana. For the services sector there is a significant difference between Tirana and other regions, where the former employs 62% of total employees in services. The Manufacturing sector is concentrated in Tirana with 37% of employees followed by Durres with 21% of employees. Tirana also accounts for high shares of employees in Construction, Trade and Transport & ICT (respectively 49%, 44%, 52%).

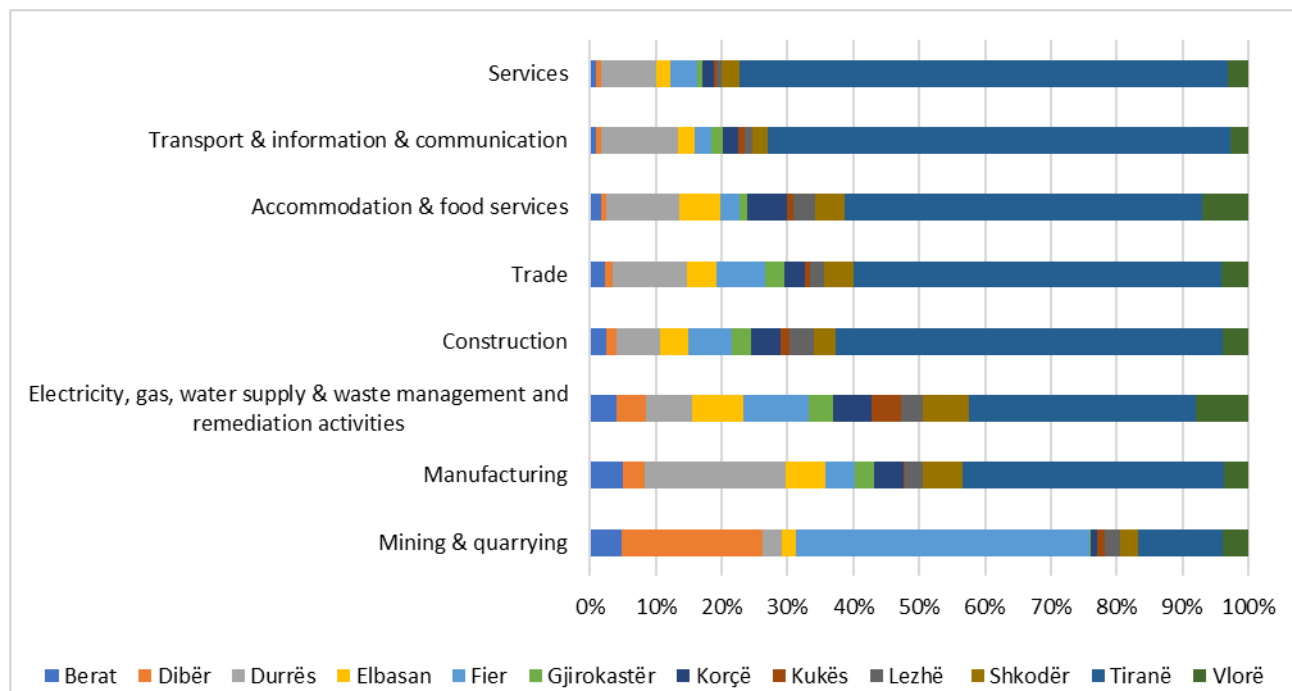
Figure 4 shows wages and salaries by economic activity in each region. Mining & quarrying in Fier region accounts for 37% of wages and Diber accounts for 18% of the total wages in this sector. Manufacturing is more concentrated in Tirana and Durres, which respectively account for 60% and 33% of total wages and salaries. Tirana has the highest shares in almost all the remaining sectors for wages and salaries.

Figure 3: Employment structure by economic activity and by region, 2015-2018



Source: INSTAT, author's elaboration

Figure 4: Wages and salaries structure by economic activity and by region, 2015-2018



Source: INSTAT, author's elaboration

2.2 Agriculture in Albania

Agriculture remains one of the most important sectors in Albania, contributing with 20% to GDP in 2021. Albania depends heavily on this sector for its economic growth; about 24% of its territory is classified as agricultural land (FAO, 2019). Wheat, corn, oats, potatoes, vegetables, olives, tobacco, fruits, sugar beets, vines, livestock and dairy products constitute most of the production that however lags behind in terms of technologies and equipment leading to low productivity rates.

Table 1 shows the trend of the contribution of agriculture to Albanian GDP over the years. Data reflect the shift from the communist period (80s) when Albania operated as a closed economy, followed by the first transition period between 1993 and 1998 when the political change to democracy led to an open economy system. The Agricultural sector has decreased in economic importance since 1980, but is accounting for a relatively stable share of GDP in the last 10 years.

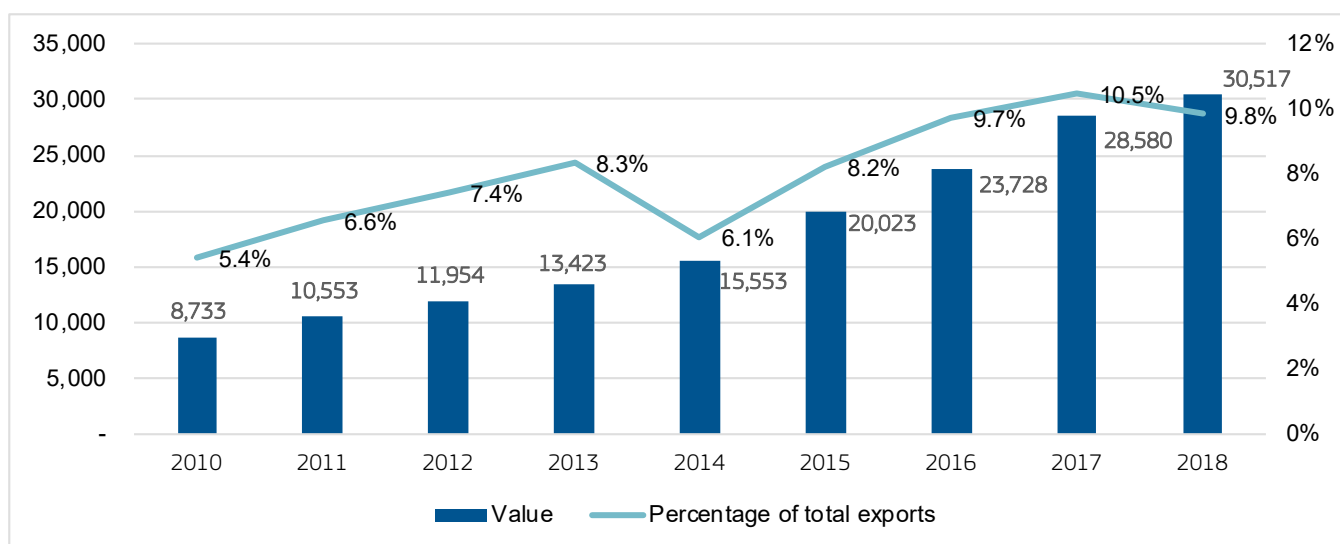
Table 1: Contribution of Agriculture to GDP, 1980 – 2021

	1980	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
% of GDP	34%	21%	21%	22%	22%	23%	23%	23%	22%	21%	21%	22%	20%

Source: INSTAT, author's elaboration

Agricultural exports, which include livestock, agriculture and agro-processing products, amounted to 30,517 million of ALL for 2018 or 9.8% of total exports. with a slight decrease in this share from 2017. The share of agricultural exports has been increasing during 2010-2018 (Figure 5).

Figure 5: Export performance for agriculture products in total exports, in million ALL



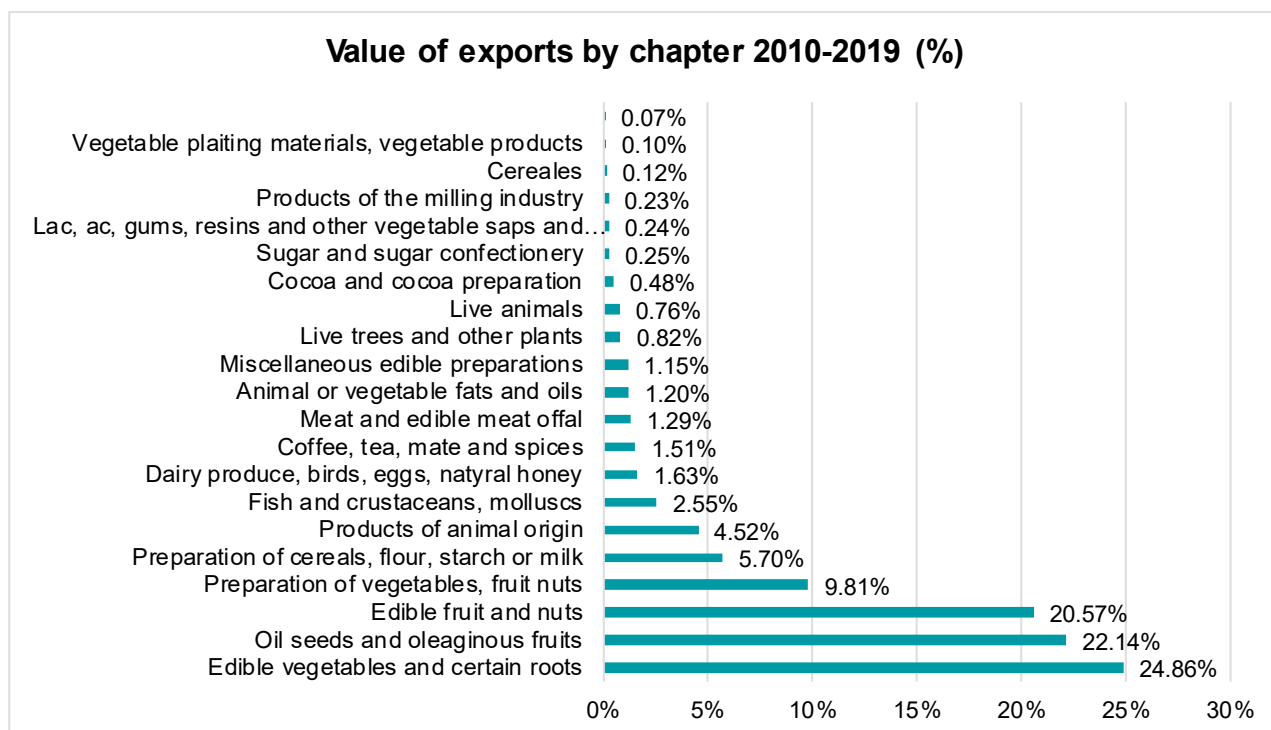
Source: INSTAT, author's elaboration

Edible vegetables and certain roots have the highest export share with 24.86% (of the total agricultural exports) for a value of 37,943 million ALL followed by Oil seeds and oleaginous fruits, 22.14% with a value of 35,248 million ALL (Figure 6).

Exports of agricultural products, especially fruits and vegetables, increased in double digits. In April 2020 compared to April 2019, there was an increase in exports by 14%. This comes as a result of private and public investments in the agricultural sector, especially in cultivation through greenhouses that create an advantage for Albania.²

Albania exports 75% of fishery products and 99% of medicinal and aromatic plants. Medicinal and aromatic plants cultivated and processed in Albania include lavender, hawthorn, dog rose, juniper berry, blueberry, thistle seed, artichoke, chamomile, herbal teas, basil, bay leaves, cornflower, dandelion, fennel, and coriander, followed by about 300 species, mostly wild collected.³

Figure 6: Value of exports by chapter of agricultural products for period 2010-2019 (Million ALL)



Source: INSTAT, author's elaboration

Albania exports a total of 80 aromatic medicinal plants mainly to EU, Australia, US, Canada, India and China. Exports have increased significantly over the last years doubling since 2010, reaching around 30 million USD in 2016 and 41 million USD in 2019⁴ (Figure 7). The revenues of the sector are mainly divided among the 10 main exporters.⁵

About 90% of the farmers who cultivate aromatic and medicinal plants are located in the region of Shkodra (mainly Malësi e Madhe). The largest amount of aromatic and medicinal plants has been cultivated since 2010, mainly driven by support from government subsidy schemes.

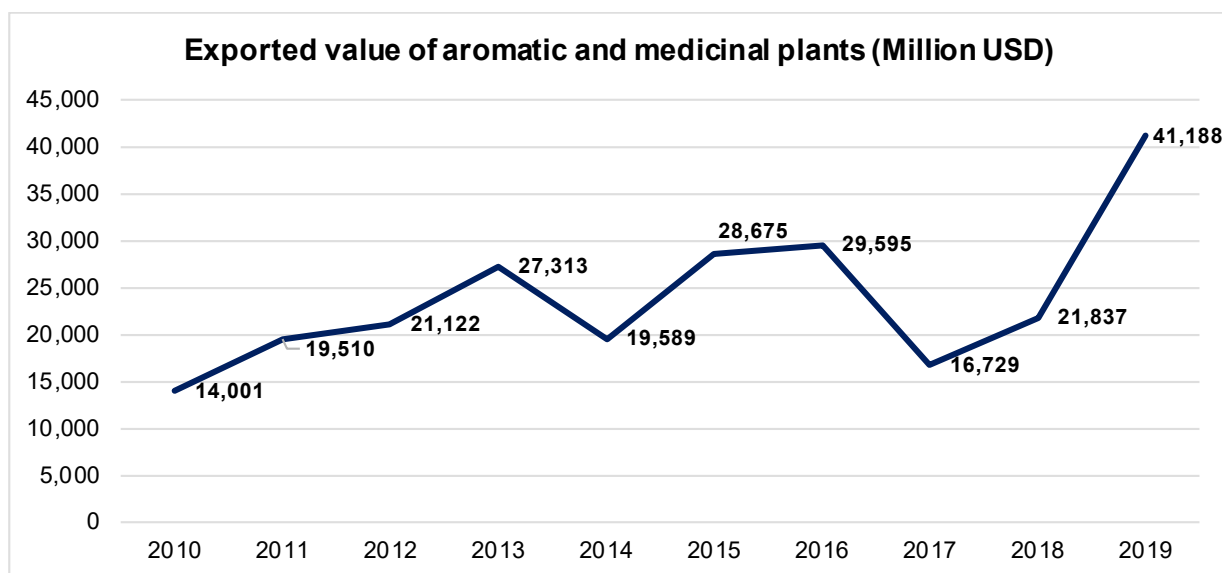
² <https://www.italian-network.net/en/in-crescita-le-esportazioni-dei-prodotti-agricoli-albanesi/>

³ <https://invest-in-albania.org/industries/agriculture/>

⁴ Source: International Trade Center data

⁵ <https://aasf.com.al/wp-content/uploads/2019/08/Map-EN.pdf>

Figure 7: Exports of aromatic and medicinal plants⁶



Source: International Trade Center, author's elaboration

2.3 The impact of Covid-19 in the Albanian economy⁷

The Covid-19 pandemic started after the strong earthquake in 2019 and had severe effects on Albania's economy. With an economic contraction of about 4% in 2020⁸ almost all sectors have suffered. According to the Ministry of Finance and Economy, at the end of the 3rd quarter of 2020, the total public debt reached 79.9% of GDP, 13.6 percentage points more compared to December 2019.⁹

The private sector has gone through shortage of clients as in the case of services, tourism and trade, as well as lack of liquidity, more often in agriculture, industry and construction, with consequently difficulties to pay the salaries and compliance with tax payments. Remittances also decreased by almost one-fifth in 2020 pulling down private consumption and increasing social inequality regarding mainly with the most disadvantaged groups.¹⁰

Trade has also been affected, especially in industrial sectors, and its downturn started already when Italy, the main trading partner of Albania, was first hit by the pandemic. Very low demand, and disruptions in supply chains, have severely affected exports that contracted 35% in 2020¹¹. Textile and footwear; Construction materials and metals; Minerals, fuels, electricity are the sectors that suffered the most.

Strongly import-oriented companies have seen their import flows shrinking, which in some cases benefited local products. The annual decrease of imports by 5.6 % was mainly affecting: "Minerals, fuels, electricity", "Food, beverages, tobacco", and "Textile and footwear".

To face the difficult situation, the government of Albania adopted two support packages for vulnerable people and businesses affected by the COVID-19 pandemic, which allocate in total 45 billion ALL (2.8% of GDP). The support package addressed mainly health sector, and small businesses/self-employees and establish a sovereign guarantee fund to support businesses to access overdrafts. Part of the support packages was also ALL 2 billion allocated toward humanitarian relief for the most vulnerable. (Ministry of Finance and Economy, 2020).¹²

A deeper look at the sectors shows that in the three first quarters of 2020 Agriculture and Real Estate Activities are the only ones growing with +1.8% and +5.94%, respectively. The strongest decline was recorded by Trade, transport

⁶ Data from: <https://www.trademap.org>

⁷ This chapter is a desk review of national and international reports on the impact of Covid-19 crisis in Albanian economy

⁸ ERBD Transition Report 2021-22: System upgrade: Delivering the Digital Dividend

⁹ <https://financa.gov.al/statistika-fiskale-mujore/>

¹⁰ Musabelliu M (2020) Albania economy briefing: The costs of the pandemic for Albania., Vol. 35, No. 2 (AI) December 2020

¹¹ <https://www.oecd.org/south-east-europe/COVID-19-Crisis-in-Albania.pdf>

¹² Ministry of Finance and Economy (2020) Covid-19 pandemic development, Albania Overview.

and hospitality services (-27%) and Wholesale and Retail Trade and Accommodation and food service activities (-15%).¹³

Tourism, which accounts for more than 20% of Albania's GDP, was one of the most affected sectors by the pandemic due to travel restrictions. In July 2020, incoming and outgoing flows of tourists decreased by around 62% compared to 2019.¹⁴

¹³ Academy of political studies (2021). Challenges and opportunities for the recovery of the sick Albanian Economy. Analysis document.

¹⁴ https://ec.europa.eu/info/sites/info/files/economy-finance/tp044_en.pdf

3. The quantitative analysis: the economic potential

3.1 Data and Descriptive statistics

Data are first discussed at NACE Rev.2 1-digit level, and then analysed at NACE Rev.2 3-digit level for the period 2010-2018. Table 4 shows data used for the analysis of the economic potential.

3.2 Methodology

The mapping exercise includes both an identification of industries with a static or current economic potential which are already highly specialised with relatively high average wages, and industries with a dynamic or emerging economic potential where employment, turnover and average wages have been growing at above average rates.

Industries with a static or current economic potential are established industries in which Albania is specialised compared to the EU. These industries should not be too small and have relatively high levels of average wages. Increasing the share of industries with high average wages will raise average wages in the country and contribute to the country's overall economic well-being. However, the mapping analysis is based on an analysis of past, although relatively recent, data. The analysis could overlook industries in which Albania is not yet specialised, which are still small or where average wages are relatively low, but where there are clear signs of improvement over time which could turn these industries into industries with a current economic potential in few years' time. These industries are identified as industries with a dynamic or emerging economic potential when there are positive and above average trend improvements in employment, turnover and average wages.

Static (or current) economic potential has been analysed at NACE 3-digit level for the period 2011-2018 by taking into consideration indicators based on number of employees as a measure of size (i.e. critical mass and location quotient) and relative wages. More specifically, the following indicators have been computed:

- **Critical mass (CM):** percentage share of employees in a specific industry in total number of employees in the economy:

$$CM_i = e_i / e,$$

Where

e_i = number of employees in sector i in Albania
 e = total number of employees in Albania

Industries with a CM equal or higher than 0.10% can be considered as potential candidates for having an economic potential. The threshold is set at 0.10% because micro and small industries may be not significantly relevant for economic policies¹⁵.

- **Location Quotient (LQ):** it measures the degree of specialisation(or concentration) of an industry in a country as compared to the same industry in a larger context. This is obtained by dividing the size of a specific industry (measured by employees) in Albania by the size of the same industry in the EU27. The EU was chosen as the reference as the foreseen Smart Specialisation strategy will focus at the country and not the regional level. This approach has also been used for other countries in the Balkan area including Montenegro in 2018 and North Macedonia in 2019¹⁶.

$$LQ_i = (e_i/e)/(E_i/E)$$

where

¹⁵ There are no set rules for determining these threshold values. The most common practice is to start with threshold values which are also used in other studies and then to either use these if the number of selected industries matches expectations, or to decrease them if the number of selected industries is too small or to increase them if the number of selected industries is too high.

¹⁶ In a more recent mapping study for Kosovo in 2021, instead a selection of neighboring countries – Bosnia and Herzegovina, Bulgaria, Croatia, Greece, and North Macedonia – has been used for which detailed economic data are available. For this study the same benchmark, EU27, has also been selected as the EU was used in previous mapping studies for Albania for which this and the 2021 report both provide an update.

e_i = number of employees in industry i in Albania
 e = total number of employees in Albania
 E_i = number of employees in industry i in the benchmark economy (here: EU27)
 E = total number of employees in the benchmark economy (here: EU27)

An industry passes the Specialisation threshold if the LQ is at least 1.25; the choice for this value comes from the fact that using a higher threshold of 1.5 would identify a too low number of specialized industries, using a lower threshold would identify too many specialized industries.

- **Relative wage index** as the average wage (per industry) relative to average wages for all industries:

$$aw_i > Z * aw$$

Where

aw_i = average wages in industry i in Albania

aw = average wages in Albania

The mapping exercise combines the previous indicators and identifies those industries both with a critical mass of activities and a specialisation for employment, for which:

- size and specialisation (LQs) are sufficiently high, i.e. above pre-defined threshold values, and
- where average wages are sufficiently high compared to average wages for all industries in the country and the same industry in the EU27:

Dynamic (or emerging) economic potential has also been analysed at NACE 3-digit level for the period 2011-2018 by taking into consideration growth or trend performance indicators based on number of employees, as a measure of size, and wages. More specifically:

- average annual growth rate of Number of employees (for 2011-2018)
- average annual growth rate for Average wages per employee (for 2011-2018)

An industry is identified as having a dynamic or emerging economic potential if it fulfils the following criteria:

- **Critical mass:** Only industries where Size is at least 0.10% will be potential candidates for having an economic potential; 0.10% is used because small industries are less relevant for economic policies.
- An industry passes the **trend for Number of employees** threshold if its average annual growth rate is at least 50% above the average annual growth rate for all industries combined; the threshold of 50% has been selected to allow the identification of a sufficiently high number of industries.
- An industry passes the **trend for Average wages per employee** threshold if its average annual growth rate is at least 25% above the average annual growth rate for all industries combined; the threshold of 25% has been selected to allow the identification of a sufficiently high number of industries.

3.3 Results

The *static analysis* identifies those industries in which Albania is *currently* specialized compared to the EU27, both for size and average wages.

The static analysis gives the following results:

- 104 industries pass the Critical mass criterion;
- 50 industries pass the Specialisation criterion;
- 42 industries pass both criteria jointly;
- 60 industries pass the Relative wages criterion;
- 33 industries pass both criteria for Critical Mass and Relative wages;
- 13 industries pass all criteria: Critical Mass, Specialisation and Relative wages.

Based on passing all criteria, the following 13 industries have a static economic potential:

- **B06.1** Extraction of crude petroleum
- **B07.2** Mining of non-ferrous metal ores
- **B09.1** Support activities for petroleum and natural gas extraction
- **C11** Manufacture of beverages
- **C19.2** Manufacture of refined petroleum products
- **C23.5** Manufacture of cement, lime and plaster
- **D35.1** Electric power generation, transmission and distribution
- **F42.1** Construction of roads and railways
- **J60.1** Radio broadcasting
- **J60.2** Television programming and broadcasting activities
- **J61.1** Wired telecommunications activities
- **J61.3** Satellite telecommunications activities
- **N82.2** Activities of call centers

The dynamic analysis identified those industries in which Albania is not currently showing a strong specialisation compared to the EU27 nor have sufficiently high average wages. Nonetheless, these industries show upward growth trends that may lead to a point in time where they meet the criteria fulfilled to be an industry with a current economic potential.

The dynamic analysis gives the following results:

- 62 industries pass the trend for Number of employees criterion;
- Combining Critical Mass and trend for Number of employees, 30 industries pass both criteria;
- 94 industries pass the trend for Average wages per employee criterion;
- Combining Critical Mass and trend for Average wages per employee, 55 industries pass both criteria;
- Combining Critical Mass, trend for Number of employees and trend for Average wages per employee, 16 industries pass all criteria.

Based on passing all criteria, the following 16 industries have a dynamic economic potential:

- **C10.8** Manufacture of other food products
- **C13.9** Manufacture of other textiles
- **C24.5** Casting of metals
- **C25.9** Manufacture of other fabricated metal products
- **C32.4** Manufacture of games and toys
- **E38.1** Waste collection
- **F42.2** Construction of utility projects
- **F43.1** Demolition and site preparation
- **G46.1** Wholesale on a fee or contract basis
- **G47.4** Retail sale of information and communication equipment in specialised stores
- **I55.9** Other accommodation
- **J56.1** Restaurants and mobile food service activities
- **J61.3** Satellite telecommunications activities
- **N80.2** Security systems service activities
- **N82.2** Activities of call centers
- **N82.9** Business support service activities n.e.c.

Only two industries have both a static and a dynamic economic potential:

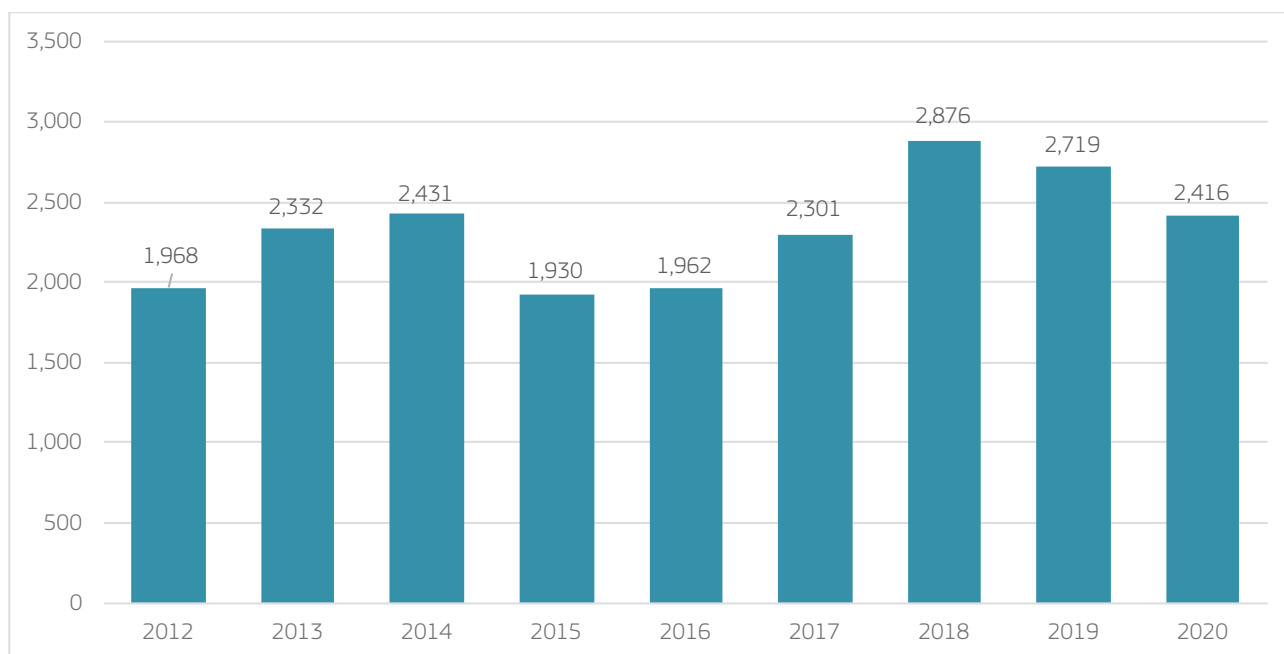
- **J61.3** Satellite telecommunications activities and
- **N82.2** Activities of call centers

Annex 1 shows detailed results for both the static and dynamic analysis.

3.4 Exports of goods analysis

A further step of the economic analysis has focused on Exports of goods in order to assess the competitiveness of industries. Data on goods exports are used to identify in which products Albania has a trade specialisation compared to the EU. Export data are available at the HS¹⁷ 4-digit level from UN Comtrade¹⁸. Figure 8 below reports the value of goods exports for the period 2012-2020, which shows a downward trend in 2015 and 2016. This was most probably due to the sharp decrease of exports in the industry of *Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes (HS27)* that is the largest exports activity in the country.

Figure 8: Total Exports (2012-2020) (in million US\$)



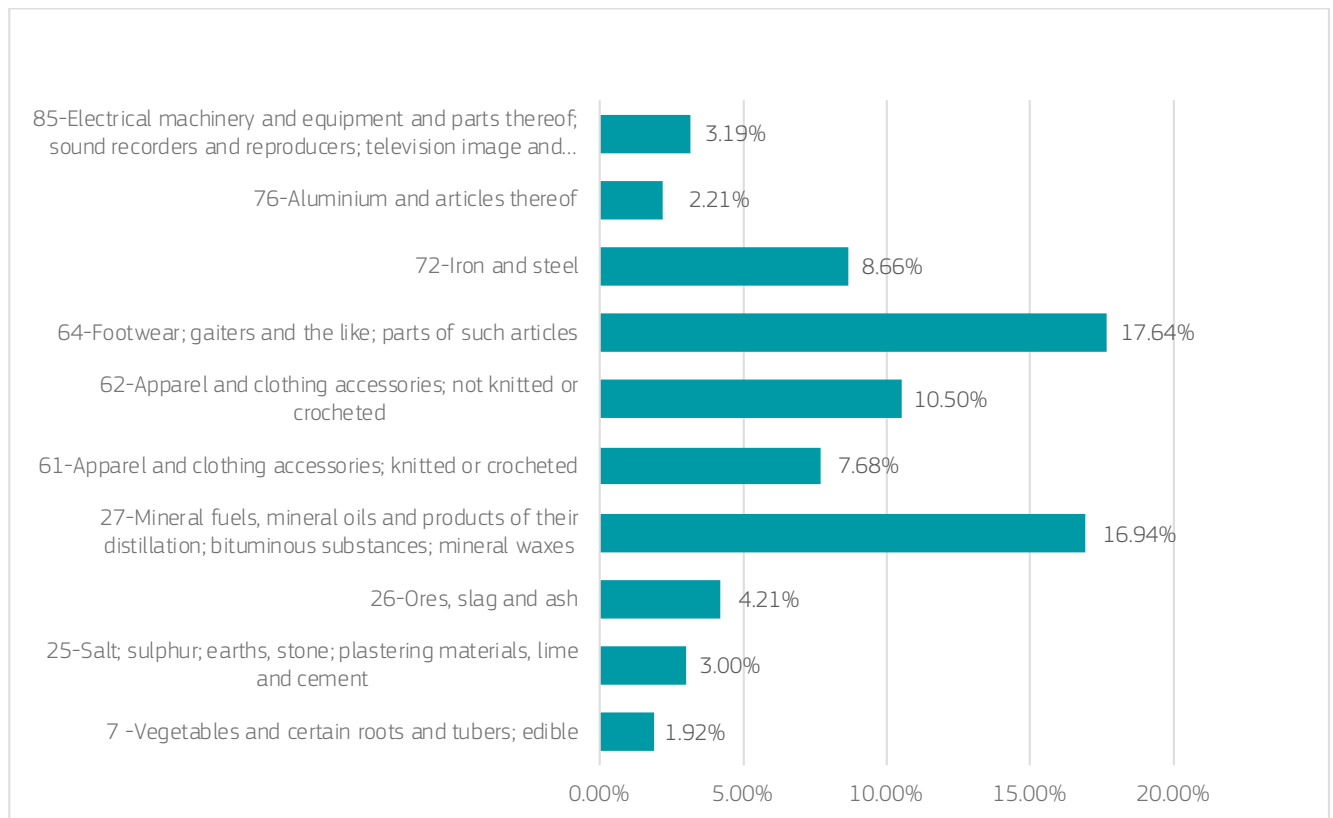
Source: UN Comtrade, author's elaboration

Figure 9 shows the 10 largest export sections based on average 2012-2020 export value. The leading export industry is HS64 - *Footwear, gaiters and like, parts of such articles* with 17.64% of total goods exports followed by HS27 - *Mineral fuels, mineral oils and products of their distillation* with 16.94%, and HS62 - *Apparel and clothing accessories not knitted or crocheted* with 10%.

¹⁷ Harmonized System classification. <https://www.foreign-trade.com/reference/hscode.htm>

¹⁸ <https://comtrade.un.org/Data>

Figure 9: Top 10 exports per product category HS Classification 2-digit), cumulative for 2012-2020 (in million US\$)



Source: UN Comtrade, author's elaboration

The exports analysis is in line with the potential economic industries. Most of the 10 largest export industries and their sub categories match with the results of the mapping of economic potential. Categories such as *HS27- Mineral fuels, mineral oils and products of their distillation*, *HS72 - Iron and steel*, *HS76 - Aluminium and articles thereof*, match with industries *B06.1 Extraction of crude petroleum*, *B09.1 Support activities for petroleum and natural gas extraction*. *HS64 - Footwear*, *HS62 - Apparel and clothing accessories not knitted*, and *HS61 - Articles of apparel and clothing accessories*, match dynamic potential industries such as *C13.9 Manufacture of other textiles*.

4. The quantitative analysis: the innovation potential

4.1 Data and Descriptive statistics

Innovation potential has been mapped by using firm data from years 2017 -2019 of the Innovation Activity Survey (INSTAT, 2020)¹⁹. The definition of innovative firms used in this Survey includes both firms that have existing product and/or business process innovations, and firms that developed in the past innovations that were however abandoned or unfinished during the reference period 2017-2019. Data are available only at NACE Rev.2, 1-digit industry level for the following variables, which makes the analysis less detailed in comparison to the one applied to the economic potential.

- Number of enterprises in the population;
- Number of innovative enterprises;
- Number of Product and/or business process innovative enterprises only;
- Share of innovative enterprises that invest in R&D;
- Share of enterprises that purchased new technologies not used in the enterprise before.

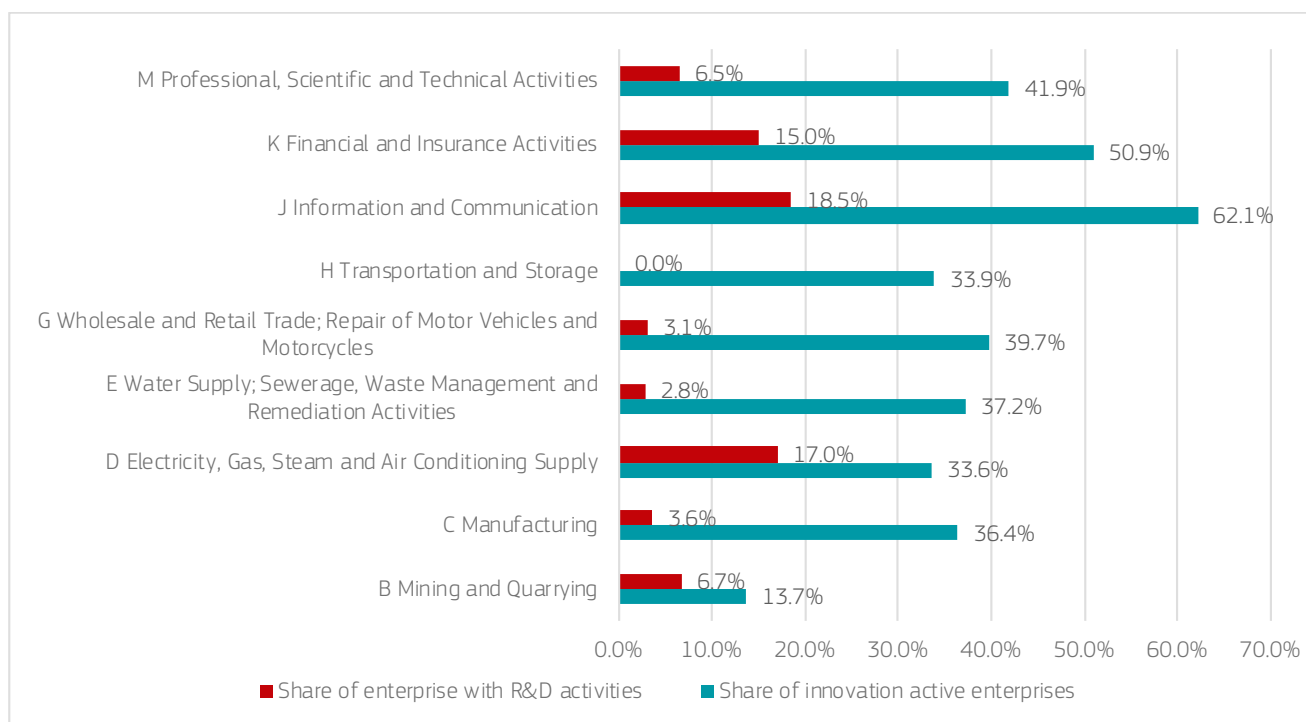
Figure 10 shows the share of innovation-active enterprises and the share of enterprises with R&D activities during the period 2017-2019. The data show that the largest share of innovation-active enterprises is in NACE J - Information and Communication (62.1%), followed by NACE K - Financial and Insurance Activities (50.9%) and NACE M - Professional, Scientific and Technical Activities²⁰ (41.9%). The smallest share of innovation active enterprises is in NACE B - Mining and Quarrying (13.7%).

The largest share of enterprises with R&D activities is also in NACE J - Information and Communication (18.5%), followed by NACE D - Electricity, Gas, Steam and Air Conditioning Supply (17%). In NACE H -Transportation and Storage no enterprises have R&D activities.

¹⁹ The Innovation Activity Survey was carried out on a representative sample by INSTAT in 2020. The population consists of all enterprises that, according to the Statistical Business Register, were active in December of the reference year. The sample frame covers 3,629 enterprises. The sample size comprises of 1,566 enterprises performing non-financial and financial activities in Albania according to the following size classes: small (10-49 employees), medium (50-249 employees) and large enterprises (250+ employees). The data were weighted and calculated on the level of the population of enterprises. The survey was done based on a stratified sample according to the size class of enterprises and according to activities (according to NACE Rev. 2): B Mining And Quarrying; C Manufacturing; D Electricity, Gas Steam and Air Conditioning Supply; E Water Supply, Sewerage, Waste Management and remediation Activities; G46 Wholesale Trade, Except of Vehicles and Motorcycles; H Transportation and Storage; J Information and Communication; K Financial and Insurance Activities; M71-73 Architectural and Engineering Activities; Technical Testing and Analysis; M72 Scientific Research and Development; M73 Advertising and Market Research.

²⁰ Legal activities; Accounting, bookkeeping and auditing activities-tax consultancy; Activities of head offices; Management consultancy activities; Architectural and engineering activities and related technical consultancy; Technical testing and analysis; Research and experimental development on natural sciences and engineering; Research and experimental development on social sciences and humanities; Advertising; Market research and public opinion polling; Specialised design activities; Photographic activities; Translation and interpretation activities; Other professional, scientific and technical activities n.e.c.

Figure 10: Share of innovation active enterprises & Share of enterprise with R&D activities

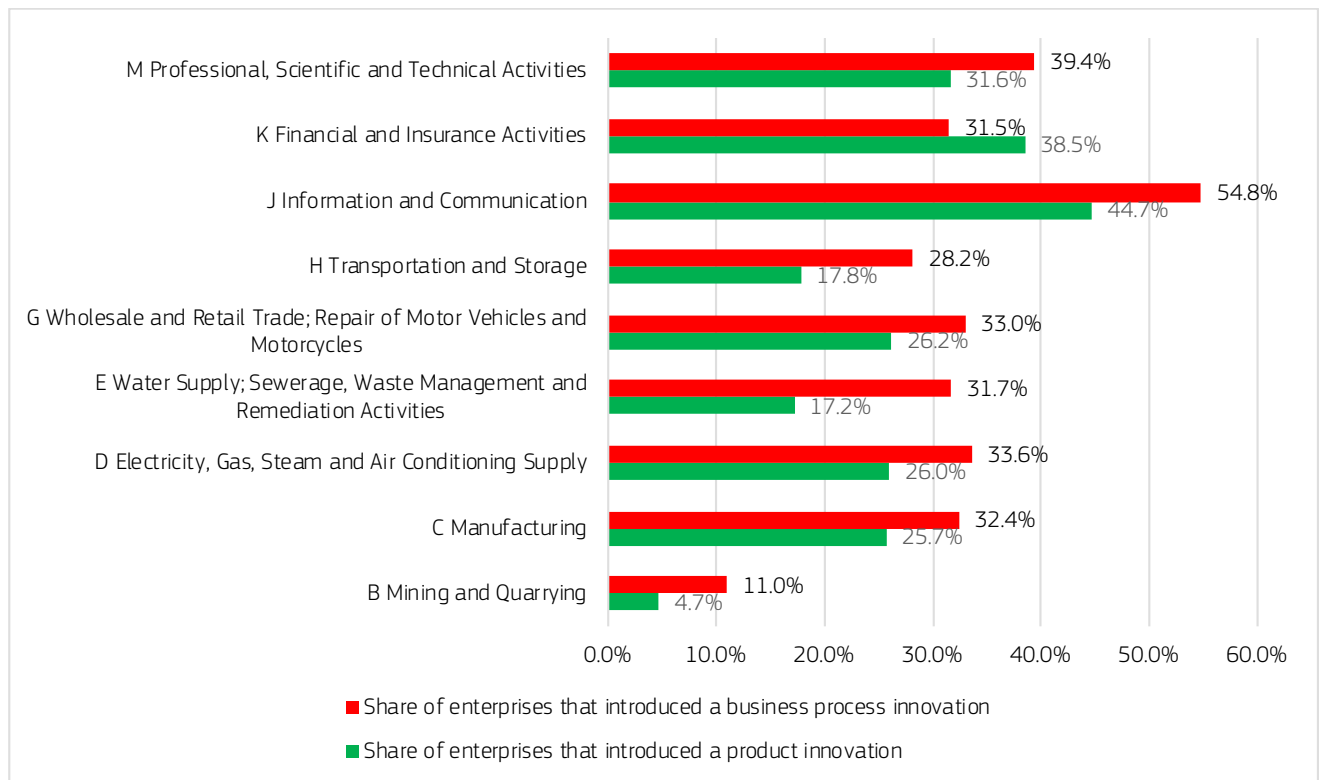


Source: INSTAT, author's elaboration

Figure 11 shows the share of enterprises that introduced a business process innovation and the share of enterprises that introduced a product innovation. The largest share of enterprises that introduced a business process innovation is in NACE J Information and Communication (54.8%), followed by NACE M Professional, Scientific and Technical Activities (39.4%).

The sector with the smallest percentage is NACE B Mining and Quarrying (11%), showing a big difference from the other sectors. NACE J Information and Communication is also the sector that has the largest share of enterprises that introduced a product innovation (44.7%), followed by NACE K Financial and Insurance Activities (38.5%). NACE D Electricity, Gas, Steam and Air Conditioning Supply has the smallest percentage of enterprises that introduced a product innovation (2.6%).

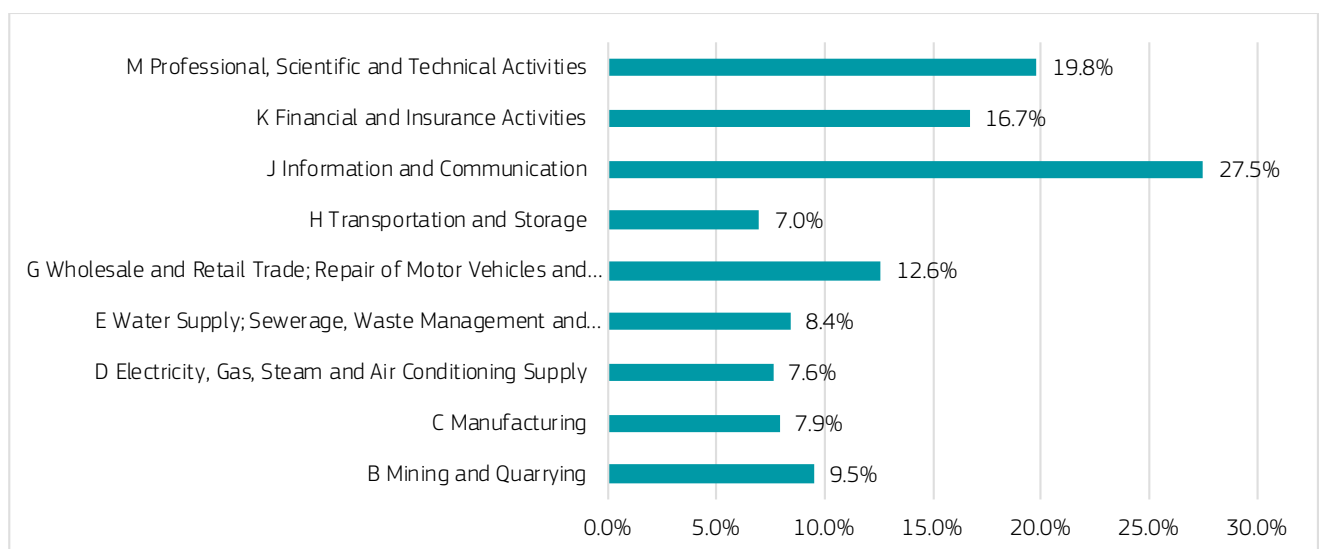
Figure 11: Enterprises that introduced a business process innovation or a product innovation



Source: INSTAT, author's elaboration

Figure 12 shows that NACE J Information and Communication has the largest share of enterprises that have purchased a new technology that was not used before (27.5%), followed by NACE M Professional, Scientific and Technical Activities (19.8%) and NACE K Financial and Insurance Activities (16.7%). NACE H Transportation and Storage has the smallest share of enterprises that has purchased a new technology (7%), followed by NACE D Electricity, Gas, Steam and Air Conditioning Supply (7.6%).

Figure 12: Share of enterprises that have purchased a new technology that was not used in the enterprise before



Source: INSTAT, author's elaboration

Information and communication (NACE J) shows the highest rates of innovative activities, followed by Financial and insurance activities (NACE K) and Professional, scientific and technical activities (NACE M). These results would suggest that the following industries identified as having an economic potential, could also have an innovation potential (assuming that 2-digit industries show the same rate of innovation activities as the 1-digit section to which they belong)²¹:

- Current economic potential and innovation potential:
 - J60.1 Radio broadcasting
 - J60.1 Television programming and broadcasting activities
 - J61.1 Wired telecommunications activities

- Current and emerging economic potential and innovation potential:
 - J61.3 Satellite telecommunications activities

²¹ Financial and insurance activities (NACE K) was not included in the economic mapping analysis as data are not available.

5. The quantitative analysis: the scientific potential

To explore Albania's scientific potential the following indicators have been used:

- *scientific production* during 2010-2019 based on:
 - total number of scientific publications for each science field in Albania
 - total number of publications and citations in five Western Balkan countries (Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, Serbia)
 - degree of specialisation of Albania in the Western Balkan region for number of scientific publications.

- *technological production* during 2010 – 2018 based on:
 - number of patent applications

- *educational system* based on:
 - number of students enrolled in higher education (public and non-public universities) for the period 2010-2018;
 - number of students graduated in higher education (bachelor, master, doctoral) for the period 2015-2018;
 - number of students enrolled and graduated in upper education by structure of the education (gymnasium, VET, socio-cultural schools) for the period 2010-2018.

5.1 Scientific production

Table 2 presents the total number of scientific publications in Albania in 27 fields from 2010 to 2019. Medicine has the highest percentage with 15.1%, followed by Social Science with 12%, and Art and Humanities with 8.6%.

Table 2: Scientific Publications by fields

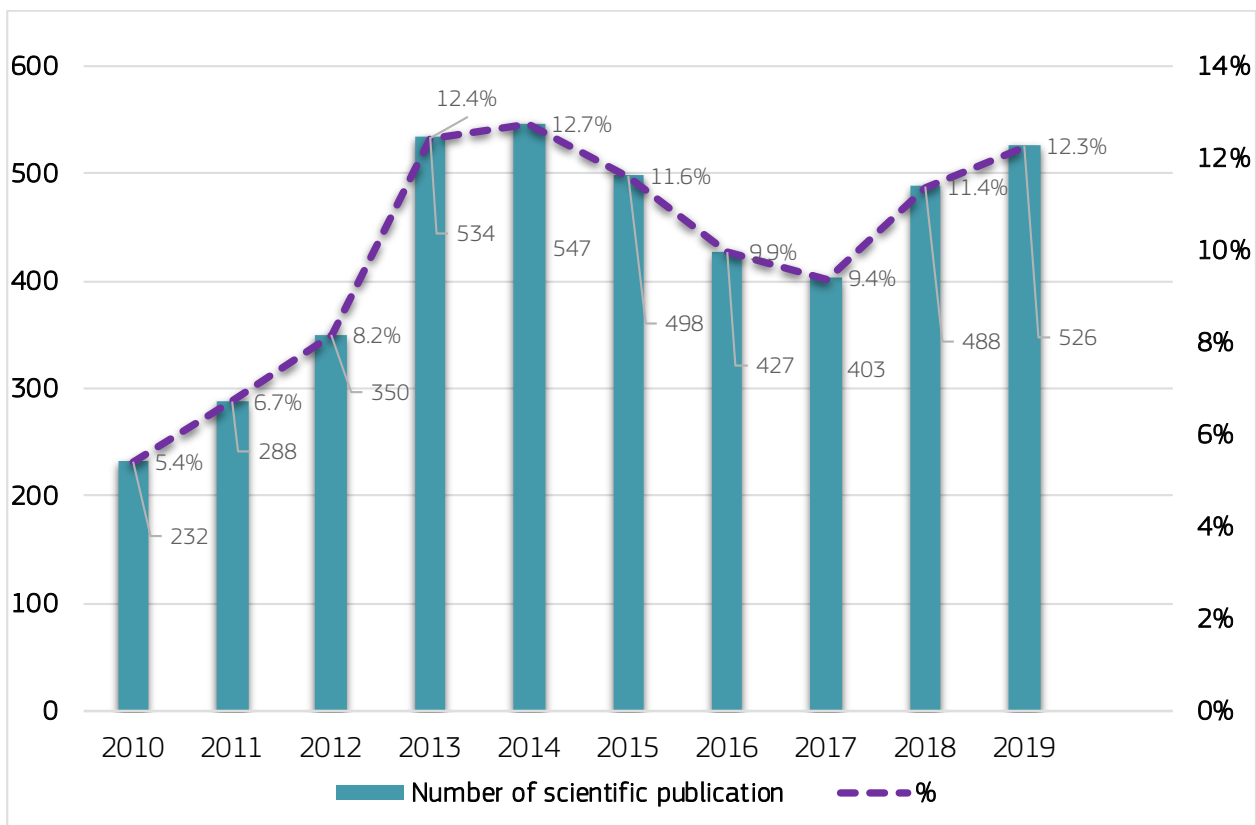
Scientific Publications by Fields	Number of scientific publications 2010-2019	%
1. Medicine	1,110	15.1%
2. Social Science	886	12.0%
3. Arts and Humanities	633	8.6%
4. Economics, Econometrics and Finance	621	8.4%
5. Computer Science	506	6.9%
6. Agricultural and Biological Science	476	6.5%
7. Environmental Science	466	6.3%
8. Engineering	427	5.8%
9. Earth and Planetary Science	270	3.7%
10. Mathematics	258	3.5%
11. Biochemistry, Genetics and Molecular Biology	246	3.3%
12. Physic and Astronomy	245	3.3%
13. Business, Management and Accounting	155	2.1%
14. Immunology and Microbiology	145	2.0%
15. Chemistry	138	1.9%
16. Material Science	132	1.8%
17. Veterinary	99	1.3%

18. Pharmacology, Toxicology and Pharmaceutics	87	1.2%
19. Dentistry	84	1.1%
20. Energy	81	1.1%
21. Health Professions	58	0.8%
22. Chemical Engineering	51	0.7%
23. Multidisciplinary	51	0.7%
24. Decision Science	43	0.6%
25. Psychology	37	0.5%
26. Nursing	33	0.4%
27. Nursing Neuroscience	27	0.4%
TOTAL	7,365	100%

Source: SJR (SC imago Journal and Country Ranking), author`s elaborations

Figure 13 shows the number of scientific publications for each year during the period 2010-2019. There is a continuous and steady growth of scientific publications, from 2010 to 2014. 2015-2017 shows a decrease in the number of publications related especially to Art & Humanities, Economics, Econometrics & Finance and Social Science, followed by a new increase during 2018-2019.

Figure 13: Trend in Number of scientific publications during 2010-2019



Source of data: SJR (SC imago Journal and Country Ranking), author's elaboration

The comparison of some important scientific specializations for the Western Balkan countries (Engineering, Economics, Econometrics, Medicine, Agriculture and Biological Sciences, Arts and Humanities, Computer Science, Environmental Science and Social Science) presented in the number of scientific publications and citations in the

period 2010-2019, is given in Table 3. It is calculated on a logarithmic scale. i.e. the numbers show the logarithm of the total number of publications and total number of citations for each scientific field, to clearly understand the weight of citations compared to the actual number of publications.

Table 3: Relevant scientific specialisation in the Western Balkans (total of publications and citations in logarithmic scale)

	Albania	Bosnia and Herzegovina	Montenegro	North Macedonia	Serbia
Agricultural and Biological Science	2.68	2.94	2.81	2.88	3.90
Citation	3.48	3.69	3.50	3.75	4.75
Economics, Econometrics and Finance	2.79	2.28	2.21	2.40	3.02
Citation	2.55	2.73	2.77	2.96	3.50
Engineering	2.63	3.37	2.99	3.24	4.18
Citation	3.01	3.99	3.85	3.89	4.98
Medicine	3.05	3.59	2.89	3.39	4.31
Citation	4.12	4.55	3.79	4.63	5.37
Arts and Humanities	2.80	2.64	2.34	2.33	3.28
Citation	3.05	3.23	2.37	3.12	3.96
Computer Science	2.70	3.29	2.88	3.27	3.95
Citation	3.14	3.84	3.57	3.85	4.63
Environmental Science	2.67	2.75	2.53	2.67	3.65
Citation	3.42	3.56	3.18	3.65	4.59
Social Science	2.95	3.00	2.64	2.93	3.71
Citation	3.04	3.42	2.92	3.30	4.26

Source: SJR (SC imago Journal and Country Ranking), author's elaboration

Table below shows that Albania has high shares of publications in Medicine (15.1%); Social Sciences (12%); and Arts and Humanities (8.6%). Montenegro in Engineering (14.7%); Medicine (11.9%) and Computer Science (11.5%), Bosnia and Herzegovina in Medicine (23.3%), Engineering (14.2%), and Computer science (11.8%); North Macedonia in Medicine (17.4%); Computer Science (13.1%) and Engineering (12.1%) and Serbia in Medicine (16.1%); Engineering (12.1%) and Science and in Physics and Astronomy (8%).

Table 4: Scientific publications by science field (2010-2019)

Science field	Albania	Montenegro	Bosnia and Herzegovina	North Macedonia	Serbia
Agricultural and Biological Science	6.5%	9.9%	5.3%	5.3%	6.3%
Arts and Humanities	8.6%	3.3%	2.6%	1.5%	1.5%
Biochemistry, Genetics and Molecular Biology	3.3%	3.2%	3.6%	4.1%	6.2%
Business, Management and Accounting	2.1%	2.8%	1.8%	2.3%	1.0%
Chemical Engineering	0.7%	1.1%	2.1%	1.9%	2.9%
Chemistry	1.9%	2.4%	2.1%	3.8%	6.0%
Computer Science	6.9%	11.5%	11.8%	13.1%	7.2%
Decision Science	0.6%	0.9%	1.1%	1.1%	0.7%
Dentistry	1.1%	0.1%	0.4%	0.3%	0.4%
Earth and Planetary Science	3.7%	3.1%	1.7%	2.6%	2.2%
Economics, Econometrics and Finance	8.4%	2.4%	1.1%	1.8%	0.8%
Energy	1.1%	2.4%	2.6%	2.4%	2.5%
Engineering	5.8%	14.7%	14.2%	12.1%	12.1%
Environmental Science	6.3%	5.1%	3.4%	3.3%	3.6%
Health Professions	0.8%	1.7%	1.3%	0.8%	0.7%

Immunology and Microbiology	2.0%	0.5%	1.0%	1.0%	1.3%
Material Science	1.8%	2.5%	2.6%	2.7%	5.1%
Mathematics	3.5%	6.3%	4.3%	5.3%	5.6%
Medicine	15.1%	11.9%	23.3%	17.4%	16.1%
Multidisciplinary	0.7%	0.4%	0.5%	0.8%	0.6%
Neuroscience	0.4%	0.3%	0.4%	0.9%	1.0%
Nursing	0.4%	0.3%	0.4%	0.2%	0.4%
Pharmacology, Toxicology and Pharmaceutics	1.2%	0.8%	1.2%	1.5%	2.2%
Physic and Astronomy	3.3%	5.4%	3.5%	5.1%	8.0%
Psychology	0.5%	0.2%	0.9%	1.6%	0.7%
Social Science	12.0%	6.6%	6.0%	6.0%	4.1%
Veterinary	1.3%	0.2%	0.8%	1.2%	0.7%

Source: SJR (SC imago Journal and Country Ranking), author's elaboration

In order to analyse deeper the scientific specialisation in Albania compared to the Western Balkan region, a Location Quotient has been used.

$$LQ_i = (e_i/e)/(E_i/E)$$

where

e_i = number of publications in scientific field i in Albania

e = total number of publications in Albania

E_i = number of publications in scientific field i in the benchmark economy (here: WBs)

E = total number of publications in the benchmark economy (here: WBs)

Table 5 shows three scientific fields in which Albania has publication shares which are highly above those in the other WB countries for the reference period: Economics, Econometrics and Finance (LQ= 6.324), Arts and Humanities (LQ= 4.277), Dentistry (LQ= 2.901). Other areas in which Albania shows a scientific specialisation include Social Science (LQ= 2.468), Veterinary (LQ= 1.786), Environmental Science (LQ= 1.695), Earth and Planetary Science (LQ=1.622), Immunology and Microbiology (LQ=1.613), and Business, Management and Accounting (LQ= 1.591).

Table 5: Scientific specialisation areas in Albania for period 2010-2019

Areas	Number of publications in the region						LQ - WB5 weighted Albania
	Albania	Montenegro	Bosnia and Herzegovina	North Macedonia	Serbia	TOTAL	
Agricultural and Biological Science	476	650	877	759	7894	10656	1.032
Arts and Humanities	633	218	433	215	1921	3420	4.277
Biochemistry, Genetics and Molecular Biology	246	214	607	581	7776	9424	0.603
Business, Management and Accounting	155	186	304	325	1281	2251	1.591
Chemical Engineering	51	71	344	272	3601	4339	0.272
Chemistry	138	157	351	547	7570	8763	0.364
Computer Science	506	758	1967	1872	8968	14071	0.831
Decision Science	43	62	179	164	937	1385	0.717
Dentistry	84	7	74	42	462	669	2.901
Earth and Planetary Science	270	203	283	373	2717	3846	1.622
Economics, Econometrics and Finance	621	161	191	253	1043	2269	6.324
Energy	81	158	427	343	3149	4158	0.450
Engineering	427	969	2369	1722	15126	20613	0.479
Environmental Science	466	338	564	473	4512	6353	1.695
Health Professions	58	110	223	114	884	1389	0.965
Immunology and Microbiology	145	36	159	139	1598	2077	1.613
Material Science	132	165	427	380	6393	7497	0.407
Mathematics	258	412	721	761	6959	9111	0.654
Medicine	1110	784	3899	2479	20220	28492	0.900
Multidisciplinary	51	24	83	111	789	1058	1.114
Neuroscience	27	19	75	129	1232	1482	0.421
Nursing	33	18	62	29	552	694	1.099
Pharmacology, Toxicology and Pharmaceutics	87	52	194	215	2713	3261	0.616
Physic and Astronomy	245	357	591	721	10079	11993	0.472
Psychology	37	15	154	233	904	1343	0.637
Social science	886	433	1010	857	5108	8294	2468
Veterinary	99	14	132	168	868	1281	1.786

Source: SJR (SC imago Journal and Country Ranking), author's elaboration

Dividing the 2010-2019 period into 3 periods of 4 years each with one overlapping year, reveals changes in specialisation patterns. Albania is specialized in the field Immunology and Microbiology in all 3 periods. Earth and Planetary Science, Environmental Science, Veterinary, Multidisciplinary fields are specialized in 2010-2013 period. Arts and Humanities, Economics, Econometrics and Finance and Social Science are specialized scientific areas in two time periods covering 2010 to 2016. For Dentistry specialisation is increasing from 2013 to 2019.

Table 6: Scientific specialisation areas in Albania divided into 3 periods ²²

	Period 2010-2013	Period 2013-2016	Period 2016-2019
Areas	LQ - WB5 unweighted Albania	LQ - WB5 unweighted Albania	LQ - WB5 unweighted Albania
1. Agricultural and Biological Science	0.947	0.772	1.148
2. Arts and Humanities	2.994	2.804	1.151
3. Biochemistry, Genetics and Molecular Biology	0.583	0.619	1.099
4. Business, Management and Accounting	1.385	0.776	1.097
5. Chemical Engineering	0.415	0.219	0.565
6. Chemistry	0.610	0.422	0.755
7. Computer Science	0.634	0.615	0.820
8. Decision Science ²³	0.255	0.781	0.673
9. Dentistry	0.684	1.541	3.238
10. Earth and Planetary Science	1.705	1.215	1.271
11. Economics, Econometrics and Finance	3.628	3.285	1.388
12. Energy	0.328	0.391	0.636
13. Engineering	0.422	0.391	0.649
14. Environmental Science	1.638	1.392	1.390
15. Health Professions	1.092	0.798	0.600
16. Immunology and Microbiology	1.562	1.512	1.977
17. Material Science	0.605	0.467	0.719
18. Mathematics	0.689	0.555	0.804
19. Medicine	0.681	0.808	1.112
20. Multidisciplinary ²⁴	1.581	0.916	1.142
21. Neuroscience	0.354	0.347	0.925
22. Nursing	1.452	0.847	1.512
23. Pharmacology, Toxicology and Pharmaceutics	0.737	0.758	0.957
24. Physic and Astronomy	0.579	0.481	0.857
25. Psychology	0.531	0.374	0.945
26. Social Science	1.925	2.111	1.221
27. Veterinary	2.004	1.054	1.456

Source: SJR (SC imago Journal and Country Ranking), author's elaboration

5.2 Technological production

In the field of intellectual property rights, Albania has recently made progress thanks to the legislative alignment with the EU acquis, especially in relation to trademarks and legal protection of designs, patents for inventions and utility models. In 2018, the number of applications to registered trademarks rose by 24.4% compared to 2017²⁵.

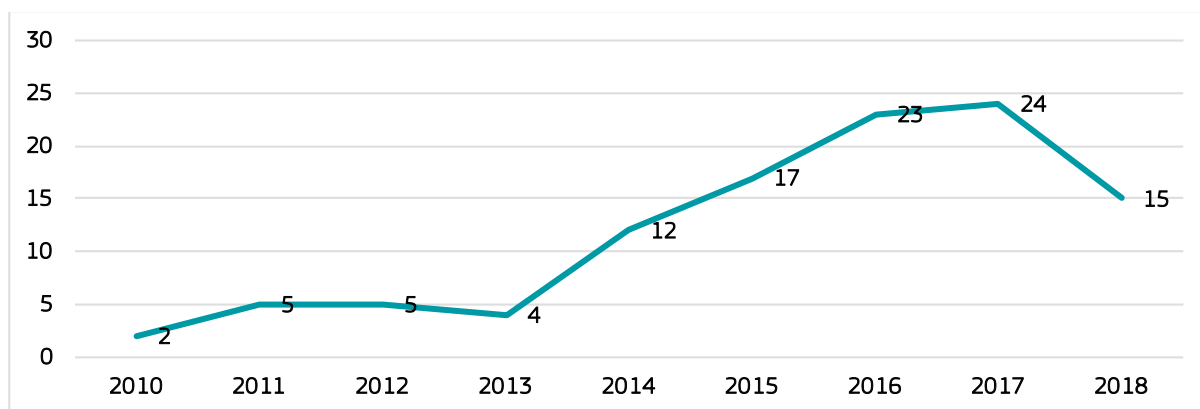
²² Table 6 uses unweighted results as otherwise aggregate WB results would be dominated by the results for Serbia where scientific production is much larger than in the other countries.

²³ Includes categories such as: Information System and Management; Management Science and Operation Research; Statistics, Probability and Uncertainty.

²⁴ Scientific area "Multidisciplinary" of the SJR classification cannot be directly matched with an appropriate scientific area of the WoS and National University Library classifications, but it refers to all of the areas equally.

The number of patent applications is small, with less than 10 patent applications per year until 2013, and then increasing to 24 patent applications in 2017 (Figure 14). These are mostly concentrated in the fields of Mechanics, Electromechanical, Hydropower/Energetic industry, and Pharmaceutical (Table 7).

Figure 14: Number of national patent applications for all fields, 2010-2018



Source: MFE, author's elaboration

Table 7: Number of patent applications during period 2010-2018, cumulative

Field of application	Number of applications for 2010-2018
Electromechanical	23
Hydropower/energetic industry	15
Mechanics	11
Information technology	9
Pharmaceutical	8
Heavy industry (hydrocarbons)	7
Energetic industry	6
Food industry	6
Chemical industry	4
Light industry	4
Concrete industry	3
Art, composition	2
Textile industry	2
Art, Ceramic	1
Electrical	1
Electrophysical	1
Electrotechnical	1
Energetic	1
Hydropower industry	1
Phytotherapy	1

Source: MFE, author's elaboration

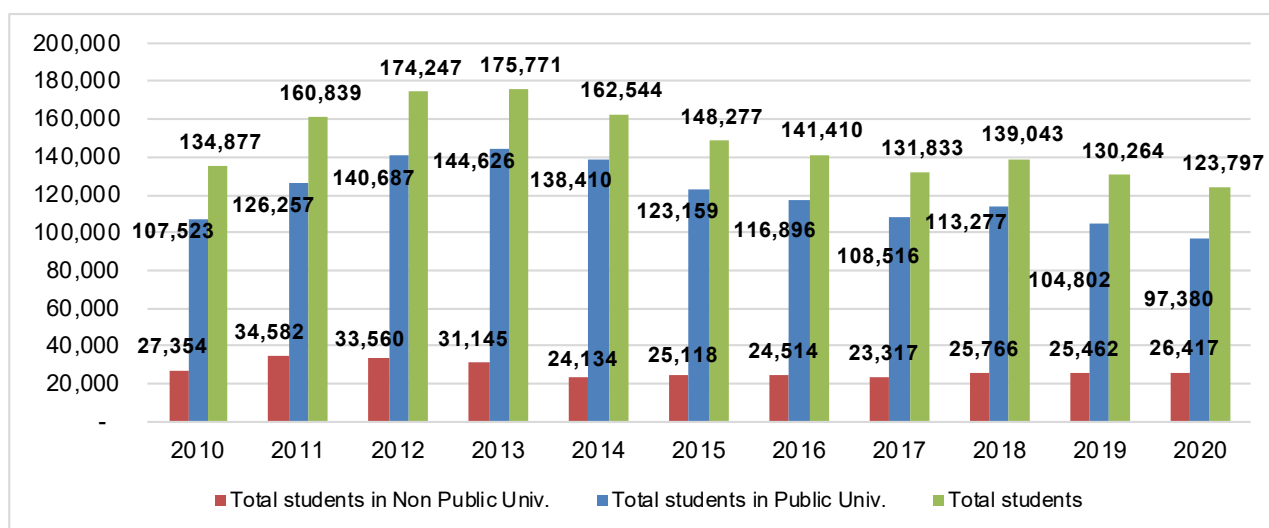
²⁵ <https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/20190529-albania-report.pdf>

5.3 Education Indicators

In spite of continuous progress and high access to primary and basic education with a Net Enrolment Rate of 96%, Albania struggles with improving equity and quality criteria in order to bring them in line with the Sustainable Development Goals (SDG-4) and national education goals.²⁶

Figure 15 shows the number of students enrolled in higher education for the period 2010-2020, by typology of institution. The number of students enrolled in higher education has been fluctuating over time along a decreasing trend. After reaching a peak in in 2013 (approximately 176,000 students enrolled) it decreased with a slight upward trend in 2018. Around 80% of total students are enrolled in public universities, the remaining 20% in non-public universities. University of Tirana leads for the number of enrolments followed by University of Durrës and the Polytechnic University.

Figure 15: Students enrolled in Higher Education per typology of institution, 2010-2020

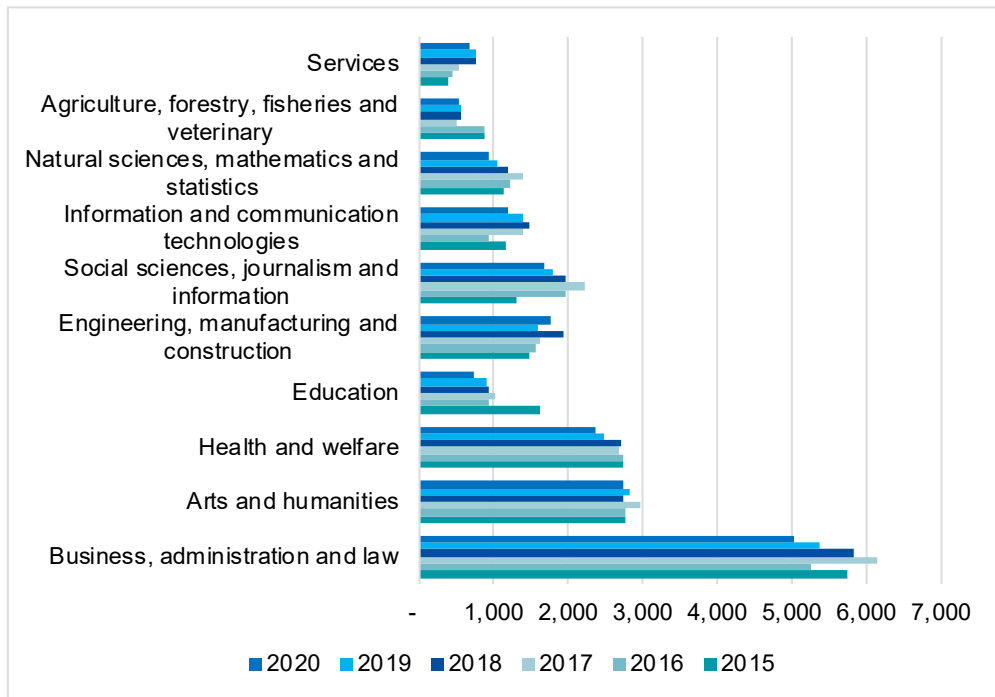


Source: INSTAT, author's elaboration

The highest number of graduated students has been in Business, administration and law, with a peak in 2017, followed by Arts and humanities and Health and welfare (Figure 16).

²⁶ <https://www.unicef.org/albania/education>

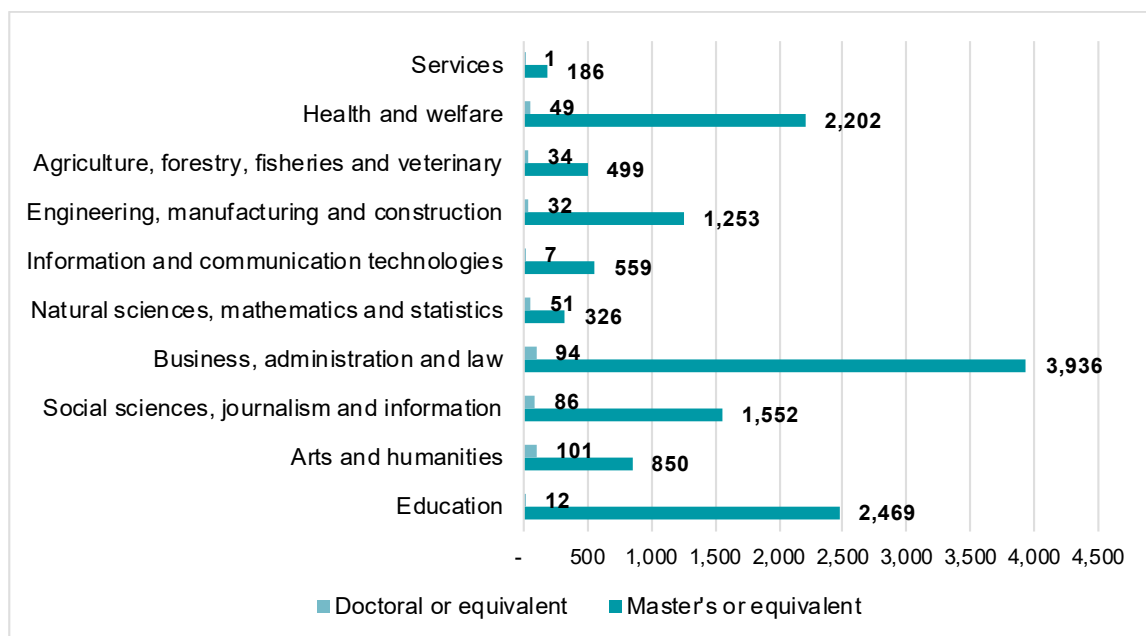
Figure 16: Number of students graduated in higher education per area (bachelor or equivalent), 2015-2020



Source: INSTAT, author's elaboration

Figure 17 shows the number of students graduated in master's and doctoral level, respectively during the period 2015-2020. Doctoral level shows very small numbers in comparison to the master's category. The Business, administration and law area is the one having the highest number of master's graduates, followed by Education, and Health and welfare. As for the doctoral level Art and Humanities is leading, followed by Business, administration and law. In both cases, Services and Natural sciences, mathematics and statistics areas are lagging behind.

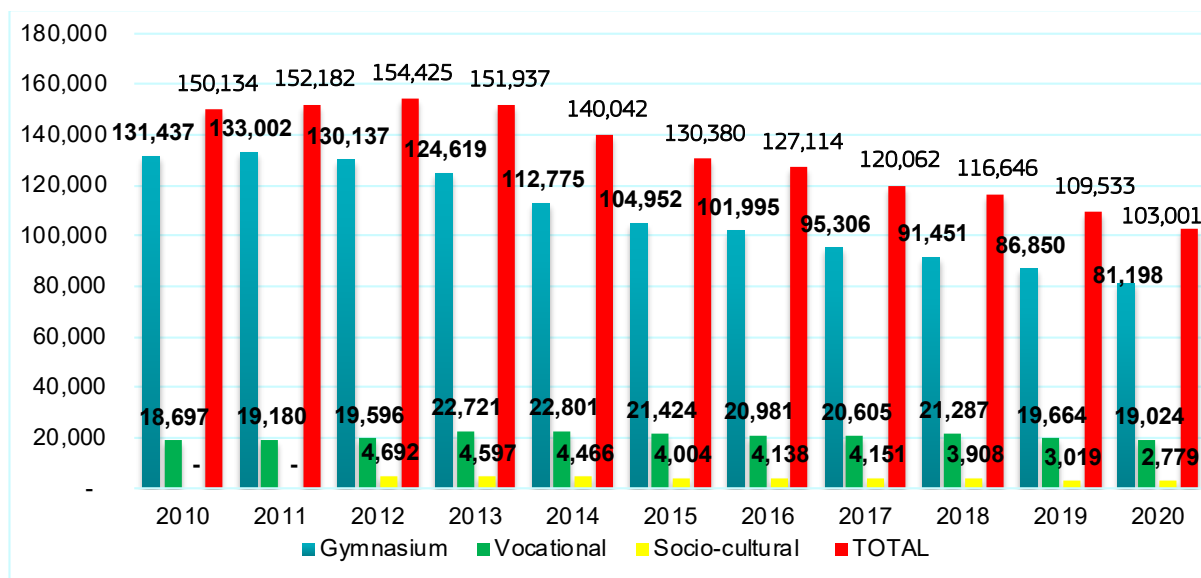
Figure 17: Average number of students graduated in higher education (master`s, doctoral or equivalent) 2015-2020



Source: INSTAT, author's elaboration

Looking at secondary education in Figure 18, the average number of students enrolled over 2010-2020 is approximately 138,111 students, with the highest number in 2012 (154,425 students). Gymnasium shows the highest trend of all three categories considered (with vocational and socio-cultural²⁷ schools as well). After 2012 registration numbers decrease steadily.

Figure 18: Number of students enrolled in upper secondary education by structure of the education, 2010-2020



Source: INSTAT, author's elaboration

6 Outcomes and next steps

The previous sections showed the results of the analysis of the economic, scientific and innovation potential for Smart Specialisation in Albania. In general, the availability of data varied for each of the three potentials. For the economic potential, data on employment and wages were available at NACE 3-digit while for exports classification HS2-4digit was chosen. Data on innovation were available at 1 NACE 1-digit for R&D activity, use of new technologies, product innovation and process innovation. For the scientific potential data have been available at the level of the fields of science from one international source (Scimago).

Regarding the economic potential, the static analysis identified 13 industries, and the dynamic analysis 16 industries. Static economic potential emerges in domains such as Mining and quarrying, Manufacture, Electric Power, Construction, TV and Telecommunication businesses and Call centers, whereas dynamic potential is found in sectors such as Services, including service contracts, mobile food service activities, satellite telecommunications, security systems, call centers, and business support activities.

Two industries are found to have both static and dynamic potentials: J61.3 Satellite telecommunications activities and N82.2 Activities of call centers.

When we look at Exports of goods, the analysis identifies 10 largest subsections, including the most important ones: **64** Footwear; with outer soles and uppers of rubber or plastics (excluding waterproof footwear), and **27** Petroleum oils and oil obtained from bituminous minerals; crude.

Matching the results from the economic potential and innovative potential analyses, assuming that 2-digit industries show the same performance as the 1-digit industry to which they belong, a first selection of industries lead to the following:

- Current economic potential and innovation potential:

²⁷ According to INSTAT, socio-cultural refers to secondary education in the field of art, sports and foreign languages.

- J60.1 Radio broadcasting
- J60.1 Television programming and broadcasting activities
- J61.1 Wired telecommunications activities
- Current and emerging economic potential and innovation potential:
 - J61.3 Satellite telecommunications activities

Finally, as for the scientific mapping, the analysis has shown that the number of scientific publications is generally increasing and the fields having a scientific potential are: Social Sciences, Arts and Humanities, Economics, Econometrics and Finance, Dentistry, Immunology and Microbiology and Veterinary.

A full match between the three pillars would be almost impossible, due to the different availability and level of coverage of data. It appears more efficient to make a connection between economic and innovation potential although the latter is at the 1-digit level. According to data, the industry that fits this connection is J61.3 Satellite telecommunications activities. As for the scientific mapping the unit of analysis is not the industry but the field of science.

Likewise, considering that agriculture occupies a relatively high weight in the country's GDP and dominates the employment market, the qualitative analysis and the EDP could provide more detailed information and help to identify challenges related to innovative processes in the sector (modernization of production methods through new technologies) and R&D activities.

Industries that are good candidates for the upcoming phases of Smart Specialisation design are those that would potentially provide the largest increase in wages and employment from targeted research and innovation investment, as well as those with existing development and support programs.

- **(NACE A) – Agriculture, forestry and fishing**
 - A01.6 - Support activities to agriculture and post-harvest crop activities
 - A03.21 - Marine aquaculture
 - A03.1 – Fishing
- **(NACE C) – Manufacturing**
 - C10.8 - Manufacture of other food products
 - C24.5 Casting of metals
- **(NACE I) – Accommodation and support service activities**
 - I55.9 – Other accommodation
- **(NACE J) – Information and Communication**
 - J61.3 – Satellite telecommunications activities
 - J62.09 – Other Information technology
- **(NACE N) – Administrative and support service activities**
 - N82.2 – Activities of call centers
 - N82.9 – Business support services activities

Energy is also an area where there is potential for smart and innovative growth in the future.

7 The qualitative analysis: methodological framework and data collection

In order to support the national authorities in the follow up activities and complement the quantitative analysis, a qualitative analysis was conducted. This enabled to delve deeper into the pre-selected domains and explore current and future perspectives for the EDP, by collecting non-numerical data on intangible factors.

Main results from qualitative data collection have been systemized according to the identified domains. Cross-sectorial areas with relative opportunities and bottlenecks have been detected.

Information/data collection was done mainly through:

- a) a survey,
- b) in-depth interviews (IDIs)

Both were run by a local expert, responsible for preparing the list of stakeholders and the questionnaires, in collaboration with the Albanian Government. Albanian language was used to facilitate participation and inclusion.

A detailed description of the comprehensive methodological approach used for the qualitative study, including the survey and the IDIs is reported in Annex A.

Survey

The survey, composed almost only of closed-ended questions, was sent to a longlist of relevant stakeholders from each of the pre-selected domains. It aimed at identifying the main characteristics of the actors and main features of their related sector or sub-sector.

Questionnaires were differentiated according to recipients (Businesses, Academia-Research Sector, Civil Society Organizations and Government), and structured around the following main challenge areas:

- *value chain;*
- *current competitive advantage;*
- *existing technologies;*
- *innovation potential;*
- *COVID-19 impacts and challenges.*

The survey was designed in Google Format with relevant links, and first launched on July 13, 2021, followed by a second launch mid-September, and closed end-October 2021. A relevant number of emails were returned back due to incorrect email addresses or other technical issues.

Below are reported the number of emails sent to the respective sectors and stakeholders:

In-Depth Interviews

IDIs were to verify or validate the main results from the quantitative analysis, focusing on the same topics addressed with the survey, but with a deeper level of detail. IDIs started in July 2021 and were completed in November 2021. Interviewees were selected by the local expert after consultation with the Government, the Chambers of Commerce and Unions. The annex D reports the list of key actors and institutions/organizations interviewed.

Again, four differentiated questionnaires for each stakeholder category were prepared.

Interviews were mainly conducted by telephone due to Covid restrictions, and introduced by description of the context and the purpose of the activity. They took around 50 minutes. In some cases, they were conducted by email.

<i>Stakeholder category</i>	<i>Emails sent for the Survey</i>	<i>Answers received for the Survey</i>	<i>IDIs</i>
Businesses	3564 ²⁸	62	28
Academia Research Sector:	75 (Research Institutions, HEIs)	10	12
Government:	21 (Ministries, Directorates and Agencies)	4	14
Civil Society Organizations:	376	27	6
Total	4036	103	60

8. Data analysis on each selected domain

In general, both in the case of the survey and IDIs, participants tended to answer with reference to the specific situation of their own organization, rather than focus on the sector. This has been particularly evident for non-business categories, i.e. Academia, Government, civil society/civil organizations. In these cases, in order to maximise accuracy interviews were integrated with findings from recent studies and analyses by international institutions (e.g. OECD, World Bank, UNIDO, EC).

Here below a brief description of each pre-selected priority domain.

8.1 Agriculture, forestry and fishing

“Support activities to agriculture and post-harvest crop activities”

Agriculture in Albania is a relevant sector. Geographical and natural features of the country are considered at the core of its strengths and a possible asset for further development opportunities: the Mediterranean climate, the hydrography and the position with two seas, the Adriatic and the Ionian Sea significantly favour several cultivations. Rainwater and groundwater sources are a valuable asset for irrigation, but also for energy production by small hydropower plants (Martinovska Stojcheska et al., 2021). Forests, pastures and meadows are suitable for animal husbandry, poultry, cultivation of medicinal plants and production of forest fruits. Protected areas in Albania are valued for the development of agritourism, beekeeping, production of medicinal plants, forest fruits, sports and recreational hunting (Martinovska Stojcheska et al., 2021).

Albania has a quite large variety of crop production with some specialisation fields:

- crops production is mainly composed of forage and cereals (36% and 25 % of crop area, respectively). The vegetable sector, although covering a smaller crop area, is a large contributor to income. The sector continues to experience a highly positive trend in terms of production, especially greenhouse agriculture, with the quantity produced in 2005 approximately doubling, reaching 1.166.000 tonnes (t) in 2018. (Martinovska Stojcheska et al., 2021);
- production of perennial crops, overall composed mainly of stone and pome fruits, citrus, grapes and olives, continues to increase²⁹.

²⁸ Of which: A01.6 Support activities to agriculture and post-harvest crop activities: 162; A03.21 Marine aquaculture, A03.1 Fishing: 413;C10.8 Manufacture of other food products: 333;C24.5 Casting of metals: 45;I55.9 Other accommodation: 279;J61.3 Satellite telecommunication activities & J62.09 Other Information technology: 1070;N82.2 Activities of call centres: 607;N82.9 Business support services activities: 595;D Electricity: 60;

According to OECD (2021), prior to pandemics, Albania experienced a decade of economic growth on yearly basis of around 3% and agriculture GVA gradually increased (up to EUR 2.5 billion in 2019) contributing in 2019 with 21% to the total economy. Rural areas are still quite populated³⁰.

In the last decade agrifood exports have continued to grow, the trade deficit has been increasing also in proportion of agrifood imports³¹. The EU remains Albania's most important market (both for exports and imports) of agrifood commodities³². Albanian agricultural exports are below potential but in certain productions - such as vegetable, tomatoes and salad cucumber - the country has a macro-regional competitive advantage.

Main academic actors in the sector are the Agricultural University of Tirana (AUT) and the University of Fan Noli Korçë. Both have more than 180 Ha of land available, various premises in several areas of the country, and several laboratories, including agrifood, soil and plant analysis, microbiology laboratories.

According to stakeholders, very relevant for the innovation potential of the sector is the system of Agricultural Technology Transfer Centres (ATTCs). Currently in Albania there are five ATTCs based on the merge of the previous research institutes operating under the Ministry of Agriculture, Food and Consumer Protection³³. ATTCs are located in FushëKruja, Vlora, Shkodra, Korça and Lushnja with different fields of intervention. Main tasks are related to the identification, testing, adaptation and introduction of new technologies, the production of certified seeds and seedlings, the provision of technical expertise to extension service staff and farmers, the support with data and information as well as the publishing of materials. The largest ATTCs (for annual income and percentage of own income) are: the one in Korça, mainly operating in fruit trees (apples), livestock (cows and small ruminants) and field crops, and the one in Lushnja, mainly operating in open-field and greenhouses vegetables and wheat. The main challenges regarding the ATTCs refer to low financial resources, lack of international connections (few international projects), low number of researchers, especially young researchers, low level of research outputs, need of advanced equipment and laboratories.

Other research institutions/organisations are the Food Safety and Veterinary Institute, the National Tobacco Agency and the National Entity of Seed and Sapling.

So far, the sector has suffered from the lack of investments especially in soil protection and risks of hydrogeological instability (e.g. the maintenance of dams and canals). However, it seems that significant public investments in the irrigation and drainage system are now planned which not only include the rehabilitation of the canals, but also the modernization of the whole system. Agriculture public expenditure is considered on the right track also to increase the competitiveness of the sector, with its focus on farm capital investments and rural development. Furthermore, Albania's increased focus on food safety and quality control is in line with the growing demand of processed food and agrifood exports; the support allocated under rural development programs (particularly farm modernization and food processing) is expected to increase employment.

Despite of the relevance of Albanian agricultural sector important challenges and threats are to be considered.

The sector consists of over 350 thousand farms, most of them with small and fragmented plots of 1 hectare on average, with the lowest value added per agricultural worker in the Western Balkan region.

²⁹ Production is boosted by a gradual increase in the planted area and improved production yields. The production of pome fruits (especially apple) and citrus has been growing from year to year, unlike grape and olive production, which has experienced a period of years with stable levels of production but has recently seen slight decreases (Martinovska Stojcheska et al., 2021).

³⁰ Currently in these areas live about 40% of the population but in the last decades there has been significant demographic change and since 2011 the urban population has been larger than the rural population.

³¹ The agriculture sector has gained in importance in terms of trade. Since 2013, there has been a considerable increase in agrifood exports as a proportion of total exports (12% in 2019), while the proportion of agrifood imports within total imports has been stagnating (17% in 2019). Despite the positive trends, the trade deficit has continued to gradually increase. Nevertheless, agrifood exports as a proportion of agrifood imports in Albania have continued to increase (from 12% in 2005 to 32 % in 2019 – the highest registered) (INSTAT, 2020).

³² EU is the main trade partner in agrifood with 67% of total agrifood exports and 62% of imports (2019). The Western Balkans countries are the destination of 25% of Albanian agrifood exports and are the origin of 11% of agrifood imports.

³³ 1) Institute of field crops, Fushë-Kruja 2) Vegetable and Potato Institute, Tirana, 3) Institute of Fruit crops, Vlora; 4) Institute of Animal Research, Tirana, 5) Maize Institute, Shkodra, and 6) Soil Research Institute (Zhllima, 2020).

Most of the production is for subsistence. Value chains are fragmented, and earnings are low. Farming often represents a source of both food and income security, and capital availability is low (Martinovska Stojcheska et al., 2021).

A third of agricultural workers are above 65 years of age and most have low educational levels; in the last decade the sector's contribution to total employment has decreased by 10%, mainly due to the diaspora, but also to an increase in productivity (Martinovska Stojcheska et al., 2021).

Education system in rural areas struggles with attracting qualified teachers, and attendance is lower than in urban areas. This is caused also by a mass exodus of youth, as well as shortcomings in vocational education. Young people are not enough trained or skilled to face the demand of labour market.

Concerning innovation, there are no formal sectoral clusters (although there are clustered producers in fruits, vegetable and medicinal and aromatic plants in Fier, Berat, Shkoder and Sarande). There are two business incubators in Tirana and Korçë which are officially serving to companies (not agricultural businesses, though) and two agriculture incubators. AIDA (Albanian Investment Development Agency) is also recognised as an important actor that may support firms with exports.

The success rate of Albanian institutions in Horizon is low. Interviewees refer that in 2020 a total of 319 eligible proposals were submitted to H2020 programme of which 40 grants were signed with a 10% success rate). Albania is ranked 14 out of 16 EU associated countries. According to the official data at the Funding & Tenders portal, only one SME from the food and agriculture sector was involved in projects as partners (Zhllima, 2020).

In general, universities are considered to have very limited funding, a weak orientation to research activities and limited research outputs³⁴. Nonetheless, they have quite good international relations, mainly with European research and academic institutions.

Technological innovation is considered very important by stakeholders to lower costs, increase productivity, production, asset/unit revenue, fill the gaps in the labour market, and to this extent producers associations can play an important role³⁵.

To export successfully, Albanian farmers need to increase production volumes and quality, by modernizing production and facilitate technology transfer. Building and/or strengthening farmer's associations and cooperatives could also help against the fragmentation of small land plots. Albania has few aggregation mechanisms, unlike many countries in the EU, where small producer associations and cooperatives play a critical role in linking smallholders with services.

Due to the average dimension of companies and lack of funding, cooperation between HEIs is quite rare. According to Zhllima (2020). Albania had the lowest university-industry research collaboration and the lowest rate of patents granted per million inhabitants in the region. Cooperation with the research could help increase the opportunities for the sector; recently, universities are taking a new role to facilitate the contact of students with the market, but Albanian universities deal with several challenges among which lack of knowledge of the national labour market and employability opportunities, high-level market informality.

Stakeholders consider specific agricultural sub-sectors as promising for start-ups. Some universities have recently started entrepreneurship programmes and enhanced the collaboration among institutions and between education and industry³⁶.

³⁴ Only one fourth of the publications are cited in impact factor journals and less than 10% of authors have a level of citations above 100. In particular according to the ranking in Scopus by H index (of 25 countries) often the Albanian ranking is lower than other Western Balkans countries (Zhllima, 2020).

³⁵ The MTEF has assisted and supported two member associations to build two electronic communication platforms, Albanian Dairy And Meat Association "ADAMA" and the Savings and Credit Association "Fed Invest" for the design and implementation of the electronic platform "ABA" Online. Sources for innovation have been the International Labor Organization (ILO) and the Japan International Cooperation Agency (JICA).

International cooperation within the industry is seen as an important driver to combine the modernization of sector, the quality of crops and the positioning in foreign markets. The position within the supply chains should be improved and relations with the food service and tourism sectors are considered as a good opportunity of growth.

Investments in mechanization are required in order to enhance quality and reach the production scales required to address foreign markets. In addition, investments in innovation and certification could help unveiling the potential related to premium price productions such as beekeeping, medicinal and aromatic plants and ecological fertilizer.

According to some of the interviewed stakeholders, Covid 19 had negative impacts, especially on employment, production and exports as well as firm survival besides a significant increase of labour cost and market prices. However, in a larger perspective the Covid outbreak does not seem to have changed the structure and the relevance of the sector for the Albanian economy.

From the survey, all companies plan to invest in technology in the next three years, mostly in order to follow market requirements. Inter-industry collaboration is considered very important especially for the implementation of new technologies. Keeping existing customers is seen as the main challenge with regards to Covid, as well as maintain networks and connections.

In table 8 main findings are reported with regards to main focuses of investigation.

Table 8: Agriculture at a glance, main findings from interviews and survey

Main focus	Main findings
Value chain	<ul style="list-style-type: none"> - Industry is mostly oriented to the internal market and composed of small size companies, with high level of informality and low productivity; - Size of companies is very small and so are land plots; - Despite of the high potential in terms of value added (i.e. medicinal herbs) most crops show low added value; - The largest part of the industry operates in cultivation and provision of raw materials in the first part of the value chain.
Current competitive advantage	<ul style="list-style-type: none"> - Competitive advantage is mainly based on low costs; - Crops are cultivated with limited additives and this opens to opportunities within the organic food sub-sector.
Existing technologies	<ul style="list-style-type: none"> - Basic level of modernisation.
Innovation potential	<ul style="list-style-type: none"> - There are indeed experiences reporting the use of robotization and automation solutions, as well as investments in innovation. Nonetheless, both the connectivity in rural areas, digital skills availability, and the high average age of workforce are relevant bottlenecks in the diffusion of innovation; - Main research and development activities carried out by companies are on safety and food security
COVID-19 impacts	<ul style="list-style-type: none"> - Limited impacts of the pandemic on the relevance and the structure of the industry. - Main post-covid challenges regard keeping existing customers as well as maintaining networks and connections

³⁶ For instance it has been signed a Memorandum of Cooperation with four Universities (Agricultural University of Tirana “AUT”, Luarasi University, Polis University and with Egerem Çabej University in Gjirokastra) and there are partnership between Universities and the National Chamber of Crafts of Albania for joint programs to provide support for the labour market.

“Fishing and aquaculture”

Albania has a high diversity of fish species. Total fishery production increased from 1,500 tons in 1950 to 12,483 tons in 2017 (with relevant differences among years). Although the catch has stabilized over the last few years, the FAO estimates that up to 80% of the fish stock within the Exclusive Economic Zone (EEZ) of Albania is overexploited. At moment, fish and seafood industry represents a small part of the national economy, but full with untapped opportunities³⁷, especially in terms of employment.

Average seafood consumption is low, but domestic demand is expected to grow with the improvement of standards of living and the estimated increase of GDP per capita³⁸. The market growth potential is much greater in the domestic market than in the export market, and the sector is expected to grow up to the 50% in 2030 (World Bank, 2020).

Albania has been active in the fish trade, facilitated by its proximity to the largest seafood markets in Europe. Besides its natural resources, main strengths in fish processing/trading industry are considered the low labour costs, the commercial/cultural links to neighbouring markets and the access to imported raw materials. These strengths are considered as points of competitive advantage, at the basis of the Albania's seafood export performances and able to overcome the constraint of inadequate fisheries resources (World Bank, 2020).

Concerning higher education institutions operating in this sector, based on stakeholders interviews, the University of Durrës is considered an important actor especially with the Department of Engineering Sciences and Maritime. There are laboratories operating in the field of maritime, automotive technology, electrical engineering and ship manoeuvring. To strengthen the market orientation support provided by universities cooperation between companies and universities is considered as relevant: so far among the +50 agreements signed with different companies the collaboration with the Durrës Port Authority is an important achievement; similarly study programs are on the way to be adapted in accordance with the labour market needs.

Main international collaborations are with EU universities in Erasmus and H2020 programmes.

From the academic perspective, the most promising innovation opportunities are considered coming from (a) the optimization, robotization of naval operations and (b) big data processing which could increase efficiency and the volume of goods for processing industry, as well as give a boost to the competitiveness of Albanian ports in terms of services provision.

Blue economy is seen by stakeholders as a good opportunity for new businesses. University of Durrës has a program that supports the integration of students in SMEs of the Blue Economy.

The need for a more efficient and sustainable industry is relevant. Both domestic and export demand can be expected to increase in the future, but according to the international observers (World Bank, 2019) the sector currently faces over-exploitation of fish stock and low productivity. To a wider extent the blue economy (as a sustainable and integrated economic development in healthy oceans) is considered by stakeholder as a way to a higher productivity of the sector while ensuring environmental sustainability and cultural acceptability³⁹.

Within this perspective, investments in pollution reduction are seen as necessary for preserving the environment, on the one side, and indirectly going towards more added value development opportunities, on the other side.

³⁷ The value of fish and seafood production in Albania in 2017 was US\$53 million (55% from marine fisheries production, 38% from aquaculture production, and 7% from inland fisheries production)

³⁸ Average seafood consumption is 5.3 kg per capita, which is far lower than its Mediterranean neighbours: 12.2 kg in Montenegro, 19.1 kg in Croatia, 20 kg in Greece, 25.9 kg in Italy, and 32.8 kg in Malta. However, real fish consumption is considered to be likely higher due to informal and unreported seafood sales.

³⁹ For an extensive description see also World Bank, 2020.

From the survey, provision/production is the main part of the value chain and positioning is mainly determined by experience on the market, knowledge and capacities. Main research and development activities regard safety and food security and to this regard the lack of technology is seen as one of the main weaknesses of the sector. Main challenges regarding digitalization are related to investments on equipment and systems. All the companies participating in the survey have taken environmental protection initiatives in the last year, and for those who are committed in innovation main drivers are better products/processes and market requirements.

In the table 9 main findings are reported with regards to main focus of investigation.

Table 9: Fisheries and aquaculture at a glance, main findings from interviews and survey

Main focus	Main findings
Value chain	<ul style="list-style-type: none"> - Industry is mostly oriented to the internal market and composed of small size companies; - The dimension of companies is very small and with regards to fisheries, operating with small and obsolete vessels; - The biggest part of the industry operates in the provision of fish;
Current competitive advantage	<ul style="list-style-type: none"> - Main competitive advantage is based on the low costs and up to now in the large provision of fish; - In a wider perspective fisheries and aquaculture could be very much integrated with other industry, in particular with tourism and catering;
Existing technologies	<ul style="list-style-type: none"> - The existing technologies correspond to a basic level of modernisation;
Innovation potential	<ul style="list-style-type: none"> - Main innovation potential is represented by the integration of supply chain, both horizontally and vertically. To this attempts main technologies are related to IT ;
COVID-19 impacts	<ul style="list-style-type: none"> - The industry has not been affected very much by the impact of the pandemics.

Source: own elaboration

8.2 Manufacturing

Industry represents an important part of the whole Albanian economy both in terms of GDP share and employment. In 2018, before the pandemic, industry's contribution to GDP was approximately equal to 21.3% (including construction). Major industries in which Albania are represented by mining, footwear, textiles and agribusiness. In 2018, manufacturing represented 5.9% of Albania's GDP. According to OECD (2019) more than 80% of manufactured goods are low value and low complexity, mainly based on low cost productions. Manufacturing integration in main global value chains is constrained by some infrastructural gaps, customs and logistics, challenges in the business environment, skills gaps and firms' limited capacities for technology adoption, limitations in access to finance, etc. Upgrading and diversification of the manufacturing sector could play a key role in boosting exports and GVC integration. Short- to medium term growth is expected through the expansion of agrifood processing, while in the long-term, potential for growth is identified in the automotive industry (vehicle and engine parts), machinery and metal processing".

"Agrifood processing"

Albania provides important opportunities of development, thanks to its favourable climate and low cost of labour. Furthermore, important investments have been made in recent years and the added value of the sector has continuously increased. According to international observers (Confindustria Albania, 2020) thanks to the use of traditional methods, Albanian fruit, vegetables, meat and dairy products are grown and produced with a limited use of artificial additives, chemicals or pesticides, which increase the competitive advantage of the country in regional and European markets.

The agricultural sector is called upon to play a crucial role for the sustainable and inclusive development of the country. Currently, the sector is largely based on informal employment; the perspective of a sustainable and equitable development path requires moving away from labour models based on extensive agricultural and informal employment towards a knowledge-based economic approach.

To this extent low productivity and incomes are reflections of structural barriers, such as a highly fragmented ownership, low levels of mechanization and phytosanitary and veterinary controls, which limit agricultural exports (OECD, 2021).

According to stakeholders interviewed, one of the consequences is that Albanian agricultural output is barely able to satisfy the domestic demand as the latter has grown faster in most sub-sectors, so imports have increased drastically in recent years resulting in high trade deficit. This affects also the processing subsector.

Still based on stakeholders interviews, the private sector is called upon to invest in different business models, integrate supply chains, afford different scale of production, and implement international standards of production in terms of quality. On the side of private sector, integration with other industries represents an important opportunity, such as tourism (for instance with touristic offer based on healthy food) and ICT (for the application in terms of agriculture 4.0). To this extent, for the small dimension of companies operating in agrifood and the average age of employees that is quite high, investment in organisation assets (aggregation, integration, merge, foreign investments) and competence (soft skills, ICT, managerial competence) are considered as necessary.

Among stakeholders interviewed, interesting experiences come from food processing in compliance with EU requirements, which adopt green technologies, approach market opportunities at global level, using non-food production as a raw material for other industries of pharmaceuticals, cosmetics as well as fuel production (for instance with CO₂ extraction) in a circular economy approach. Indeed this kind of business model requires investments and a long-term perspective. To this extent public intervention can result very important to support the access of SMEs to finance, because even though the banking sector has been stable, liquid and well-capitalised, credit to the private sector is lower than in peers and advanced economies. Albania has one of the lowest loan-to-deposit ratios among emerging economies, in particular for SMEs (OECD, 2021).

According to stakeholders, an important challenge is reputation. Despite the quality of most of agricultural production, at international level, Albania is rarely perceived as able to encounter international standards thus leading to prejudices. Strong commitment in the definition and implementation of international regulatory frameworks, public-private partnership at international level and integrated policies (both vertical and horizontal) can support Albanian operators in facing these difficulties. For these reasons, certifications are perceived by majority of stakeholders as even more relevant than patenting.

In general, innovation in this sector is imported. Main stakeholders consider higher education important for knowledge intensive productions, but Albanian university system needs to be significantly improved in order to meet main companies' requirements. Especially concerning research, test and analysis activities are conducted independently or in collaboration with foreigner operators. In general, Albanian knowledge-intensive services are considered as neither competitive nor easily available; in order to compete worldwide and be part of GVCs, methods and equipment used by universities have to be compliant with the standards required by certification bodies.

Same challenges are reported by stakeholders operating in the packaging industries, indeed very connected to food processing and relevant both for the quality of products and the international standards. Also in this case main collaborations are with international organizations (such as GIZ) that support operators in knowledge intensive

services and tech-transfer opportunities. Difficulties are also detected in finding workforce with adequate profile to carry on knowledge intensive activities.

Keeping the quality of products high, reducing production costs, increasing efficiency of transport and logistics, and ensuring compliance to requirements of international markets are further relevant points.

These may be connected to:

- the lack of adaptation - even in large companies - to modernisation (industry 4.0) and consequently to artificial intelligence, robotics, digitalization of sales, marketing, process automation, among others, as most of Albanian entrepreneurs continue to produce with traditional methods;
- the lack or the loss of qualified personnel and the necessity to introduce changes in the vocational education system to meet the market demand;
- difficulties in accessing the financial market and capitals.

Based on stakeholders' perception, main opportunities are expected from opportunities in the fields of artificial intelligence, robotics, and process digitalization.

From the survey, the positioning in the market is mainly determined by a wide range of products and services, whereas inferior product quality and inadequate organisational structures are seen as one of the main weaknesses. Environment is considered as a relevant issue and in the last 12 months most of companies have taken environmental protection initiatives, such as reducing energy consumption, fuels, reducing pollution from waste, replacing recycled products. Main innovation activities in the last 5 years have been related to the improvements of products, as well as to follow market requirements. Inter-industry collaborations are considered important especially for the development of new products, strengthen the brand positioning and increase investment opportunities. Keeping existing customers is seen as the main operational challenges especially after pandemics, as well as the lack of funds for businesses.

In the table 10 main findings are reported with regards to main focus of investigation.

Table 10: Agrifood processing at a glance, main findings from interviews and survey

Main focus	Main findings
Value chain	<ul style="list-style-type: none"> - Industry is mostly oriented to the internal market and composed of small size companies; - The complete adoption of international phytosanitary standards could extend the opportunities of internationalisation;
Current competitive advantage	<ul style="list-style-type: none"> - Main competitive advantage is based on low costs of production; - In a wider perspective agriculture, food processing and tourism could represent an interesting integrated value chain for the domestic markets; - For agriculture complying with international phytosanitary requirements, the proximity to organic crops could represent an interesting source of competitive advantage in international markets,
Existing technologies	<ul style="list-style-type: none"> - The existing technologies have a basic level of modernisation;

Innovation potential	<ul style="list-style-type: none"> - Main innovation potential is represented by the integration of supply chain. - Main technologies are related to robotics and automation, but in a wider perspective investments in connectivity and digital skills are required - Investments in the educational system to overcome the skills mismatch between what offered from VET institutions/HEIs and what required by the market is required
COVID-19 impacts	<ul style="list-style-type: none"> - Industry has been partly affected by the impact of the pandemics. - Keeping existing customers and increase funds for the private sector are the main challenges post pandemics.

Source: own elaboration

“Casting of metals”

This sector in Albania is mostly oriented to international markets (mainly the EU), also due to the absence of a large national heavy industry, such as automotive or mechanics.

Aluminium casting is seen as the main promising segment in the whole industry. The European aluminium casting market is expected to grow significantly, and its main application is in end-user sectors, especially automotive, building and construction, industrial, household appliances, aerospace, electronics and electrical, engineering tools, among others.

The market is divided into primary (fresh) aluminium and secondary (recycled) aluminium. Albania has companies operating in both segments and in case of lack of raw materials there are companies operating with recycling and refining technologies. Then, with regards to this, there are two more points:

- 1) Markets prefer primary aluminum
- 2) Based on stakeholders feedback, the current regulation on waste should be revised because constraining the sector

In order to compete with global players, Albanian companies have to adhere to the directives and standards of the countries where they export, especially in the field of recycling and waste treatment. Automotive represent an important market destination, but companies operate also in the market of construction and metallurgical industry.

Stakeholders interviewed report, on the one side, the necessity to reduce bureaucracy in export-related practice, on the other side the opportunity to change the legislation regarding the import of waste materials, and enhance the possibility to import recyclable waste at a low price⁴⁰.

In order to compete on the cost of material collection, stakeholders consider the industry in Albania as led by too small size operators. Operators should be encouraged to collaborate especially in raw and waste materials collection. To this extent, stakeholders believe that a legal framework regulating and supporting this process would facilitate the development of the industry.

When it comes to innovation, stakeholders point out the importance to guarantee quality and sustainability. Patenting is considered complicated and not always relevant to businesses. International cooperation instead can be a driver for introducing new processes, also in compliance with the standards and requirements of the main international markets.

Skilled labour is a challenge. VET and higher education curricula not always respond to the market needs. Stakeholders consider university curricula as not fully adapted to the labour market. More advanced competences

⁴⁰ According to stakeholders, under this condition the whole business of recycling metals would be very much constrained with a low level of profitability (importing materials classified as secondary raw material) and often the impossibility to use plants and technologies at full capacity, suffering the competition of other WB countries (classifying aluminium as commodity).

are required in chemical engineering, for instance. Neither joint programs to facilitate internships or Science-Industry collaboration are offered by the educational system. Stakeholders recognise internal training as an easier and alternative way to build qualification and invest in knowledge over time. Foreign partners can also take part in these initiatives and support the process.

The Polytechnic University of Tirana ,especially with the Faculty of Metallurgy and Faculty of Chemistry are seen by stakeholders as valuable partners. However, main of innovations introduced in the market often come from foreign consulting organisations, rather than by research centres. In general, Higher education is considered a relevant stakeholder for knowledge intensive services rather than for research and innovation activities.

Stakeholders do not report any particular cross-sectorial cooperation. Aida agency is recognised as a possible gatekeeper promoting and facilitating the match among stakeholders.

From the survey, the main challenge is identified in the capability to be aligned to market requirements and the inadequate supply chain is seen as the main weakness of the sector, especially with regards to material provisions. Most of inter-industry collaborations regard energy saving and raw material production, whereas main investments in the last 5 years have regarded the quality of products. One of the most relevant challenges identified in the Covid phase is related to the necessity to have laws policies regulating the sectors as well as keeping exiting customers.

In the table 11 main findings are reported with regards to main focus of investigation.

Table 11: Casting metals at a glance, main findings from interviews and survey

Main focus	Main findings
Value chain	<ul style="list-style-type: none"> - Most part of the industry is opened to international markets and operating in the process of casting; the phases of research, design and marketing are mainly implemented by other countries.
Current competitive advantage	<ul style="list-style-type: none"> - Main competitive advantage is based on the low costs; - Aluminium casting is seen by stakeholders as the main promising segment; - In order to compete on the cost of material collection, stakeholders consider the industry in Albania as composed by too small operators; - The regulatory framework regarding waste material could represent a relevant bottleneck in the sustainability of business models of main operators;
Existing technologies	<ul style="list-style-type: none"> - The existing technologies correspond to a basic level of industrial modernisation; - Main technologies implemented are finalised to assure quality and the respect of international standards.
Innovation potential	<ul style="list-style-type: none"> - Main technologies are related to robotics and automation, patenting is not considered complicated and not relevant for the industry - Main innovation are related to the efficiency of the process, the sustainability and the respect of market standards and requirements
COVID-19 impacts	<ul style="list-style-type: none"> - The industry in part has been affected by the impact of the pandemic. - Main impacts regarded not much the organisation of the process, rather the market destinations.

8.3 Energy

“Electric power generation, transmission and distribution”

The energy sector is significantly affected by the current National energy legislation and its governance. The process of alignment to EU legislation - following the EU integration agenda - is on-going. According to international observers (OECD, 2021) up to 50% of the required policies have been implemented so far, and Albania is working on the first elements of the EU's Clean Energy Package. Albania has extensive legislation on greenhouse gases, emission reduction and air quality, and the Law on Climate Change contain articles that should allow ETS (emission trading schemes) to be implemented in the future.

One of the main issues regarding the energy sector is the supply and security of the energy.

- With regards to gas market, Albania is working on establishing a natural gas supply framework. Since the end of 2020, the country is receiving natural gas extracted from Azerbaijan via the Trans Adriatic Pipeline. Key infrastructure investment projects are on track and to be implemented over the short, medium and long term. However, gas market is not developed yet (OECD, 2021).
- The electricity supply is governed by a comprehensive legislative and policy framework. The supply is guided by state-owned entities with defined roles and it is monitored by recurring statistical reports. Main source of power derive from hydroelectric. From stakeholders' perspective, the main difference between Albania and other Western Balkans countries in terms of electricity generation regards the source. In Albania the production of electricity is based almost 100% on hydro resources, while in the rest of the region fuels prevails.

In terms of transmission and distribution, stakeholders consider the Albanian infrastructure as “beyond the limits”, compared to other countries:

- The transmission capacity is indicated as 1.4 times above the energy needs. In spite of this, other stakeholders underline investments are required and that the energy supply must be guaranteed, considered that as modernization increases also energy needs may increase, while resources are limited.
- On distribution, investments are on-going. Stakeholders report that the distribution network is able to cover the entire territory of Albania and it is continuously renewed and improved, taking into account the location of the customers. Some of them instead report that further investments in distribution are required to guarantee safety and higher quality, renovate the entire system standards and reach better rural areas.

As mentioned, renewable energy accounts for a significant share of Albania's energy mix—approximately 35% of its domestic energy supply (OECD, 2021). Stakeholders consider the harmonization of different renewable sources as a strategic but difficult process, as not all resources have the same level of efficiency and usability. In Albania most of renewable energy - but not all - derives from hydro generation. Stakeholders consider that this could be affected to annual fluctuations due to hydrological changes. International observers consider important to promote a wider diversification of the renewable energy mix, enhancing optimisation and risk reduction. To this extent, Albania is operating for non-hydro renewable energy growth, but implementation of intervention is not accomplished yet.

Energy efficiency in Albania is still in its early stages. According to OECD (2021) there is no dedicated government-funded energy efficiency fund—although energy efficiency investments are realised as part of other projects/investments funded by the international financial institutions or commercial banks. Albania does not have a system in place for data collection and monitoring of energy efficiency, energy auditors nor a bottom-up methodology for data collection.

Innovation is considered by stakeholders as relevant for the development of the system and the industry. The Ministry of Infrastructure and Energy has drafted a National plan including climate change, setting the targets by 2030 for energy efficiency, renewable energy and greenhouse gases and detecting issues related to Research and Innovation. Among others, specific focus is on agriculture, forestry, waste management, policies and measures supporting research and innovation. Concerning this the collaboration with the National Agency for Scientific Research and Innovation (NASRI) is considered as relevant, and some of the measures included have been elaborated in accordance with NASRI findings and recommendations.

Collaboration between universities and public/private organisations is considered important by stakeholders interviewed. One of the fields of intervention of the National Plan is to improve cooperation at both regional and international level in the field of scientific research in the energy sector with a budget of about € 2 million, promoting also the follow up of the programs Horizon 2020, COSME, COST, Erasmus.

According to some stakeholders, in Albania main challenges regard the completion of the liberalization of the electricity market and the increase of production, including through the diversification of electricity generation sources. In view of the security of the country's electricity supply, this can be classified as a weak point since the production of electricity is largely dependent on atmospheric precipitation.

Despite most of the energy production requires low level of CO2 emissions, only the 38% of the consumption of energy is based on renewable sources, as energy bought on the stock exchange is not clean including also coal or other substances that classified as not very clean. This calls upon a relevant commitment from the side of the National authorities in relation to renewables and decarbonisation.

On this, according to stakeholders, innovation and technologies can contribute both to the implementation of more efficient hydropower solutions and the development of other sources such as solar, wind and geothermal.

Collaboration among actors is an opportunity to be explored and strengthened. Based on stakeholders interviews, government and academia have a positive dialogue whereas between companies and academia is still a challenge. For instance, the Ministry for Infrastructure and energy has signed a scientific cooperation agreement with the Polytechnic University of Tirana on the development in heavy industries, infrastructure and energy. Effective collaboration occurred with regards to energy saving projects and after the recent earthquake (2019).

In the opinion of some stakeholders, Academia is mainly focussed on teaching, rather than on research or tech transfer services. To increase competitiveness in the sector, knowledge-intensive services have to be supported but they are not easily available within the country. Most companies prefer receiving support from foreign consulting organisations. University is considered as less involved on such activities, and there are not significant research units.

In particular in the hydrocarbon sector there is a large gap in terms of qualified staff, as universities do not produce geologists or petroleum engineers, dealing with scientific research. The Petroleum Institute – currently closed – is expected to be reopened as represented the main nucleus of innovation in the hydrocarbon sector.

Talking about specific competences, stakeholders consider that qualified employees are available for horizontal areas such as finance, legal expertise, human resources, but not for technical fields such as construction, research & development and brain draining is high.

Concerning the crisis from pandemics, main effects in terms of energy production were seen in the first quarter of the 2020. The country is currently "suffering" from the ban on domestic energy production projects during 2020 which raised the price of energy imports.

In the table 12 main findings are reported with regards to main focus of investigation.

Table 12: Energy at a glance, main findings from interviews and survey

Main focus	Main findings
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Value chain	<ul style="list-style-type: none"> - The energy system is very much affected by the regulatory framework as well as the process of alignment with the requirements for the EU accession - The energy balance is highly dependent on foreign provisions - With regards to production, this is mainly based on hydroelectric plants
Current competitive advantage	<ul style="list-style-type: none"> - Up to now the whole energy system has been largely based on the absence of a market economy - Main strengths are related to territorial endowments enhancing the production of energy from renewable sources or with a very limited CO2 emissions; - The supply infrastructure is seen as an asset, which requires investment. Investments on the supply infrastructure could lead to growth opportunity also for other industries;
Existing technologies	<ul style="list-style-type: none"> - The existing technologies correspond to a basic level of modernisation; - Energy saving investments are not much implemented. - No relevant R&D stakeholders in the national innovation system, compared to international standards.
Innovation potential	<ul style="list-style-type: none"> - Main innovation potential is represented by the development of renewable source solutions, mainly from hydro, wind and solar sources. - It is important to overcome the skills mismatch between the educational offer and labour demand
COVID-19 impacts	<ul style="list-style-type: none"> - The industry hasn't been affected very much by the impact of the pandemic. - Upcoming laws, policies and regulation in the sectors are seen as the main challenges to face in the post covid-phase.

Source: own elaboration

8.4 Accommodation and support service activities

“Other accommodation”

As already mentioned, in the decade before the Covid-19 outbreak tourism in Albania grew rapidly both in terms of share of GDP (direct contribution equal to 8,8% in 2019) and employment (direct contribution equal to 8% in 2019). The number of tourists visiting Albania has been growing at yearly basis, with an average annual growth of almost 15%.

Before the pandemics, the number of tourists entering Albania had been steadily increasing - from 3,513,666 in 2012 to 5,117,000 in 2017; 6,406,038 in 2019 (and then decreasing to 2,657,818 in 2020) (Burlea-Schiopoiu, A; Ozuni, F, 2021). Generally foreign tourists come from South Eastern Europe (Greece and Italy), Western Europe (Germany, Belgium, Netherlands, France and Scandinavia) and from other Balkan countries (Kosovo, Macedonia, Montenegro).

The 80% of the hotels is located in coastal areas (Velipoja, Shengjin, Durres, Kavaja, Vlora, Saranda, or Pogradec) while the 10% is in Tirana and the remaining 10% is located in other areas of the country (Burlea-Schiopoiu, A; Ozuni, F, 2021);

The country has several touristic attractions including national parks and protected reserves, well-preserved coast, a variety of lakes, and a large number of archaeological and UNESCO sites such as Butrint, Berat and Gjirokastra.

Accommodation sector is very much affected by the dimension of facilities: tourism continues to be mostly represented by small, locally-owned operators with rare involvement of foreign investors.

Concerning infrastructures, Albania has only one airport in the capital town. Although the country is by the Mediterranean Sea, the lack of ports for yacht owners and for cruise ships make the maritime potential not fully exploited yet.

There are a few educational players operating in the field of tourism. The University of Tirana has a Department of Marketing and Tourism, mainly focused on business orientation and entrepreneurship, and the National Agency of Vocational Education Training and Qualifications is directly involved to implement the Albanian Qualifications Framework for vocational education and training. The University of Saranda also operates also in field of tourism education. According to stakeholders the cooperation between higher education and vocational education should be strengthened, also in response to the lack a qualified and motivated personnel.

In terms of innovation, it is mostly led by a cost saving purpose and in the last 12 months all the companies participating to the survey have taken steps for environmental protection such as reducing energy consumption, fuels, reducing pollution from waste, replacing recycled products. Opportunities can come from linkages with the ICT sector. IT solutions may represent a relevant tool for: integrating the supply chain with higher efficiency and quality standards, as in the case of delivering products from farmers or fisheries to restaurants, or improving the connection between ports and touristic sites; matching the touristic demand and channelling the offer in terms of promotion web-tools, clients management, integrated offers, touristic packages; implementing new solutions and touristic products, such as big data, machine learning, business analytics, and IT web based solutions for booking, registration, payments, additional services. Electronic booking, payments, web referrals for instance are international standards that require investment not only in technology but also in business models and in knowledge intensive services. This is considered as one of the first challenge to be faced, in order to unlock the economic potential of the international tourism.

As main findings from international observers (World Bank, 2020) and stakeholders interviews, there are a few opportunities that could be further investigated on the basis of integrated value chains:

- the blue economy and marine tourism, integrated with logistic industry (ports, seaports, marine) to enhance touristic (natural, historical and cultural) sites in the inner areas of the country
- the outdoor and agritourism linked to the agricultural sector
- the well-being tourism, starting from a well radicated dental tourism and enlarging the well-being offer to wellness industry, healthy cuisine;
- the business tourism. One of the weaknesses is the lack of big brand names that could facilitate the diffusion of international standards (in terms of products and services). International standards combined to local values and traditions could lead to a unique experience to be promoted at a competitive price. For the development of business tourism, cooperation with international companies and agencies is considered important for the revenues, the product affordability and prices in the category of 5-star hotels.

A sustainable development approach requires infrastructural investments both tangible and intangible. On the one side, there is a need of logistic (roads) and connectivity (IT) infrastructures, on the other, stakeholders consider strategic to invest on international networking and internal market integration. Above all a long term perspective is necessary, enhancing the dialogue among main stakeholders, with the commitment of the national and local governments, the engagement of private and financial operators, as well as foreigner investors.

In the table 13 main findings are reported with regards to main focus of investigation.

Table 13: Accommodation and support services at a glance, main findings from interviews and survey

Main focus	Main findings
Value chain	<ul style="list-style-type: none"> - Most relevant part of the value chain is related to accommodation services in the seaside and the capital city - With the exception of the tourism in Tirana that has a certain regularity during the year, coastal tourism has high level of seasonality and concentration - Tourism in rural areas is very much affected by a limited offer of accommodation, infrastructures and touristic services.
Current competitive advantage	<ul style="list-style-type: none"> - Low cost, naturalistic and cultural heritage represent main assets and source of competitive advantage; - Some lack of infrastructures limits the tourism in the inner part, as well as possible inflow coming from yachting and cruise travels.
Existing technologies	<ul style="list-style-type: none"> - Main technologies are represented by IT, with regards to the customer management (booking, payments etc..) and supply chain integration; - Other technologies adopted are related to energy saving investments.
Innovation potential	<ul style="list-style-type: none"> - Main innovation potential is related to the integration of supply chain with other sectors. On the one side the IT progress allow to provide a differentiated service to customers; on the other, integration opportunities with food, culture, health could be exploited through a wider application of intelligent IT solutions.
COVID-19 impacts	<ul style="list-style-type: none"> - The industry has been affected by the impact of the pandemic - Keeping existing customers is seen as the main operational challenges with regards to Covid phase

Source: own elaboration

8.5 Information and Communication

“Satellite telecommunications activities and Other Information technology”

According to international observers⁴¹ in 2018 the ICT industry's contribution to GDP was 2.9%, which increased further during 2019; the total turnover of the Transport, Information and Communications sector for the year 2018 amounted EUR 1,255million and the value added for 2018 was EUR 512 million⁴².

Main issues of the Albanian ICT market in Albania are digitalisation of the public administration and e-services. ICT interoperability represents one of the ingredients in the attempt to enlarge the diffusion of e-services (OECD, 2021). Nonetheless, the implementation of the Digital Agenda 2015-2020 has reported positive results, especially in terms of public administration digitalisation and with the launch of the *e-Albania* portal.

Regarding the connectivity broadband, infrastructures have been significantly improved thanks to the National Broadband Plan 2013-2020 and the ongoing 2020-2025. Broadband speeds can now reach 1 Gigabit per second

⁴¹ See OECD (2021) and PwC North Macedonia (2020).

⁴² The data includes the Transport, Information and Communication Sectors; There is no available data only for the ICT sector.

(Gbps), but the majority of subscribers (55%) have speeds of 4-10 Megabits per second (Mbps)⁴³. The new National Frequency Plan introduces important changes to the spectrum available for new services and technologies, mobile broadband including bands for 5G. This is expected to enlarge the IT market and the opportunities for cross-cutting applications among industries (OECD, 2021).

With regards to ICT adoption in 2019 the 28% of enterprises employed an ICT specialist, and 45% of enterprises had a website. Main applications (89%) were to publish catalogues or price lists (INSTAT, 2021) and the 12.8% of enterprises were involved in e-commerce activities in 2020. With regards to this figures, despite a large number of ICT specialists, a low penetration of e-commerce activities is recorded and the usage of ICT opportunities appears to still have an untapped potential (OECD, 2021).

According to OECD (2021) online shopping is not popular, due to the low use of credit cards in certain areas, the low purchasing power as well as the high cost of shipping. Moreover, the framework for digital privacy protections is not completely aligned with the current EU framework especially with regards to the legislation on consumer protection in e-commerce.

The Digital Agenda and the National Strategy for Development support the adoption of ITC equipment for SMEs through the Innovation Fund but according to international observers the impact of this type of support (and other innovation funding programmes) is limited to a small number of beneficiaries⁴⁴.

Nonetheless, according to stakeholders interviewed, most people have basic and intermediate digital skills and only people who completed university studies or working in digital sectors show more advanced skills. The availability of resources represent the main critical issue for the ICT operators. The industry faces a deficit of highly skilled ICT professionals, which is linked to the gap between the skills developed by the education system in Albania and those needed by the labour market.

The lack of digital skills in the economy negatively affects both the demand and supply of digital products, undermining the potential of digitalisation in terms of employment and entrepreneurship. Stakeholders report that finding or training highly skilled ICT professionals is difficult and retaining them is even harder, since brain drain heavily affects this industry. One of the issues to take into consideration is that the preparation of recently graduated employees is considered barely adequate for the industry. To this extent, stakeholders believe that Universities are able to provide just a preliminary knowledge. The construction of competences derives often by internal training. The mismatch between the demand and supply of qualified competences is even more critical on businesses oriented to IT products, where the global competition require integrated solutions and competences on cloud, machine learning, artificial intelligence and internet of things applications.

A stronger dialogue between companies and national government is considered important to design training programmes addressing the needs of the labour market. Interesting applications are internet of things in agrifood, tourism IT application, as well as the digital transition in other industries, even if the lack of big operators could undermines the effective development of these opportunities.

Patenting and research is indeed deeply important but stakeholders report there are not research infrastructures and patenting is mainly carried out abroad.

From the survey main sources of competitive advantage are represented by strong distribution networks, good economies of scales and low production costs. Software pre-production activities are considered a good opportunity for the IT value chain. Main companies consider as main assets both database management and data processing capabilities. To this extent investments in equipment and systems are considered as the main challenges, in order to follow market requirements and differentiate products/services.

⁴³ According to the Report on Albania 2021, the rate of penetration is corresponding to the 15.6% of the population and 52 % of the households. The gap in fixed internet-broadband penetration between urban and rural areas is still relevant. Rural areas account for 40% of the population, but only 3.7% are connected to the internet. The mobile penetration rate at the end of 2020 was 70% compared with 61.8% at the end of 2019. In 2020, there were 2 million active users of mobile broadband. The volume of data usage during 2020 increased by 29.4% compared with 2019

⁴⁴ A relevant incentive for running business in ICT sector is related to the tax regime, as ICT sector companies benefit from a reduced profit tax rate (5% instead of a 20% nominal tax for all other sectors). According to stakeholders interviewed, running a start ups in IT sector is very convenient but in the long period are required partnerships with bigger players.

In the table 14 main findings are reported with regards to main focus of investigation.

Table 14: Information and Communication at a glance, main findings from interviews and survey

Main focus	Main findings
Value chain	<ul style="list-style-type: none"> - Large part of the industry is related to public e-services - Main IT adoption among companies is related to web sites and e-commerce application - Internet provision is depending on the development of IT connectivity infrastructures that in the rural areas is not widely available. National programs are speeding up the diffusion of IT infrastructures and IT services adoption - The lack of big operators could limit the pace of digital transformation among companies
Current competitive advantage	<ul style="list-style-type: none"> - Pre-production and additional functions are the main activities for weight in the value chain. Main companies consider as main assets a strong marketing activity, a superior database management and data processing capabilities - The lack of dedicated IT skills and the necessity to invest in equipment and systems are seen as the main weaknesses, especially for those companies oriented to oriented to IT products, suffering very much the global competition
Existing technologies	<ul style="list-style-type: none"> - Existing technologies are aligned with the basic standards and depending on the IT infrastructures; - University are considered useful for the for preliminary skills construction, not for the availability of equipment and IT labs in order to level up the competitive advantage of the system
Innovation potential	<ul style="list-style-type: none"> - Integration and inter-industries collaborations represent interesting opportunities. IoT applications in tourism and agriculture are possible examples - lack of R&D, lack of capital, lack of technology are seen as some of the main difficulties and main innovation activities conducted are to follow market requirements and differentiate products/services
COVID-19 impacts	<ul style="list-style-type: none"> - The industry hasn't been affected very much by the impact of the pandemic. - Keeping existing customers and international changes in the business model are seen as the main challenges in covid phase.

Source: own elaboration

8.6 Administrative and support service activities

“Activities of call centres and Business support services activities”

According to RISI (2019) Business Process Outsourcing (BPO) can be described as the allocation of specific business processes, usually with particular regards to routine or non-core business tasks such as customer support, to external service providers. Main services usually provided in the form of BPO, among others, regard IT, Finance & accounting, Back-office processes, E-commerce and support, Procurement, Human resource & recruitment processes.

Globally, the BPO sector has grown enormously over the last decades, driven by the transfer or offshoring of business processes from firms based in developed countries to ones based in emerging economies and due to the reduction of communication and information technologies costs (RISI, 2019).

According to Confindustria Albania (2021) in 2000 the country emerged as a leader in the Western Balkan region for BPO services, due to the proximity to European markets and the availability of cost saving resources, in particular the linguistic competences. The BPO sector has been growing since its beginning and currently employs approximately 35,000 professionals across more than 400 outsourcing companies.

According to INSTAT (2019) in the period 2010-2018, 12,029 enterprises were operating in Administrative and support service activities with 26,840 employees (average enterprise size 4,9 employees). The turnover generated was approximately equal to ALL 38,080 Million, wages equal to ALL 11,479 Million and an average wage per employee equal to ALL 427,7 thousands.

Data entry and call centres are among the top outsourced services in Albania and the market destination is represented by the European countries, especially Italy. Since the beginning, main activities have been related to post-sales, customer-care and telemarketing services and only recently to marketing and research services, IT and Software operations, as well as finance and accounting services.

Since the large diffusion worldwide of IT solutions, the way business processes are organised and outsourced have changed. Nowadays at international level the ICT-BPO sector is attempting further diversification including activities in digital processes, software design and development, blockchain technologies, cyber-security, etc. The cloud-based BPO is changing the business outsourcing process and leads several sectors to reduce costs, develop global delivery models and provide secure data access. Due to its advantages, cloud-based BPO services will be increasingly adopted in the future.

In Albania BPO sector is embracing this challenge, dealing with activities related to customer relationship management (mainly call centres providing customer support, sales and marketing services), human resource management (mainly training, payroll and recruitment services), enterprise resource management (mainly finance, accounting, procurement, logistics and data services)⁴⁵.

Being competitive at international level on such fields means investing in knowledge management processes, dealing with the transfer of more complex tasks and requiring skills, competences and specialist expertise. According to stakeholders it is necessary to have a long term perspective of investments both on technologies and competences.

Types of services carried out by knowledge process outsourcing (as an evolution of BPO based on knowledge management processes) could include legal and medical services, training, market research and business consultancy and with regards to IT, BPO involves the provision of software maintenance and higher value-added software design, programming and IT strategy development services⁴⁶.

In view of these opportunities, based on stakeholders' interviews, some Albanian operators have started to develop IT solutions for intelligent analytics and in the field of security. To this extent main trends may be represented by artificial Intelligence applied to software applications; artificial intelligence applied to robotics; digital marketing oriented towards SEO, PPC, E-commerce, etc; green technology and solutions. Similarly, robotic process automations and social media management represent other trends leading to further evolution and requirements for the provision of BPO services. With regards to these trends, innovation activities are mainly oriented to follow market

⁴⁵ According to AIDA (2020), some of the most successful BPO companies operating in Albania are Lufthansa industry solutions, Deloitte, Teleperformance, IDS, Rework, Innovaway, Alba contact, Albacall, Ernest&Young, Euroservices and Localeyes.

⁴⁶ According to RISI (2019), many emerging economies, including some of eastern Europe neighbours have progressed from the provision of basic BPO or traditional call centre focused services to the provision of higher value technology and knowledge intensive services.

According to some operators main current opportunities in international market may come from:

- Healthcare: although, healthcare represents a small part of BPO deals (low compared to other industries, such as financial services, banking, and manufacturing) the potential for growth is high due to the increasing demand for quality care.
- IT: information Technology Outsourcing is one of the most frequented outsourcing practices in the world. It includes: the use of service providers for delivering IT-reliant business processes, application services, and infrastructure solutions.
- Insurance: cost efficiency and service quality have made insurance companies explore the opportunity of not managing directly some kind of services.
- E-commerce: the emergence of e-commerce has determined the access to new markets for many companies.
- Data entry: today the market is overwhelmed by data, mainly raw data, that risk being useless if are not translated into meaningful information. Data Entry is a very time consuming service; to this extent outsourcing could save relevant operational costs.

requirements, differentiate products/services and save costs. To these aims, investments in equipment and IT systems are seen as priority.

Also in this case, quality of employment is a challenge as well as the current mismatch in the labour market where university curricula do not always comply with the requirements. In recent years, there has been a significant increase in the level of skills of young people working in BPO services, but market demands and needs are not aligned with the existing qualification. In particular stakeholders detect a lack of engineers in comparison with other Western Balkan countries. In this regard, business associations can play an important role: the ABSL association (Association of Business Service Leaders) signed a Memorandum of Cooperation with the Alexander Moisiu University in Durres to set up professional training courses of young talents.

According to some stakeholders, at the moment most of largest operators in BPO mainly operate on low added value segments, anyway the presence of some advisory multinational companies could strengthen the diffusion of IT-BPO services, and promote international cooperation. To this extent, the current European Union integration agenda has reduced uncertainties and strengthened the industry reputation. Both of them are considered important ingredients for new business opportunities.

Stakeholders believe there should be a special legal framework supporting the development of this industry, together with fiscal incentives to foreign investors and start up. One of the weakness is the lack of qualified data and information on BPO, IT Outsource and Research & Development, with specific regard to main assets, operations and potential, which may compromise the effectiveness of supporting measures.

Finally the sector also requires efficient strategic infrastructures, especially on energy and internet service provision. Up to now main challenges for the Covid phase are keeping existing customers, and detecting funds to grow the business.

In the table 15 main findings are reported with regards to main focus of investigation.

Table 15: Call centres and Business support services at a glance, main findings from interviews and survey

Main focus	Main findings
Value chain	<ul style="list-style-type: none"> - BPO industry is mainly operating in the provision of medium low knowledge services. Data entry and call centres are among the top outsourced services in Albania and the market destination is oriented towards European countries, main market is Italy. - In Albania operate also multinational actors, providing business advisory in the country. They can represent also a possible hub for international collaboration and opportunities.
Current competitive advantage	<ul style="list-style-type: none"> - Main current competitive advantage is represented by the low cost of workforce, combined with the presence of linguistic skills, the presence of an economic system operating in a consolidated way in the sector; - The cultural and geographical proximity to European markets is recognised as a positive asset; - Some companies have introduced IT application enabling intelligent analytics and the opportunity to provide added value services

Existing technologies	<ul style="list-style-type: none"> - The existing technologies correspond to the current IT requirements of the market, for a low medium level outsourced services; - Some advanced IT solution has been implemented; - Largest operators are based mainly on medium low segments, implementing technologies assuring efficiency and stability in the service provision.
Innovation potential	<ul style="list-style-type: none"> - Main innovation potential comes from the application of IT solutions; - The overcome of the mismatch between the demand a and supply of skilled workforce, a wider connectivity represent main enablers in order to introduce innovation; - IT solutions may concur in positioning in markets services with higher intensity of knowledge and added value.
COVID-19 impacts	<ul style="list-style-type: none"> - The industry has been in part affected by the impact of the pandemic, with regards to the internal organizational aspect.

Source: own elaboration

9. Conclusion and recommendations

Qualitative data corroborate the results from the Quantitative Analysis, identifying relevant domains to be further explored for the final selection of the Smart Specialisation priorities. All the sectors investigated have a great territorial relevance, as well as development opportunities. Nonetheless, they also show structural weaknesses that require investments and a strong commitment by the National Authorities.

Agriculture Fisheries and Aquaculture; Manufacturing; Energy; Accommodation and support service activities; Information and Communication; Administrative and support service activities are the selected domain that will need to be further explored in future analysis and consultations with stakeholders.

Moreover, interviewees identify **strategic infrastructures**, especially related to energy provision, digital and transport connectivity, as both an important driver of development, and as a source of uncertainty. Although much has been done in recent years and much is currently in the pipeline, infrastructure remains an important challenge for the future of Albania.

There is often a mismatch between VET and higher education curricula, on the one side, and labour market requirements, on the other side. In particular, some curricula are very slow to adapt to international standards and requirements. In the end, this implies that companies are responsible for providing training courses, which may be very difficult especially for segments with a higher knowledge intensity competition.

In general, public research is considered to be below European standards and considerably underfunded in comparison with other economies of the macro-region. This often leads to collaborative protocols between companies and universities, but mainly oriented to talent scouting and internships rather than on R&D, which often relies on foreign provision.

From both the survey and the IDIs, interesting development opportunities emerge in international megatrends such as **digital transition** (including automation of processes, reorganization of supply chains and digital transformation that can lead to new business models); and, to a wider extent **digital technologies**, (including applications of artificial intelligence, IoT sensors, data analytics, robotics); and, **ecological transition** (including intelligent use of renewable sources, energy efficiency solutions, as well as new business models aligned with international standards of sustainability).

Another challenge is related to **cross-fertilization** and integration of supply chains. Many of the stakeholders, reporting positive business experiences, operate in contexts that enhance the integration of both horizontal and vertical value chains. In the former case, there are good experiences with **sustainable tourism**, especially when integrated with quality agriculture and responsible food processing, in the latter case, successful practices can be seen in the **integration of BPO services with IT** solutions.

In general, the absence of large national industries together with low demand for consumption and investments, lead to the necessity to look outside of the country, at international partnerships and cooperation opportunities, foreign direct investments, as well as at the positive externalities coming from diaspora. With regards to these opportunities, AIDA's activities, specific sectorial regulations (as for the energy sector) as well as some specific programs (as for the diaspora) represent good starting points to unlock the growth potential, to be accompanied anyway by the implementation of other policies, as currently being implemented and foreseen by the agenda for the EU accession.

As main outcomes of the qualitative analysis, a number of cross-sectorial areas could also be considered for possible investigation during the EDP. This is also because the economic situation due to pandemics on the one side, and difficulties in qualitative data collection - mainly during the summer - resulted in a low participation in the survey and a limited number of interviews, especially in consideration of the width and articulation of the domains that emerged from the quantitative analysis.

Thus, in the continuation of the activities for the definition of the S3, it is suggested to increase the number of stakeholders involved and to organise further interviews, focusing more on the way value chains are organised, on their potential and bottlenecks and in the way value chains may contribute to the sustainable development of the country.

Based on the results of the quantitative and qualitative analysis, the subsequent EDP phase can contribute very much in this sense, providing further insights on the identified areas and integrating the strengths, weaknesses, opportunities and threats outlined in the report, for an economic transformation agenda of the Country.

Blue economy

Tourism on the coast is a driving force even considering the high level of territorial concentration and high seasonality, though. Interesting connections can be strengthened with the fishing industries and yachting or cruise travel tourism. To this aim, facilities and infrastructures should be improved. Especially the infrastructural endowments related to tourist ports and services for boats should go hand by hand with the conservation and promotion of the country's cultural and natural heritage. ICT can be also a relevant driving force, linked to tourism services and the organization/operation of supply chains.

In the case of fishing and aquaculture, integration with the accommodation sector provides a promising opportunity for growth.

Table 16: Blue-economy: main SWOT points

Strengths	Weaknesses
<ul style="list-style-type: none"> • Wide coast, long periods of sunshine, and a naturalistic tourist heritage of great beauty • lively seaside tourism with good economic performances • active fishing industry • availability of skilled workforce • academic studies on the sector as well as on-going partnerships between companies and academia • Low costs compared to other neighbouring operators • The fishing industry has not been particularly impacted by the Covid-19 	<ul style="list-style-type: none"> • Need for port investments with regards to nautical services • Need for port investments with regards to cruise tourism • High seasonality of the sector • Need for investments in road and digital connectivity for inland areas connections • Lack of a fitting industry and / or nautical retrofitting industries • Need for the development of adequate digital tourist and nautical services
Opportunities	Threats
<ul style="list-style-type: none"> • Development of tourism products related to yachting and cruises • Development of tourism products linked to the inland areas and the naturalistic cultural heritage of the country • Opportunities for the integration of the fishing, catering, hotel industries 	<ul style="list-style-type: none"> • Foreign competition from other ports systems/operators in the Mediterranean • Need to preserve the coast and the attractiveness of the naturalistic cultural heritage • Tourism industry is conditioned by the current emergency linked to Covid-19

Source: own elaboration

Healthy food

The food processing industry represents another interesting opportunity. Agriculture constitutes a relevant sector for the country with a large share of GDP and employment, but with low productivity, high occupational informality and structural weaknesses related to infrastructures, employment, and phytosanitary standards, which may prevent the optimal positioning of the country in international markets.

Investments are needed to reach higher production scales and enhance an upgrade in the positioning within the supply chain. Similarly, investments in digital skills are needed, especially for adults.

In general, there is a great potential for organic production that can be oriented towards international markets and deriving from crops traditionally cultivated with a very limited use of chemical additives. In this sense, the business of healthy food and wellbeing could be optimally integrated with sustainable tourism, outdoor and agro-tourisms in inland areas.

Albania has territories of cultural and naturalistic beauty that combine perfectly with the logic of sustainable tourism, suited to wellbeing and health. On the other side, indeed, infrastructure and skills-related challenges require a longer-term perspective.

Table 17: Healthy food: main SWOT points

Strengths	Weaknesses
<ul style="list-style-type: none"> • Agriculture as an important sector partly based on sustainable crops • Naturalistic heritage of great beauty • Lively tourism sector • Educational paths in the sector and partnerships between companies and academia • Low costs of factors of production compared to other neighbouring operators • Excellent climatic conditions • Network of extension services/technological transfer organisations operating in agriculture • The sector has not been particularly impacted by the Covid-19 	<ul style="list-style-type: none"> • Weak road and digital connectivity • Small average size of agricultural enterprises and land plots • High average age of the workforce, low level of skills and high level of informality • Rural development often based on subsistence economies • Lack of a touristic offer network in rural areas.
Opportunities	Threats
<ul style="list-style-type: none"> • Tourism integrated offer related to organic food, health and sustainability • Tourism offer related to wellbeing, the naturalistic and cultural heritage of the country • Development of the agro-tourism sector • Opportunities for integration with the catering and hotel industries • Opportunities for productivity development through ICT applications 	<ul style="list-style-type: none"> • Competition from other countries of the macro region • Foreign competition/dependence related to the development of technological solutions that could reduce profit margins and the sustainability of business models

Source: own elaboration

Renewable resources energy

The national energy system is called upon to face important challenges related, on the one hand, to the process of alignment with European requirements and, on the other, to the effectiveness and efficiency of the energy distribution and transmission system. This is a kind of mandatory path that will also determine a redefinition of the energy industry and of the players operating in the sector, primarily the state-owned ones.

Within this context and independently from the process of EU alignment, Albania has territorial assets for the development of renewable resources energy that could represent a driving force for the development of the country's economy and energy system, through both foreign and national capitals. Investments on this sector are considered as enabling for most of the value chains of the country.

Most important renewable sources are indeed represented by hydroelectric energy, wind and solar energy. The development of these sectors has to deal with the curricular mismatch and the lack of some engineering profiles that seem not to be present.

Table 18: Renewable resources energy: main SWOT point

Strengths	Weaknesses
<ul style="list-style-type: none"> • Important hydroelectric energy production network • Natural and geographical features favouring solar and wind energy production • Excellent climatic conditions • Limited impact of the Covid-19 on the sector 	<ul style="list-style-type: none"> • Weak energy distribution and transmission • Need for adjustments to the energy system, liberalization of the market and state-owned operators • Mismatch in the labour market • Lack of research and academic stakeholders for effective collaboration in the field of R&D • Expected infrastructural interventions requiring a medium-long term timing;
Opportunities	Threats
<ul style="list-style-type: none"> • Highly sustainable energy production solutions, in a systemic perspective; • Strengthen the country's energy balance with inexhaustible resources 	<ul style="list-style-type: none"> • International competition based on knowledge and innovation • Energy supply affected also by the international geopolitical dynamics

Source: own elaboration

Extended BPO

Stakeholders consider the sector as having the potential for a new value proposition.

BPO operations usually require large scales and to supply large industries. Due to the lack of large national industries, Albanian BPO services are almost totally oriented to international markets and the sector results being very depending on them, as well as on their value chain compositions and requirements. Currently the sector is very concentrated on specific geographical markets and getting more and more exposed to other countries competition, also in the macro-region.

According to stakeholders, the sector has a high growth potential although in the next future competition is expected to be higher and digital technologies could greatly compress the margins, especially in low-knowledge segments. Nonetheless, the cultural and linguistic proximity to European markets, the presence of well-established economic fabric already operating in the BPO and the presence of some international business advisory players represent positive assets.

Main sources of opportunity may derive from an extension of the BPO perimeter, exploring new markets segments more oriented to knowledge-intensive business services (such as post-sales services on robotics, automation, fintech

solutions etc.), and integrating IT solutions as a possible response to global competition due to digitalisation, platforms economies and artificial intelligence.

Table 19: Extended BPO: main SWOT points

Strengths	Weaknesses
<ul style="list-style-type: none"> • Well-developed sector relevant to GDP and youth employment • Cultural and linguistic proximity to main European markets • Low costs compared to other neighbouring operators • High numbers of IT operators • Presence of international players in the advisory business, bridging international opportunities of networking and collaboration • Positive international reputation of the industry also due to the gradual alignment to European standards also in terms of security • Marginally affected by the measures in response to covid-19 	<ul style="list-style-type: none"> • Need for investments in digital connectivity and when required on the energy network • Great mobility of the workforce • Labour market mismatch and not adequacy of the academic and VET offer • Not alignment to European standards in R&D activities • Lack of a national industry sustaining domestic value chains and territorial development dynamics • Great market concentration on specific countries and consequently relevant exposure to their economies
Opportunities	Threats
<ul style="list-style-type: none"> • Expected growth of the sector at international level • Opportunities of integrations, through ICT applications, for higher added value services • Opportunity to penetrate added value segments with a lower cost offer 	<ul style="list-style-type: none"> • Competitiveness from most advanced economies and based on technological solutions, reshoring the outsourced processes or/and reducing profit margins • Competitiveness from other economies of the macro region and based on low costs

Source: own elaboration

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Abbreviations

ALL	Albanian currency (Lek)
ATTCs	Agriculture Technology Transfer Centre
BPO	Business Process Outsourcing
CM	Critical Mass
EDP	Entrepreneurial Discovery Process
GDP	Gross Domestic Product
GVA	Gross Value Added
HEI	Higher Education Institution
ICT	Information Communication Technology
INSTAT	Albania Institute for Statistics
IoT	Internet of Things
LQ	Location Quotient
NACE	Nomenclature of Economic Activities
NUTS	Nomenclature of Territorial Units for Statistics
SDGs	Sustainable Development Goals
SME	Small Medium Enterprise

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Annexes

Annex 1. Summary of economic, innovation and scientific potential mapping

Economic Potential		Exports	Innovation Potential	Scientific Potential
Static (Industries NACE 3-digit)	Dynamic (Industries NACE 3-digit)	Classification (HS-4_digit)	(Industries NACE 1-digit)	Classification by fields
B06.1 Extraction of crude petroleum	C10.8 Manufacture of other food products	64 Footwear, gaiters and like, parts of such articles <i>Subsection: 6403</i> Footwear; with outer soles and uppers of rubber or plastics (excluding waterproof footwear)	J Information and Communication	Immunology and Microbiology
B07.2 Mining of non-ferrous metal ores	C13.9 Manufacture of other textiles	27 Mineral fuels, mineral oils and products of their distillation <i>Subsection: 2709</i> Petroleum oils and oils obtained from bituminous minerals; crude	K Financial and Insurance Activities	Social Science
B09.1 Support activities for petroleum and natural gas extraction	C24.5 Casting of metals	62 Articles of apparel and clothing accessories not knitted <i>Subsection: 6203</i> Suits, ensembles, jackets, blazers, trousers, bib and brace overalls, breeches and shorts (other than swimwear); men's or boys' (not knitted or crocheted)	M Professional, Scientific and Technical Activities	Economics, Econometrics and Financial
C11 Manufacture of beverages	C25.9 Manufacture of other fabricated metal products	72 Iron and steel <i>Subsection: 7214</i> Iron or non-alloy steel; bars and rods, not further worked than forged, hot-rolled, hot drawn or hot-extruded, but including those twisted after rolling		Arts and Humanities
C19.2 Manufacture of refined petroleum products	C32.4 Manufacture of games and toys	61 Articles of apparel and clothing accessories <i>Subsection: 6107</i> Underpants, briefs, nightshirts, pyjamas, bathrobes, dressing gowns and similar articles; men's or boys', knitted or crocheted		Dentistry
C23.5 Manufacture of cement, lime and plaster	E38.1 Waste collection	85 Electrical machinery and equipment and parts thereof <i>Subsection: 8503</i> Electric motors and generators; parts suitable for use solely or principally with the machines of heading no. 8501 or 8502		Medicine Agricultural and Biological Science
D35.1 Electric power generation, transmission and distribution	F42.2 Construction of utility projects	76 Aluminum and articles thereof <i>Subsection: 7604</i> Aluminum; unwrought		Environmental Science
F42.1 Construction	F43.1 Demolition	26 Ores, slag and ash		

Economic Potential		Exports	Innovation Potential	Scientific Potential
<i>Static</i> (Industries NACE 3-digit)	<i>Dynamic</i> (Industries NACE 3-digit)	<i>Classification (HS-4_digit)</i>	<i>(Industries NACE 1-digit)</i>	<i>Classification by fields</i>
of roads and railways	and site preparation	<u>Subsection: 2610</u> Chromium ores and concentrates		
J60.1 Radio broadcasting	G46.1 Wholesale on a fee or contract basis	07 Edible vegetables and certain roots <u>Subsection: 0702</u> Tomatoes; fresh or chilled		
J60.2 Television programming and broadcasting activities	G47.4 Retail sale of information and communication equipment in specialised stores	25 Salt, sulphur, earths and stone, lime and cement <u>Subsection: 2523</u> Portland cement, aluminous cement (cement fondu), slag cement, supersulphate cement and similar hydraulic cements, whether or not colored or in the form of clinkers		
J61.1 Wired telecommunications activities	I55.9 Other accommodation			
J61.3 Satellite telecommunications activities	J56.1 Restaurants and mobile food service activities			
N82.2 Activities of call centers	J61.3 Satellite telecommunications activities			
	N80.2 Security systems service activities			
	N82.2 Activities of call centers			
	N82.9 Business support service activities n.e.c.			

Annex 2: Results economic mapping

		Size	Employment	Wages	Employment Trend	Wages trend	Employment & Size	Wages & Size	Employment Trend & Size	Wages trend & Size	STATIC Employment & Wages & Size	TREND Employment & Wages & Size
Codes	Group-Description of economic activities	104	50	60	62	94	42	33	30	55	13	16
B6.1	Extraction of crude petroleum	1	1	1	0	1	1	1	0	1	1	0
B6.2	Extraction of natural gas	0	0	0	0	0	0	0	0	0	0	0
B7.1	Mining of iron ores	0	1	1	1	0	0	0	0	0	0	0
B7.2	Mining of non-ferrous metal ores	1	1	1	0	0	1	1	0	0	1	0
B8.1	Quarrying of stone, sand and clay	1	1	0	0	0	1	0	0	0	0	0
B8.9	Mining and quarrying n.e.c.	0	1	1	0	1	0	0	0	0	0	0
B9.1	Support activities for petroleum and natural gas extraction	1	1	1	0	0	1	1	0	0	1	0
B9.9	Support activities for other mining and quarrying	0	0	0	1	1	0	0	0	0	0	0
C10.1	Processing and preserving of meat and production of meat products	1	0	0	0	1	0	0	0	1	0	0
C10.2	Processing and preserving of fish, crustaceans and molluscs	1	1	0	0	1	1	0	0	1	0	0
C10.3	Processing and preserving of fruit and vegetables	1	0	0	0	1	0	0	0	1	0	0
C10.4	Manufacture of vegetable and animal oils and fats	0	1	0	1	0	0	0	0	0	0	0
C10.5	Manufacture of dairy products	1	0	0	0	1	0	0	0	1	0	0
C10.6	Manufacture of grain mill products, starches and starch products	1	1	0	0	0	1	0	0	0	0	0
C10.7	Manufacture of bakery and farinaceous products	1	0	0	0	1	0	0	0	1	0	0
C10.8	Manufacture of other food products	1	0	0	1	1	0	0	1	1	0	1
C10.9	Manufacture of prepared animal feeds	0	0	0	0	0	0	0	0	0	0	0
C11	Manufacture of beverages	1	1	1	0	1	1	1	0	1	1	0
C12	Manufacture of tobacco products	0	0	0	0	0	0	0	0	0	0	0
C13.1	Preparation and spinning of textile	0	0	0	1	1	0	0	0	0	0	0

		Size	Employment	Wages	Employment Trend	Wages trend	Employment & Size	Wages & Size	Employment Trend & Size	Wages trend & Size	STATIC Employment & Wages & Size	TREND Employment & Wages & Size
Codes	Group-Description of economic activities	104	50	60	62	94	42	33	30	55	13	16
	fibres											
C13.2	Weaving of textiles	0	0	0	1	1	0	0	0	0	0	0
C13.3	Finishing of textiles	0	0	0	1	0	0	0	0	0	0	0
C13.9	Manufacture of other textiles	1	0	0	1	1	0	0	1	1	0	1
C14.1	Manufacture of wearing apparel, except fur apparel	1	1	0	0	0	1	0	0	0	0	0
C14.2	Manufacture of articles of fur	0	0	0	0	0	0	0	0	0	0	0
C14.3	Manufacture of knitted and crocheted apparel	0	0	0	0	0	0	0	0	0	0	0
C15.1	Tanning and dressing of leather; manufacture of luggage, handbags, saddlery and harness; dressing and dyeing of fur	0	0	0	0	1	0	0	0	0	0	0
C15.2	Manufacture of footwear	1	1	0	0	1	1	0	0	1	0	0
C16.1	Sawmilling and planing of wood	1	0	0	0	1	0	0	0	1	0	0
C16.2	Manufacture of products of wood, cork, straw and plaiting materials	1	0	0	0	1	0	0	0	1	0	0
C17.1	Manufacture of pulp, paper and paperboard	0	0	0	0	0	0	0	0	0	0	0
C17.2	Manufacture of articles of paper and paperboard	1	1	0	0	1	1	0	0	1	0	0
C18.1	Printing and service activities related to printing	1	0	1	0	0	0	1	0	0	0	0
C18.2	Reproduction of recorded media	0	0	0	0	0	0	0	0	0	0	0
C19.1	Manufacture of coke oven products	0	0	0	0	0	0	0	0	0	0	0
C19.2	Manufacture of refined petroleum products	1	1	1	0	0	1	1	0	0	1	0
C20.1	Manufacture of basic chemicals, fertilisers and nitrogen compounds, plastics and synthetic rubber in primary forms	0	0	0	0	1	0	0	0	0	0	0
C20.2	Manufacture of pesticides and other agrochemical	0	0	0	0	0	0	0	0	0	0	0

		Size	Employment	Wages	Employment Trend	Wages trend	Employment & Size	Wages & Size	Employment Trend & Size	Wages trend & Size	STATIC Employment & Wages & Size	TREND Employment & Wages & Size
Codes	Group-Description of economic activities	104	50	60	62	94	42	33	30	55	13	16
	products											
C20.3	Manufacture of paints, varnishes and similar coatings, printing ink and mastics	0	0	0	0	0	0	0	0	0	0	0
C20.4	Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	0	0	0	0	0	0	0	0	0	0	0
C20.5	Manufacture of other chemical products	0	0	1	0	0	0	0	0	0	0	0
C20.6	Manufacture of man-made fibres	0	0	0	0	0	0	0	0	0	0	0
C21.1	Manufacture of basic pharmaceutical products	0	0	1	0	1	0	0	0	0	0	0
C21.2	Manufacture of pharmaceutical preparations	0	0	1	0	1	0	0	0	0	0	0
C22.1	Manufacture of rubber products	0	0	0	0	1	0	0	0	0	0	0
C22.2	Manufacture of plastic products	1	0	0	0	0	0	0	0	0	0	0
C23.1	Manufacture of glass and glass products	0	0	0	0	0	0	0	0	0	0	0
C23.2	Manufacture of refractory products	0	0	1	0	1	0	0	0	0	0	0
C23.3	Manufacture of clay building materials	1	1	0	0	1	1	0	0	1	0	0
C23.4	Manufacture of other porcelain and ceramic products	0	0	0	0	0	0	0	0	0	0	0
C23.5	Manufacture of cement, lime and plaster	1	1	1	0	0	1	1	0	0	1	0
C23.6	Manufacture of articles of concrete, cement and plaster	1	1	0	0	0	1	0	0	0	0	0
C23.7	Cutting, shaping and finishing of stone	1	1	0	0	1	1	0	0	1	0	0
C23.9	Manufacture of abrasive products and non-metallic mineral products n.e.c.	0	0	0	0	0	0	0	0	0	0	0
C24.1	Manufacture of basic iron and steel	0	0	1	0	1	0	0	0	0	0	0

		Size	Employment	Wages	Employment Trend	Wages trend	Employment & Size	Wages & Size	Employment Trend & Size	Wages trend & Size	STATIC Employment & Wages & Size	TREND Employment & Wages & Size
Codes	Group-Description of economic activities	104	50	60	62	94	42	33	30	55	13	16
	of ferro-alloys											
C24.2	Manufacture of tubes, pipes, hollow profiles and related fittings, of steel	0	0	1	0	1	0	0	0	0	0	0
C24.3	Manufacture of other products of first processing of steel	0	0	0	0	1	0	0	0	0	0	0
C24.4	Manufacture of basic precious and other non-ferrous metals	0	0	0	0	0	0	0	0	0	0	0
C24.5	Casting of metals	1	0	1	1	1	0	1	1	1	0	1
C25.1	Manufacture of structural metal products	1	0	0	0	1	0	0	0	1	0	0
C25.2	Manufacture of tanks, reservoirs and containers of metal	0	0	0	1	0	0	0	0	0	0	0
C25.3	Manufacture of steam generators, except central heating hot water boilers	0	0	0	1	0	0	0	0	0	0	0
C25.4	Manufacture of weapons and ammunition	0	0	0	0	0	0	0	0	0	0	0
C25.5	Forging, pressing, stamping and roll-forming of metal; powder metallurgy	0	0	0	0	0	0	0	0	0	0	0
C25.6	Treatment and coating of metals; machining	1	0	0	0	1	0	0	0	1	0	0
C25.7	Manufacture of cutlery, tools and general hardware	0	0	0	0	0	0	0	0	0	0	0
C25.9	Manufacture of other fabricated metal products	1	0	0	1	1	0	0	1	1	0	1
C26.1	Manufacture of electronic components and boards	0	0	1	0	0	0	0	0	0	0	0
C26.2	Manufacture of computer and peripheral equipment	0	0	0	0	0	0	0	0	0	0	0
C26.3	Manufacture of communication equipment	0	1	0	0	0	0	0	0	0	0	0
C26.4	Manufacture of consumer	0	0	0	0	0	0	0	0	0	0	0

		Size	Employment	Wages	Employment Trend	Wages trend	Employment & Size	Wages & Size	Employment Trend & Size	Wages trend & Size	STATIC Employment & Wages & Size	TREND Employment & Wages & Size
Codes	Group-Description of economic activities	104	50	60	62	94	42	33	30	55	13	16
	electronics											
C26.5	Manufacture of instruments and appliances for measuring, testing and navigation; watches and clocks	0	0	0	0	0	0	0	0	0	0	0
C26.6	Manufacture of irradiation, electromedical and electrotherapeutic equipment	0	0	1	0	0	0	0	0	0	0	0
C26.7	Manufacture of optical instruments and photographic equipment	0	0	0	0	1	0	0	0	0	0	0
C27.1	Manufacture of electric motors, generators, transformers and electricity distribution and control apparatus	0	0	1	0	0	0	0	0	0	0	0
C27.2	Manufacture of batteries and accumulators	0	0	0	0	0	0	0	0	0	0	0
C27.3	Manufacture of wiring and wiring devices	0	0	0	1	0	0	0	0	0	0	0
C27.4	Manufacture of electric lighting equipment	0	0	0	1	1	0	0	0	0	0	0
C27.5	Manufacture of domestic appliances	0	0	0	0	0	0	0	0	0	0	0
C27.9	Manufacture of other electrical equipment	0	0	1	1	1	0	0	0	0	0	0
C28.1	Manufacture of general-purpose machinery	0	0	0	0	1	0	0	0	0	0	0
C28.2	Manufacture of other general-purpose machinery	0	0	0	1	0	0	0	0	0	0	0
C28.4	Manufacture of metal forming machinery and machine tools	0	1	0	0	0	0	0	0	0	0	0
C28.9	Manufacture of other special-purpose machinery	0	0	0	0	0	0	0	0	0	0	0
C29.3	Manufacture of parts and accessories for motor vehicles	0	0	1	1	1	0	0	0	0	0	0

		Size	Employment	Wages	Employment Trend	Wages trend	Employment & Size	Wages & Size	Employment Trend & Size	Wages trend & Size	STATIC Employment & Wages & Size	TREND Employment & Wages & Size
Codes	Group-Description of economic activities	104	50	60	62	94	42	33	30	55	13	16
C30.1	Building of ships and boats	0	0	0	0	1	0	0	0	0	0	0
C30.9	Manufacture of transport equipment n.e.c	0	0	0	0	0	0	0	0	0	0	0
C31	Manufacture of furniture	1	0	0	0	1	0	0	0	1	0	0
C32.1	Manufacture of jewellery, bijouterie and related articles	0	0	0	0	1	0	0	0	0	0	0
C32.3	Manufacture of sports goods	0	0	0	0	0	0	0	0	0	0	0
C32.4	Manufacture of games and toys	1	1	0	1	1	1	0	1	1	0	1
C32.5	Manufacture of medical and dental instruments and supplies	0	0	0	0	1	0	0	0	0	0	0
C32.9	Manufacturing n.e.c.	0	0	0	0	0	0	0	0	0	0	0
C33.1	Repair of fabricated metal products, machinery and equipment	1	0	0	0	0	0	0	0	0	0	0
C33.2	Installation of industrial machinery and equipment	0	0	1	1	1	0	0	0	0	0	0
D35.1	Electric power generation, transmission and distribution	1	1	1	0	1	1	1	0	1	1	0
D35.2	Manufacture of gas; distribution of gaseous fuels through mains	0	0	1	1	1	0	0	0	0	0	0
D35.3	Steam and air conditioning supply	0	1	0	0	0	0	0	0	0	0	0
E36	Water collection, treatment and supply	1	1	0	0	0	1	0	0	0	0	0
E37	Sewerage	1	0	0	0	0	0	0	0	0	0	0
E38.1	Waste collection	1	1	0	1	1	1	0	1	1	0	1
E38.2	Waste treatment and disposal	0	0	0	1	0	0	0	0	0	0	0
E38.3	Materials recovery	1	0	0	1	0	0	0	1	0	0	0
E39	Remediation activities and other waste management services	0	0	0	1	1	0	0	0	0	0	0
F41.1	Development of building projects	1	0	1	0	0	0	1	0	0	0	0
F41.2	Construction of residential and non-residential buildings	1	1	0	0	0	1	0	0	0	0	0

		Size	Employment	Wages	Employment Trend	Wages trend	Employment & Size	Wages & Size	Employment Trend & Size	Wages trend & Size	STATIC Employment & Wages & Size	TREND Employment & Wages & Size
Codes	Group-Description of economic activities	104	50	60	62	94	42	33	30	55	13	16
F42.1	Construction of roads and railways	1	1	1	0	0	1	1	0	0	1	0
F42.2	Construction of utility projects	1	0	1	1	1	0	1	1	1	0	1
F42.9	Construction of other civil engineering projects	1	0	1	1	0	0	1	1	0	0	0
F43.1	Demolition and site preparation	1	0	1	1	1	0	1	1	1	0	1
F43.2	Electrical, plumbing and other construction installation activities	1	0	0	0	0	0	0	0	0	0	0
F43.3	Building completion and finishing	1	0	0	1	0	0	0	1	0	0	0
F43.9	Other specialised construction activities	1	0	0	0	0	0	0	0	0	0	0
G45.1	Sale of motor vehicles	1	0	1	0	0	0	1	0	0	0	0
G45.2	Maintenance and repair of motor vehicles	1	0	0	1	0	0	0	1	0	0	0
G45.3	Sale of motor vehicle parts and accessories	1	0	0	0	1	0	0	0	1	0	0
G45.4	Sale, maintenance and repair of motorcycles and related parts and accessories	0	0	0	1	1	0	0	0	0	0	0
G46.1	Wholesale on a fee or contract basis	1	0	0	1	1	0	0	1	1	0	1
G46.2	Wholesale of agricultural raw materials and live animals	1	0	0	0	0	0	0	0	0	0	0
G46.3	Wholesale of food, beverages and tobacco	1	1	0	0	0	1	0	0	0	0	0
G46.4	Wholesale of household goods	1	0	1	0	1	0	1	0	1	0	0
G46.5	Wholesale of information and communication equipment	1	0	1	0	1	0	1	0	1	0	0
G46.6	Wholesale of other machinery, equipment and supplies	1	0	0	1	0	0	0	1	0	0	0
G46.7	Other specialised wholesale	1	1	0	0	0	1	0	0	0	0	0
G46.9	Non-specialised	1	1	0	1	0	1	0	1	0	0	0

		Size	Employment	Wages	Employment Trend	Wages trend	Employment & Size	Wages & Size	Employment Trend & Size	Wages trend & Size	STATIC Employment & Wages & Size	TREND Employment & Wages & Size
Codes	Group-Description of economic activities	104	50	60	62	94	42	33	30	55	13	16
	wholesale trade											
G47.1	Retail sale in non-specialised stores	1	0	0	0	1	0	0	0	1	0	0
G47.2	Retail sale of food, beverages and tobacco in specialised stores	1	1	0	0	1	1	0	0	1	0	0
G47.3	Retail sale of automotive fuel in specialised stores	1	1	0	0	0	1	0	0	0	0	0
G47.4	Retail sale of information and communication equipment in specialised stores	1	0	0	1	1	0	0	1	1	0	1
G47.5	Retail sale of other household equipment in specialised stores	1	1	0	0	1	1	0	0	1	0	0
G47.6	Retail sale of cultural and recreation goods in specialised stores	1	0	0	0	1	0	0	0	1	0	0
G47.7	Retail sale of other goods in specialised stores	1	0	0	0	1	0	0	0	1	0	0
G47.8	Retail sale via stalls and markets	1	1	0	0	1	1	0	0	1	0	0
G47.9	Retail trade not in stores, stalls or markets	1	0	0	0	1	0	0	0	1	0	0
H49.1	Passenger rail transport, interurban	1	0	0	0	0	0	0	0	0	0	0
H49.2	Freight rail transport	0	0	0	0	0	0	0	0	0	0	0
H49.3	Other passenger land transport	1	1	0	0	1	1	0	0	1	0	0
H49.4	Freight transport by road and removal services	1	0	0	0	1	0	0	0	1	0	0
H49.5	Transport via pipeline	0	0	0	0	0	0	0	0	0	0	0
H50.1	Sea and coastal passenger water transport	0	0	1	0	0	0	0	0	0	0	0
H50.2	Sea and coastal freight water transport	0	0	1	0	1	0	0	0	0	0	0
H50.3	Inland passenger water transport	0	0	0	1	0	0	0	0	0	0	0
H50.4	Inland freight water transport	0	0	0	1	1	0	0	0	0	0	0
H51.1	Passenger air transport	0	0	1	0	0	0	0	0	0	0	0

		Size	Employment	Wages	Employment Trend	Wages trend	Employment & Size	Wages & Size	Employment Trend & Size	Wages trend & Size	STATIC Employment & Wages & Size	TREND Employment & Wages & Size
Codes	Group-Description of economic activities	104	50	60	62	94	42	33	30	55	13	16
H51.2	Freight air transport and space transport	0	0	0	0	0	0	0	0	0	0	0
H52.1	Warehousing and storage	0	0	1	0	0	0	0	0	0	0	0
H52.2	Support activities for transportation	1	0	1	0	0	0	1	0	0	0	0
H53.1	Postal activities under universal service obligation	1	0	0	0	1	0	0	0	1	0	0
H53.2	Other postal and courier activities	0	0	1	0	0	0	0	0	0	0	0
I55.1	Hotels and similar accommodation	1	0	0	1	0	0	0	1	0	0	0
I55.2	Holiday and other short-stay accommodation	0	0	0	1	1	0	0	0	0	0	0
I55.3	Camping grounds, recreational vehicle parks and trailer parks	0	0	0	1	0	0	0	0	0	0	0
I55.9	Other accommodation	1	1	0	1	1	1	0	1	1	0	1
I56.1	Restaurants and mobile food service activities	1	0	0	1	1	0	0	1	1	0	1
I56.2	Event catering and other food service activities	1	0	0	0	0	0	0	0	0	0	0
I56.3	Beverage serving activities	1	1	0	0	1	1	0	0	1	0	0
J58.1	Publishing of books, periodicals and other publishing activities	1	0	0	0	0	0	0	0	0	0	0
J58.2	Software publishing	0	0	1	0	0	0	0	0	0	0	0
J59.1	Motion picture, video and television programme activities	1	0	0	0	0	0	0	0	0	0	0
J59.2	Sound recording and music publishing activities	0	0	0	1	0	0	0	0	0	0	0
J60.1	Radio broadcasting	1	1	1	0	0	1	1	0	0	1	0
J60.2	Television programming and broadcasting activities	1	1	1	0	1	1	1	0	1	1	0
J61.1	Wired telecommunications activities	1	1	1	0	0	1	1	0	0	1	0
J61.2	Wireless telecommunications activities	1	0	1	0	0	0	1	0	0	0	0
J61.3	Satellite telecommunications	1	1	1	1	1	1	1	1	1		1

		Size	Employment	Wages	Employment Trend	Wages trend	Employment & Size	Wages & Size	Employment Trend & Size	Wages trend & Size	STATIC Employment & Wages & Size	TREND Employment & Wages & Size
Codes	Group-Description of economic activities	104	50	60	62	94	42	33	30	55	13	16
	activities											
J61.9	Other telecommunications activities	1	1	0	0	1	1	0	0	1	0	0
J62	Computer programming, consultancy and related activities	1	0	1	1	0	0	1	1	0	0	0
J63.1	Data processing, hosting and related activities; web portals	0	0	0	1	1	0	0	0	0	0	0
J63.9	Other information service activities	0	0	0	1	1	0	0	0	0	0	0
L68.1	Buying and selling of own real estate	0	0	0	0	0	0	0	0	0	0	0
L68.2	Rental and operating of own or leased real estate	1	0	1	0	1	0	1	0	1	0	0
L68.3	Real estate activities on a fee or contract basis	1	0	0	0	0	0	0	0	0	0	0
M69.1	Legal activities	1	0	0	1	0	0	0	1	0	0	0
M69.2	Accounting, bookkeeping and auditing activities; tax consultancy	1	0	1	0	0	0	1	0	0	0	0
M70.1	Activities of head offices	0	0	1	1	1	0	0	0	0	0	0
M70.2	Management consultancy activities	1	0	1	1	0	0	1	1	0	0	0
M71.1	Architectural and engineering activities and related technical consultancy	1	0	1	0	0	0	1	0	0	0	0
M71.2	Technical testing and analysis	1	0	1	1	0	0	1	1	0	0	0
M72.1	Research and experimental development on natural sciences and engineering	1	0	1	0	1	0	1	0	1	0	0
M72.2	Research and experimental development on social sciences and humanities	0	0	1	0	1	0	0	0	0	0	0
M73.1	Advertising	1	0	1	1	0	0	1	1	0	0	0
M73.2	Market research and public opinion polling	1	0	0	0	1	0	0	0	1	0	0
M74.1	Specialised design activities	0	0	0	0	0	0	0	0	0	0	0

		Size	Employment	Wages	Employment Trend	Wages trend	Employment & Size	Wages & Size	Employment Trend & Size	Wages trend & Size	STATIC Employment & Wages & Size	TREND Employment & Wages & Size
Codes	Group-Description of economic activities	104	50	60	62	94	42	33	30	55	13	16
M74.2	Photographic activities	1	1	0	0	1	1	0	0	1	0	0
M74.3	Translation and interpretation activities	0	1	0	1	1	0	0	0	0	0	0
M74.9	Other professional, scientific and technical activities n.e.c.	0	0	1	1	1	0	0	0	0	0	0
M75	Veterinary activities	0	0	0	1	1	0	0	0	0	0	0
N77.1	Rental and leasing of motor vehicles	0	0	0	1	0	0	0	0	0	0	0
N77.2	Rental and leasing of personal and household goods	0	0	0	0	1	0	0	0	0	0	0
N77.3	Rental and leasing of other machinery, equipment and tangible goods	0	0	0	0	0	0	0	0	0	0	0
N77.4	Leasing of intellectual property and similar products, except copyrighted works	0	0	1	0	0	0	0	0	0	0	0
N78.1	Activities of employment placement agencies	0	0	0	1	0	0	0	0	0	0	0
N78.3	Other human resources provision	0	0	1	0	0	0	0	0	0	0	0
N79.1	Travel agency and tour operator activities	1	1	0	0	0	1	0	0	0	0	0
N79.9	Other reservation service and related activities	0	0	0	0	1	0	0	0	0	0	0
N80.1	Private security activities	1	1	0	0	1	1	0	0	1	0	0
N80.2	Security systems service activities	1	0	0	1	1	0	0	1	1	0	1
N80.3	Investigation activities	0	1	0	0	0	0	0	0	0	0	0
N81.1	Combined facilities support activities	0	0	0	0	0	0	0	0	0	0	0
N81.2	Cleaning activities	1	0	0	1	0	0	0	1	0	0	0
N81.3	Landscape service activities	0	0	0	0	1	0	0	0	0	0	0
N82.1	Office administrative and support activities	0	0	1	1	1	0	0	0	0	0	0
N82.2	Activities of call centres	1	1	1	1	1	1	1	1	1	1	1
N82.3	Organisation of conventions and trade shows	0	0	0	0	0	0	0	0	0	0	0
N82.9	Business support	1	0	1	1	1	0	1	1	1	0	1

		Size	Employment	Wages	Employment Trend	Wages trend	Employment & Size	Wages & Size	Employment Trend & Size	Wages trend & Size	STATIC Employment & Wages & Size	TREND Employment & Wages & Size
Codes	Group-Description of economic activities	104	50	60	62	94	42	33	30	55	13	16
	service activities n.e.c.											
N95.1	Repair of computers and communication equipment	1	1	0	1	0	1	0	1	0	0	0
N95.2	Repair of personal and household goods	1	1	0	0	1	1	0	0	1	0	0

Annex 3 - Methodological guidance for the qualitative analysis

Introduction

Smart Specialisation Strategy (S3) represents the agenda of economic transformation of a territory and the capacity of an economic system to foster new paths of development on the basis of the existing local endowments of resources (Foray, 2015)⁴⁷.

In 2017, the JRC launched a project on "Smart specialisation and organisational development in enlargement and H2020 associated countries" now continued in JRC Work Programme with the aim of analysing and supporting the strategic management capabilities in the EU Enlargement and Neighbourhood Region. In 2019 DG NEAR and JRC have signed an Administrative Arrangement (AA), concerning the development of S3 in the Western Balkan region and supporting national governments in the region for that aim.

The Republic of Albania is involved in the above mentioned activities and currently conducting initiatives agreed with the European Commission for the definition of the National S3. These activities are part of the EU accession negotiations within the EU Enlargement Policy, with regards to Albania. More precisely, within this framework, Albania has recently carried out a quantitative analysis on the national innovation strengths and potential, with the identification of areas to be further investigated through a qualitative analysis, as a contribution to the S3 design process.

The quantitative mapping explored the economic, innovative and scientific potential of the Country and led to the identification of domains likely to provide large increase in wages/employment from research and innovation investments, as well as where investments could synergize with existing/planned development programmes. In order to support the national authorities in the follow-up activities, a further insight on the innovation potential is required, complementing the results of the quantitative mapping and providing the necessary data/information to approach the subsequent steps of entrepreneurial discovery process (EDP).

In particular, starting from the results of the quantitative analysis, the qualitative analysis is expected to characterize the detected domains, providing details on "dynamics behind the figures", collecting non-numerical data on intangible factors, exploring current and future perspectives.

The domains emerged from the quantitative analysis in Albania are:

- (NACE A) Agriculture, forestry and fishing: (A01.6) Support activities to agriculture and post-harvest crop activities; (A03.21) Marine aquaculture; (A03.1) Fishing;
- (NACE C) Manufacturing: (C10.8) Manufacture of other food products; (C24.5) Casting of metals;
- (NACE I) Accommodation and support service activities: (I55.9) Other accommodation;
- (NACE J) Information and Communication: (J61.3) Satellite telecommunications activities; (J62.09) Other Information technology;
- (NACE N) Administrative and support service activities: (N82.2) Activities of call centers; (N82.9) Business support services activities.

The aim of this document is to provide a methodological guidance on the way qualitative analysis will be carried out, with the specification of the information required and the operational indication to collect data/information.

To this aim the present document describes (1) the outline and the structure of the analysis; (2) the methods used, the list of other sources and the expected results; (3) the timeframe and (4) the documentation used during the implementation of the analysis. The document is then completed with a (5) proposal of index for the analysis report.

Outline and Structure of the analysis

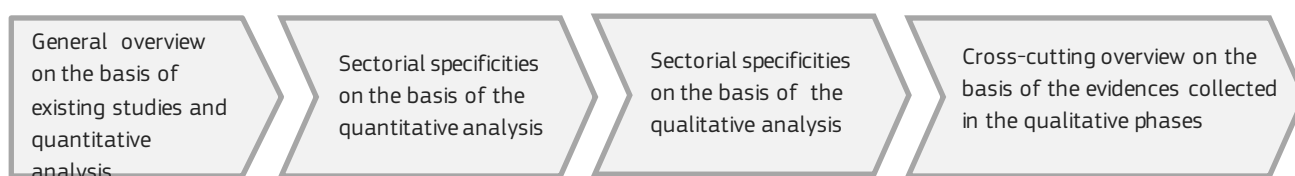
⁴⁷ Since 2014, S3 has been detected as one of the main theoretical framework for innovation policies in EU, addressing the allocation of the financial resources at national and regional level, related to EU Cohesion Policy for 2014-2020. For the Programming period 2021-2027 Members States are proceeding in updating their strategies and enforcing the detected governance structures.

The outline of the qualitative analysis is based on a sequence of steps leading from the results of the quantitative analysis, providing in-depth insights for each selected area and concluding with remarks useful for the next phase of the EDP.

The analysis foresees four steps:

- 1) Context and general overview of the national economic system. After a preliminary description of the legal framework in which the qualitative analysis is carried out, a general overview of the national economic and innovation system is represented, starting from main evidences coming from studies and analyses conducted by international institutes/organisation and reporting main findings coming from the quantitative analysis.
- 2) Main findings deriving from the quantitative analysis on the selected domains. Main information and data collected in the quantitative phase on the selected domains will be described. Motivation on the domains selection will be reported.
- 3) Qualitative analysis design, implementation and results. After the description of the methodological issues regarding the qualitative analysis design and implementation, an in-depth representation of the selected domains will be provided. On the basis of the collected data, issues likely to be addressed regard:
 - o value chain;
 - o current competitive advantage;
 - o existing technologies;
 - o existing competences;
 - o Innovation potential;
 - o COVID-19 impacts and challenges.
- 4) Qualitative analysis findings in a wider perspective. Main evidences emerged from the qualitative phase on each domain will be presented on a wider perspective. Linkages among sectors, asymmetries and cross-cutting opportunities will be highlighted. Conclusive remarks will be drawn on:
 - a. main strengths and challenges in terms of competitive advantage sources and endowments, as well as in terms of participation to international value chain and of macro-region positioning;
 - b. innovation potential in terms of future trends, regional distribution of relevant stakeholders and cross-sectorial innovation opportunities;
 - c. main hints useful for the subsequent phase of EDP and territorial participation.

The logic framework of the qualitative analysis can be outlined according to the scheme reported below.



During the qualitative phase, main contribution in terms of data collection will come from a survey and in-depth interviews (IDIs) addressed to Albanian representatives of companies, researchers, academics, Government officials, business organizations.

According to the logic framework outlined, the analysis will follow the structure described below.

Qualitative analysis outline	Qualitative analysis structure
<i>General overview on the basis of existing studies and quantitative analysis</i>	<p>- <u>Introduction and main goals of the analysis</u>. This section aims at providing a general framework of the context in which the analysis is carried out; main features on the S3 paradigm will be mentioned and the general aspects of the document will be presented.</p> <p>- <u>Qualitative analysis as a step of the S3 design process in Albania</u>. This section aims at providing a synthetic picture of the strategy design process, describing the analysis as an intermediate step, following the quantitative analysis and preliminary to the EDP phase.</p>

	- <u>Summary of quantitative analysis</u> . This section aims at providing a short description on the quantitative analysis conducted, providing most relevant findings related to the general context and including results from other sources
<i>Sectorial specificities on the basis of the quantitative analysis</i>	- <u>Detected areas subject to qualitative analysis</u> . This section will focus on each selected domain. Specific boxes will be prepared with the results of the quantitative analysis on the identified domains.
<i>Sectorial specificities on the basis of the qualitative analysis</i>	- <u>Methodological framework for qualitative insights</u> . This section aims at describing the methodological aspects related to qualitative data collection (survey and IDIs), explaining main goals, methods used, logic framework and expected results. - <u>Implementation: data collection</u> . This section aims at describing the way data collection activities will have been carried out: organizational and operational aspects, the contents treated timeframe and participation results. - <u>Data analysis per area</u> . For each selected area, a representation of the information collected with the survey and IDIs will be provided, highlighting specific aspects related to "value chain", "current competitive advantage", "existing technologies", "existing competences", "Innovation potential" and "Covid-19 impacts and challenges"
<i>Cross-cutting overview on the basis of the evidences collected in the qualitative phases</i>	- <u>Conclusion and recommendations</u> . This section will provide overall considerations on the emerged results on a cross-cutting perspective. Possible operational indications, related to the subsequent EDP phase, may be provided.

Methods used, list of other sources to be consulted and expected results

This section provides information on qualitative data collection, in particular specifies methods to be used and suggests operational hints for a large and qualified participation.

Information/data collection is mainly implemented through two tools:

- c) a survey,
- d) in-depth interviews (IDIs) for each selected domain.

The above mentioned activities are carried out directly by a local expert, responsible for preparing the list of stakeholders, the list of questions and the implementation of both survey and IDIs. The local expert will then return the results of the survey and the interviews carried out, according to the terms of reference defined by the JRC. The results emerging from the survey and interviews are used by an international expert in charge of defining the methodological aspects of the analysis and finalising the qualitative report, in line with the terms of reference defined by the JRC. The effectiveness of the activities is ensured by the collaboration between the local expert and the international expert and by the operational link with the JRC and the Albanian government.

Additionally, in order to collect complementary information, other sources of information will be taken into consideration.

The survey and the IDIs are considered particularly useful not only in order to provide information that generally are not detected by official statistics and quantitative tools, but also to provide information on the expected impacts from the COVID-19 outbreak, that technically may not be yet available in official data, since currently on-going.

a) Survey

The survey has the objective to provide better description and justification of the selected domains, in terms of value chains positioning, existing critical mass, future potential, cross-innovation opportunities and competitiveness at macro-regional level.

The survey will be sent to relevant stakeholders belonging to the selected domains and oriented to bring out both:

- main characteristics regarding their organizations;
- main features regarding the sector they belong to.

In order to avoid fragmentation and facilitate a large participation the questionnaire should be composed almost only with closed-ended questions. The selection of recipients will be based on a purposive approach, according to the domains selected, the territorial distribution and the recipients profile. The active participation should be promoted also by the government offices, as well as by business organisations and main relevant stakeholders.

Main issues to be faced with the survey are related to:

- A. *Value chain*: current strengths, weaknesses, opportunities and threats; Albanian positioning within the value chain; level of internationalisation; role of multinational enterprises and the relevance of foreign direct investments;
- B. *Current competitive advantage*: sources of competitive advantage, the relevance and availability of knowledge-intensive services for value creation; main challenges deriving from digitalisation and environmental sustainability; the relevance of intellectual property right in the domain, main intellectual property activities conducted (trademarks, patents...)
- C. *Existing technologies*: main technologies applied and the extent to which main players use them (to follow market requirements, to save costs, to differentiate products/services, to innovate.); main skills and competences required and their actual availability; capacity of the education system to provide required skills and competences; the relevance of human capital migration for the selected domains;
- D. *Innovation potential*: innovation challenges and bottlenecks in the development/application of innovative processes; dynamism in terms of start-up creation and companies grow;
- E. *COVID-19 impacts and challenges*: expected impacts (employment, wages, innovation, research, exports, value chains, foreign direct investments and other relevant economic indicators.); main challenges (finance, competences, international changes in the business model, new competitors...).

The survey will be launched electronically and recipients are expected to participate through a web-portal. Intelligent analytics tools should be available in order to have survey results in a short time. A brief description on S3 framework should be provided, describing S3 as a paradigm for innovation policies, but also as a part of the current EU accession negotiations for the Country.

Moreover the survey should be introduced as an attempt to encounter territorial perspectives and activate a dialogue with the territory. The completion of the questionnaire should be described as a step of a wider process, leading to better designed policies. To this aim the subsequent phase of EDP should be mentioned.

b) In-Depth Interviews (IDIs)

IDIs aim at providing detailed information on main challenges for the selected domains, unveiling specific features of value chains, current competitive advantages, relevant technologies and competences, opportunities for innovation potential.

IDIs will be addressed to relevant stakeholders from companies, academia, research organisations, governmental organisations and belonging to the selected domains.

Interviews will be oriented to bring out main features of the sector they belong to.

Issues to be faced with the IDIs regard the same topics addressed with the survey, but with a deeper level of detail. They are related to:

- A. Value chain:
 - a. main product/services realised in Albania and market destination (local/national/international.);
 - b. main Albanian stakeholders, their relevance and role at territorial level;
 - c. current strengths, weaknesses, opportunities and threats;
 - d. the evolution of economic sectors in recent years (main drivers);
 - e. Albanian positioning of the value chain (is the value chain international? where is the largest part of the value created? and which role has Albania?);
 - f. territorial concentration of sector-related companies/organisations;
 - g. role of multinational enterprises and the relevance of foreign direct investments;
- B. Current competitive advantage:

- a. sources of competitive advantage and their evolution in recent years;
 - b. the relevance and availability of knowledge intensive services for the value creation;
 - c. Current competitive advantage and main challenges deriving from digitalisation and environmental sustainability;
 - d. the relevance of intellectual property right in the domain, main intellectual property activities conducted (trademarks, patents...)
 - e. main differences between Albania and other countries in the macro-region with regards to the domain selected;
- C. Existing technologies:
- a. main technologies applied and to what extent main players use them (to follow market requirements, to save costs, to differentiate products/services, to innovate..);
 - b. main research and innovation activities/projects;
 - c. main technological infrastructures and why are relevant for the domain;
- D. Existing competences:
- a. main skills and competences required and their actual availability;
 - b. main skills and competences required by competitors in the macro-region;
 - c. capacity of the education system to provide required skills and competences;
 - d. the relevance of the human capital migration for the selected domain;
- E. Innovation potential:
- a. innovation challenges and bottlenecks in the development/application of innovative processes;
 - b. dynamism in terms of start-up creation and companies grow;
 - c. main opportunities of innovation scale-up;
 - d. main cross-sectorial collaboration;
 - e. main research centers/university collaboration opportunities;
 - f. main opportunities of cross-sectorial innovation, main similarities with other sectors in terms of competences, technologies and market;
- F. COVID-19 impacts and challenges:
- a. the expected impacts of the economic crisis caused by the COVID-19 pandemic on the preliminary priority areas in Albania, in terms of employment, wages, innovation, research, exports, value chains, foreign direct investments and other relevant economic indicators;
 - b. main upcoming challenges and needs affecting the potential of development of the selected domains in Albania, in terms of finance to investments, required competences, changes in global value chains, comparative advantage dynamics in the macro-region and other relevant dynamics.

As mentioned interviews will be conducted to relevant stakeholder (between 10 and 15 per selected domain) and will follow a semi-structured approach: the local expert will define a predetermined list of questions or topics for discussion, but allows the conversation to evolve, based on how the participant responds.

The interview will be conducted face to face (with remote IT solutions) and will provide information on individual opinions, experiences and at least should last 90 minutes each.

IDIs should be oriented to the verification/confirmation of the main results coming for each selected domain from the quantitative analysis.

When contacting interviewees, the general aim of the analysis should be anticipated, as well as main quantitative results regarding the domain and the macro-topics to be discussed during the interview.

The main operational objective of interview is to have relevant stakeholders outlook on future trends. For an effective exploitation of data collection activities, IDIs should be subsequent to the survey, so that fragmentation, lack of data and incoherencies on survey findings could be faced with relevant stakeholders. In the opposite, in case of strong evidences from the survey, the interview could allow a confirmation/verification also from the perspective of relevant stakeholder.

The local expert is expected to define the questionnaires, take notes and annotations during the interview and return the outputs to JRC and to the international expert.

On the basis of collected data, main results from survey and interviews will be categorised for each selected domain and reported in the qualitative analysis. Possible regularities, linkages or causal relationships among sectors will be highlighted and described in the final Report.

Other sources and expected results

In addition to the evidence coming from quantitative analysis and the results of the survey and the IDIs, other sources of information will be taken into consideration:

- A. Recent Communications on EU Enlargement Policy with regards to Albania in order to contextualize the process of S3 formation as a step of the accession negotiation with regards to the chapter science and research;
- B. Statistics from Eurostat and the Statistical Authorities in Albania, eventually able to provide complementary information to main findings from quantitative analysis;
- C. OECD Reviews on Education in Albania, eventually able to provide complementary information to main findings on education from quantitative analysis;
- D. UN Country Analysis and Progress Report, both eventually able to provide complementary information on the socio-economic context and possible conclusive remarks on UN SDGs;
- E. World Bank country reports to provide complementary information regarding the socio economic context.

Other sources that may be necessary will be detected during the implementation phase of the qualitative analysis. On ordinary basis other sources of information that may occur are detected by the international expert. The local expert, Albanian Governmental, Offices and the JRC may indicate additional sources and specific publications, complementary to those mentioned above.

Annex 4 - Questionnaires

A – Questionnaires for the survey

Businesses

1. Email Address
2. Name of the company
3. Location
4. Main field of activity (based on NACE-rev 2 classification)
5. Number of employees
6. Time of activity
7. Does your company operate locally or nationally?
8. Your company falls into one or more of the following categories
9. Does your company also carry out research and development activities?
10. If "yes", how many employees are involved in research and development activities?
11. Do you have a dedicated budget for research and development activities?
12. Please specify the field in which the company carries out research and development activities
13. Which are, in your opinion, the main strengths of the sector?
14. What about the main weaknesses of the sector? Which are?
15. Where is your value chain based?
16. Positioning of your company in the Albanian market is mainly determined by:
17. Which are 2 main activities with the greatest weight within the Value Chain?
18. Which are two main sources of competitive advantage of your company?
19. The main challenge regarding digitalization of processes, in your opinion is related to
20. Has your company taken environmental protection initiatives in the last 12 months? (for example, reducing energy consumption, fuels, reducing pollution from waste, replacing recycled products, etc)
21. In the last 5 years or since you founded the company, has your company introduced new or significantly improved
22. In the last 5 years or since you founded the company, has your company acquired patents?
23. If yes, specify the number
 - a) Improving organizational strategies and increasing labor productivity
 - b) Use of external expertise for skills development
 - c) Improving the competitiveness of enterprises by entering new markets and diversifying the range of products / services
 - d) Facilitating the exchange of experiences, good practices and cooperation between companies
 - e) Focus on niche products
 - f) Alignment with environmental standards
 - g) Introduction of new technologies for the production of high value-added goods and services

h) Acquisition of patents and certification of products

i) Improving the capacity to prevent and manage risks and adapt to market dynamics

24. Does your company use on-site computer systems to manage customer-related business activities such as sales, billing, etc.? (Computer systems can be Laptop, Palmtop, Handheld PC, etc.)

25. Do you plan to invest more in technology in the next three years?

26. If (YES), what % of profit is planned to be invested in technology?

27. For which of the following issues does your company uses technology?

28. Do you have diaspora employees in your company?

29. If YES, how much?

30. In your opinion, where is the importance of engaging human capital diaspora for the business environment?"

a) To be competitive on the markets is closely related to the level of education of the workforce in the company

b) Offers for practical work experience - a key element in education and training at all levels

c) Employers need to provide opportunities for prospective employees

d) Cooperation with companies must be enforceable

e) Academia and training centers should be mediators

31. How do you appreciate the collaboration so far between academia and the private sector in the field of research and development?

32. Do you have access to funding programs which allows you to introduce product innovation (goods or services), process, marketing or organizational innovation?

33. If yes, what kind of support did you received?

34. Do you collaborate with companies from other industries or within the same industry?

35. If YES, with which industry?

36. In your opinion, what makes the concept of inter-industry collaboration successful?

37. If you have an inter-industrial collaboration, in what form are you involved?

38. Which are the main reasons for creating an inter-industry collaboration?

39. In the last 5 years or since you founded the company, has your company purchased protected industrial models and designs? Specify the number.

40. Could you identify the state measures that could help your company grow?

a) Lack of own funds

b) Lack of funding from other sources

c) Too high innovation costs

d) Lack of qualified personnel

e) Lack of information on technology

f) Lack of information on market demand for products or services

g) Difficulties in finding cooperation partners for innovation (e.g., for product and process development or for marketing partnerships)

h) The market is dominated by other established companies

- i) Uncertainty of demand for innovative products and services
- j) Innovation is not needed as the sector is already innovative
- k) Lack of demand for innovations (reasons not to innovate)
- l) Legislation, regulations, standards
- m) Other, please list and classify (e.g., copyright issue, etc.)

- Employment
- Wages
- Turnover
- R&D
- Exports
- Value chains
- FDI
- Technologies

41. Main challenges post COVID19 in your company"

CSOs

1. Name of the organization represented
2. Location
3. Which of the following areas do you consider your CSO belongs to?
4. How many staff/volunteers does your organization have?
5. On a scale of 1 to 5, where "1" is the least and "5" the most, how much do you think your organization addresses social challenges?
6. What is the geographical coverage of the CSO you are working at?
7. Main area of focus of your organization?
8. What are main factors contributing to the organization's financial and operational sustainability?
9. Did your organization receive funding from any of the following sources in the last year? (If YES, choose)
10. If YES, was this funding from
11. On a scale of 1 to 5, where "1" is the least and "5" the most, how good is your organization's collaboration with the private sector? (Please tick your opinion on the scale.)
12. Which are the advantages of collaborations with private sector?
13. On a scale of "1 to 5" where "1" represents the least and "5" the most, how good do you think your organization's collaboration with public institutions - universities, research centers, institutes of research, local authorities? (Please tick your opinion on the scale.)
14. How often you involve in policy dialogue with the government?
15. On a scale of "1 to 5" where "1" is the least and "5" the most, how much opportunities do you think there is for the development of partnerships to exploit the innovative potential of the region? (Please tick your opinion on the scale.)
16. Which is the main program category of technology that your organization intends to use more in the future?
17. What is the main barrier to using technology in your organization?

Government

1. Name of the institution represented
2. City / county
3. How would you assess the regional innovation system in your area?
4. Does your institution support and encourage innovation for economic operators?
5. Does your organization engage in innovation in processes or communication?
6. Does your organization engage in capacity building or continuing education?
7. Does your organization regularly consult business and education leaders to receive feedback on how to better provide services to your community?
8. In the past five years, how many innovations related events has your organization attended? (Conferences, expos, etc.)
9. Did your organization carry out the procurement of innovative solutions (based not only on the price, but on demanding performance specifications and with selection of the bids based on the cost-benefit ratio, possibly in a life-cycle perspective)?
10. Has your institution implemented projects with positive impact on the business environment?
11. To what extent have these projects contributed to the development of the region? 1-in a very large extent and 5-not at all
12. On a scale from "1 to 5" where "1" represents the least and "5" the most, how much is your institution interested in organizing actions to promote research and innovation (conferences, seminars, exhibitions, etc.)
13. On a scale of "1 to 5" where "1" is the least and "5" the most, how good is the collaboration between public institutions in the region?
14. On a scale of "1 to 5" where "1" is the least and "5" the most, how good is your institution's collaboration with the private sector?
15. Are there funds at regional, national and local levels to encourage and support research and development projects?
16. How is the funding for business support services allocated?
17. Please rate the degree to which you agree with the following sentence: "Albania makes full use of its innovation potential." 1-very little and 5- very much
18. Which of the following is the primary barrier to additional Albanian innovation?
19. In which ways do you believe government can be most helpful in spurring innovation and market growth
20. In your region or technical sector, which types of organizations have contributed most to innovative activity

Academia and Research Centres

1. Name of the institution
2. Location
3. Category
4. Please indicate the types of activities that your institution engages in
5. Please select the fields in which your institution carried out R&D activities
6. Please rate how strongly you agree with the following sentence: "My organization is leading research in my field."

7. Please rate how strongly you agree with the following sentence: "My field is a strength of research and innovation in Albania."
8. Does your organization have a technology transfer unit?
9. If No, do you believe your organization needs such a unit?
10. In the last 5 years, have you obtained a patent or patents as a result of your R&D activities?
11. In the future, the number of patents in my region will increase
12. In the past five years, has your institution used their own facilities to carry out R&D activities?
13. In the last 5 years, has your institution implemented research projects aimed at creating products and services for the market? If yes, how many projects were completed? What was the number of staff involved in these projects? What was the average budget of these projects?
14. Has your institution received funds for R&D and innovation projects from any of the following sources in the last 5 years?
15. In how many projects funded by the government, has your institution been engaged? Referring to the last five years
16. In how many internationally funded projects, has your institution been engaged? Referring to the last five years
17. How satisfied are you with the availability and use of national and international funding?
18. Which of the following partners are most helpful in developing collaborative research projects
19. How many joint projects have you or your institution engaged in over the last five years with other institutes, governments, or firms?
20. In the last year, how many conferences, expos, or other collaborative events has your institution attended?
21. Which are, in your opinion, the main strengths of the sector?
22. Which are the main weaknesses of the sector?
23. Which are two main sources of competitive advantage of your institution?
24. On a scale of 1-5, with 1 being not at all and 5 being to a very large extent, to what extent do you believe the R&D potential in Albania is being fully utilized?
25. What are the needs for the development of technology transfer in the Region?
26. What are the barriers to the development of technology transfer in the region? Select all that apply

B - Questionnaires for the In-depth interviews

Businesses

(July 15th, - August 31st, 2021)

1. Which is the organizational structure of your company (governing structure, departments, staff, etc.)?
2. Do you usually work with suppliers, cooperation partners or customers outside Albania? Do you have knowledge about role of Albania in Value Chain and the part where the most value is created?
3. Which type of assets, skills, expertise and knowledge makes your company different from competitors (competitive advantage)?
4. What upcoming threats and challenges do you see for your firm in the next decade?
5. Do you usually work with suppliers, cooperation partners or customers outside your region/ country? To which destinations do most of your exports go?
6. Has your company developed an innovation in the last 3 years? (incl. based on research, technological development, process, organizational or marketing innovation, new business models, new combination of existing knowledge)
7. Does the research and innovation support offered in your region/country correspond to your needs? What would be suitable incentives / conditions for you to decide to invest (more) into research and innovation?
8. Which technologies, products, and global market opportunities do you conceive as very promising for the upcoming decade (in general, not only for your company)?
9. Which sub-sector of your industry, if any, do you consider as most promising and worth to be developed for increasing the whole industry's performance?
10. How is the collaboration with the Higher Education Institutions and Vocational schools? Do you know the research and education fields of the nearest universities? Do you cooperate with them? Do you have joint programmes aimed at supporting students' entry to labour market?
11. Do you think young people are well enough trained or skilled to face the demand of your industry labour market?
12. Do you easily find employees and collaborators, in particular highly qualified personnel, in your region/country (e.g., the local university) or do you need to look further afield?
13. Which have been impacts of Covid 19 in your company in terms of employment, wages, innovation, research, exports, value chains, foreign direct investments and other relevant economic indicators?
14. In your opinion which are main upcoming challenges and needs affecting the potential of development of your company and sector in Albania?

Businesses

(September - October - November)

1. Which are the main features of your company (your main products/services and market destination local/national/international...)?
2. How relevant is the domain selected among those of your company operation?
3. Do you usually work with suppliers, cooperation partners or customers outside Albania? How relevant are international stakeholders in the domain selected? Which are the main market destinations of with regards to the selected domain? Do you have knowledge about role of Albania in Value Chain and the part where the most value is created with regards to the domain selected?

4. In your opinion which are the main strengths and weaknesses of the selected domain? Can this be a threat for the upcoming decade?
5. Which type of assets, skills, expertise and knowledge do you consider as most relevant in value chain selected (the basis of the competitive advantage)?
6. How relevant is technological innovation in the selected domain? Has your company developed an innovation in the last 3 years? (incl. based on research, technological development, process, organizational or marketing innovation, new business models, new combination of existing knowledge) With regards to the selected domain, which are the main sources of innovation? (Internal to the company, research centers, coming from leading companies, multinational enterprises, international research centers...)
7. Which is the main technological/innovation challenge for your sector in the next decade?
8. Does the research and innovation support offered in your region/country correspond to your needs? Are knowledge-intensive services relevant for competing in the selected domain and are they available at local/national level? What would be suitable incentives / conditions for you to decide to invest (more) into research and innovation?
9. Do you have knowledge on main research centers/universities that could help your company in the selected domain? Which are the main one and why?
10. Is patenting relevant for your company and do you consider it relevant for the selected domain?
11. With regards to the domain selected, do you have knowledge of the main differences between Albania and other countries in the macro-region?
12. Which sub-sector of your industry, if any, do you consider as most promising and worth to be developed for increasing the whole industry's performance?
13. Is there any cross-sectorial collaboration among the domains selected by the Albanian government? (Examples?)
14. How is the collaboration with the Higher Education Institutions and Vocational schools? Do you know the research and education fields of the nearest universities? Is industry-science cooperation relevant for the selected domain? Do you have joint programmes aimed at supporting students' entry to labour market?
15. Do you think young people are well enough trained or skilled to face the demand of your industry labour market? Do you consider the selected domain as profitable for new start-ups?
16. Do you easily find employees and collaborators, in particular highly qualified personnel, in your region/country (e.g., the local university)?
17. Which have been impacts of Covid 19 in the selected domain in terms of employment, wages, innovation, research, exports, value chains, foreign direct investments and other relevant economic indicators?"

Government

(July 15th, - August 31st, 2021)

1. Do you know which are the main research and innovation actors in your region/country? Which are their fields of competence?
2. Do you know who in your region/country participated in the EU Research Framework Programme or the Competitiveness and Innovation Programme? Or are you aware of any participation and success rate statistics concerning to that?
3. Do you know which or how many Albanian companies registered in the past 2-3 years European Patents?
4. In which sectors do you have most start-ups in your region/country? ... and which seem to survive and grow after 5 years?
5. Which are the fastest growing firms or biggest exporters in your region/country? Do you know on what they base their success and with whom they cooperate?

6. What are the main needs of innovative firms in your region/country to grow?
7. Besides science or technology driven innovation, which other forms of innovation/economic transformation do you support in your region?
8. Do you have specific funding instruments for innovation or R&D activities?
9. Who are the private innovation support providers (B2B) and what support do they offer?
10. Are you aware about existing measures to support innovation in neighboring and Western Balkan economies? do you cooperate within the region or at EU level within innovation and R&D support framework?
11. What are the main challenges to innovation in Albania?
12. How is the funding for business support services allocated: to existing bodies or via a competition among potential service providers?
13. What are the results of evaluations of innovation and business support in your /country, if any? (Research and development, testing, prototyping, technology transfer, counselling, incubators, cluster / networking initiatives, science and technology parks, support for creative thinking /design, technology audits, Living Labs, proof of concept, etc.) What main lessons have been learnt?
14. Which department(s) is/are in charge of innovation policies and budgets? How do you cooperate with the different governance levels and departments in charge of research, innovation, business development and skills?
15. What is the budget allocated to research and innovation by your region / country? Are the schemes revolving or grant-based? Are they allocated on the basis of a competition based on quality? Are the financial support schemes designed to generate synergies and cooperation with private financing bodies and investors?
16. Where does the funding in R&D and innovation go to: rather to individual projects (research, or to development, demonstration, technological validation, testing in system environments, development of prototypes, support to set up production lines), to universities vs. enterprises to improving the innovation eco-system (innovation support services, networking / platforms, incubation, training, mobility and access to human resources, etc.)?

Government

(September - October – November)

1. Which is the role of your organization with regards to the selected domain?
2. What are the main needs and challenges to innovation in Albania? And with regards to the selected domain which are the main strengths and weaknesses? what upcoming threats and challenges do you see for the selected domain in the next decade?
3. In your perspective which are the main players (Companies, Universities, CSOs, Research centers) operating in the selected domain?
4. In your perspective and in general terms, is there effective collaboration between companies and university-research centers, with regards to the selected domain?
5. With regards to the selected domain do you know who in your region/country participated in the EU Research Framework Programme or the Competitiveness and Innovation Programme? Or are you aware of any participation and success rate statistics concerning to that?
6. With regards to the selected domain do you know which or how many Albanian companies registered in the past 2-3 years European Patents? And the rate of success of start-ups?
7. What are the main needs of innovative firms in your region/country to grow with regards to the selected domain?
8. Besides science or technology driven innovation, which other forms of innovation/economic transformation do you support in your region? Are those relevant in the selected domains?
9. Do you have knowledge of any cross-sectorial collaboration?

10. With regards to the domain selected, do you have knowledge of the main differences between Albania and other countries in the macro-region? Are you aware about existing measures to support innovation in neighboring and Western Balkan economies? do you cooperate within the region or at EU level within innovation and R&D support framework?

11. In your perspective, which are the main needs to tackle to unlock the potential in the selected domain? Do you have specific funding instruments for innovation or R&D activities?

12. Who are the private innovation support providers and what support do they offer?

13. How is the funding for business support services allocated: to existing bodies or via a competition among potential service providers?

14. Are beneficiaries happy with the existing instruments? What are the results of evaluations of innovation and business support in your /country, if any? (Research and development, testing, prototyping, technology transfer, counselling, incubators, cluster / networking initiatives, science and technology parks, support for creative thinking /design, technology audits, Living Labs, proof of concept, etc.) What main lessons have been learnt with regards to the selected domain?

15. Which department(s) is/are in charge of innovation policies and budgets? How do you cooperate with the different governance levels and departments in charge of research, innovation, business development and skills? Is there any specific policy instrument with regards to the support to innovation in the selected domain?

16. What is the budget allocated for the support to research and innovation by your region / country? Are the financial support schemes designed to generate synergies and cooperation with private financing bodies and investors?

17. Where does the funding in R&D and innovation mainly go to: rather to individual projects research, or to development, demonstration, technological validation, testing in system environments, 4 developments of prototypes, support to set up production lines, to universities vs. enterprises to improving the innovation eco-system, innovation support services, networking / platforms, incubation, training, mobility and access to human resources, etc.?

18. With regards to the selected domain, are there any strategic assets (skills, competences, knowledge, infrastructures, companies) from which start working in order to strengthen development opportunities?

19. In your perspective which have been the main impacts of Covid 19 in the selected domain (employment, wages, innovation, research, exports, value chains, foreign direct investments...)? Which are main upcoming challenges and needs affecting the potential of development of the selected domain in Albania?"

Academia –Research Centres

(July 15th, - August 31st, 2021)

1. How is your institution organized (governing body, departments, staff, etc.)?

2. Which research issues and future technologies do you conceive as most promising (not only technological / natural sciences, but also social sciences, arts, etc.)?

3. With which enterprises or research institutes in your region/country do you cooperate and in which field? (Both in terms of skills development /training and research related activities) Do you get a part of your budget from private investors?

4. How much mobility is there between the public science and education and the private sector (i.e., are graduates/engineers/professors moving between universities and firms and back; are entrepreneurs/managers invited to lecture in universities)?

5. Do you train students and graduates to become entrepreneurs? Is there any cooperation between the science/technology, business and arts faculties?

6. How much do you cooperate with international/European partners (e.g., via the Research Framework Programme/Horizon 2020, Competitiveness and Innovation Programme/COSME, EUREKA, EIT, COST, etc.)?

7. What important research infrastructure and creativity hotspots are established in your region/ country? Can you access infrastructure/hotspots in other regions/countries?
8. What do you think is the strengths of your institutions in Albania?
9. What are threatens and main challenges that prevent the HEIs and research actors of the country to be more active?
10. Which sectors or subsectors of national industries do you consider as the most promising ones in the medium/long run term?
11. Do you have a good or constant dialogue with the government?
12. Would you like or do you think would be useful that your institution be more involved in policy makers decisions for development and innovation related polices?

Academia –Research Centres

(September - October – November)

1. Which are the main features of your organisation (your main research fields)? How relevant is your role within the domain selected and why is your institution and similar HEIs so important in Albania?
2. In your perspective, which are the main strengths and weaknesses of the selected domain? And what upcoming threats and challenges do you see for the selected domain in the next decade?
3. With regards to the selected domain which innovation opportunities do you consider as the most promising ones in the medium/long run term?
4. In your perspective with are the main players (Companies, Universities, CSOs, Research centers) operating in the selected domain?
5. With regards to the selected domain with research institutes in your region/country do you cooperate and in which field? (Both in terms of skills development /training and research related activities)
6. What about the cooperation with businesses?
7. How much mobility is there between the public science and education and the private sector (i.e., are graduates/engineers/professors moving between universities and firms and back; are entrepreneurs/managers invited to lecture in universities) with regards to the selected domain? Do you train students and graduates to become entrepreneurs (in the selected domain)?
8. What about funding? Do you get a part of your budget from private investors for activities related to the selected domain?
9. Is patenting relevant for your organisation and do you consider it relevant for the selected domain? In your perspective which are the main innovation driver with regards to the selected domain?
10. What skills and competences do you consider necessary to drive innovation in Albania with regards to the selected domain? And are the available?
11. What technologies do you consider strategic for the development of the selected domain? Are those technologies available in Albania? Which are the main constraints and needs to tackle in order to unlock the untapped potential, with regards to the selected domain?
12. In your perspective, which are main cross-sectorial innovation opportunities or experiences that could be fostered among the domains selected by the Albanian government?
13. With regards to the selected domain how much do you cooperate with international/European partners (e.g., via the Research Framework Programme/Horizon 2020, Competitiveness and Innovation Programme/COSME, EUREKA, EIT, COST, etc.)?
14. Which are the main research infrastructures in Albania with regards to the selected domain?

15. What are threats and main challenges that prevent the HEIs and research actors of the country to be more active?

16. Do you have a good or constant dialogue with the government?

17. Would you like or do you think would be useful that your institution be more involved in policy makers decisions for development and innovation related policies?

18. In your perspective which have been the main impacts of Covid 19 in the selected domain (employment, wages, innovation, research, exports, value chains, foreign direct investments...)?

CSOs

(July 15th, - August 31st, 2021)

1. Which is organizational structure of your organization (governance body, staff, expertise, network of experts, etc.)?

2. How fit is your regional science/enterprise/creativity/skills potential to address societal challenges (e.g., health and ageing, climate change, pollution, traffic, energy, social inclusion, etc.)?

3. How could you personally contribute to an innovation-driven economic transformation of the region for higher added value and better living conditions? (In terms of ideas, bringing different stakeholders together, drive cooperation processes, etc.)

4. Do you collaborate with research centers, universities or companies to bring about change in a particular issue? In what areas?

5. Which are the types of innovations that you would like to get in the future? (Private and public sphere, radical and incremental or based on a new combination of existing solutions)

6. What would be your vision/dream for innovation-driven transformations in your region / country?

7. As for the tackling of major societal challenges (in particular as regards environment and social challenges) not only technical and other innovations are necessary, but also behavioral changes, what would be necessary to make you change your behavior?

CSOs

(September - October - November)

1. Which are the main features of your organisation (your main research fields)? How relevant is your role within the domain selected and why is your institution and similar HEIs so important in Albania?

2. In your perspective (as CSO) which are the main strengths and weaknesses of the selected domain? And what upcoming threats and challenges do you see for the selected domain in the next decade?

3. In your perspective which are the main players (Companies, Universities, CSOs, Research centers) operating in the selected domain?

4. How fit is your regional science/enterprise/creativity/skills potential to address societal challenges (e.g., health and ageing, climate change, pollution, traffic, energy, social inclusion, etc.) with regards to the selected domain?

5. How could your organization contribute to an innovation-driven economic transformation of the region for higher added value and better living conditions with regards to the selected domain? (In terms of ideas, bringing different stakeholders together, drive cooperation processes, etc.)

6. With regards to the selected domain, does your organization collaborate with research centers, universities or companies to bring about change in a particular issue? In what areas?

7. Which are the types of innovations that you would like to get in the future with regards to the selected domain? (Private and public sphere, radical and incremental or based on a new combination of existing solutions)

8. What would be your vision/dream for innovation-driven transformations in your region / country with regards to the selected domain?
9. Which are the main socioeconomic needs to tackle in order to unlock the potential with regards to the selected domain? In your opinion are there any strategic assets (skills, competences, knowledge, infrastructures, companies) from which start working in order to strengthen development opportunities?
10. In your perspective which have been the main impacts of Covid 19 in the selected domain (employment, wages, innovation, research, exports, value chains, foreign direct investments...)?

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