

**Interreg IPA South Adriatic  
(Italy–Albania–Montenegro 2021-2027)**



## THEMATIC FACTSHEETS

**Key Issues and Potentialities for Social and Economic Sustainable Development of the Programme Area**

## ***Introduction***

Following up on the key outcomes of the Territorial Analysis, carried out during the programming phase of the 2021-2027 Interreg IPA South Adriatic (*see annex 4 of the adopted programme*), while at the same time building on the outcomes of the projects of the 2014-2020 Interreg IPA CBC Italy-Albania-Montenegro, these 5 thematic factsheets focus on key issues and potentialities for social and economic sustainable development of the programme area.

The global objective of these 5 factsheets is to provide potential applicants and beneficiaries with concrete assistance in project development and implementation, in order to facilitate a better exploitation of the potentialities of the territories and to remove key bottlenecks, identified by the experts.

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# **Potential of Aerospace Technologies for the Adriatic Basin in Relation to Smart Cities**

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## Executive summary

Aerospace technologies, and in specific unmanned aerial systems or drones are a diffusely experimented in many applicative scenarios all over Europe and world. They are experimented to collect data from the surveyed areas in conjunction with sensors and to transport goods and in future also passenger. Aerial observation is specifically very useful to public and private operators in achieving situation awareness with respect to specific conditions. Data and information extracted from aerial data can be applied in a number of industries: farming, risk management, city development planning, infrastructure inspection. The transport capacity of drones is currently experimented in emergency applications thanks to the capacity of avoiding ground traffic congestion, while other transport business cases are also in the innovation pipeline.

The regions referenced in the program INTERREG IPA CBC, now South Adriatic, are very prone to exploit the benefits of drones to contribute to solve needs coming from public actors (municipalities, public agencies), in example manage natural as well as urban environments, namely smart city, and to improve effectiveness of industry, i.e. farming industry.

The technological and physical infrastructures (space and digital services, U-space services, vertiport/vertipads) necessary for safe and effective drone operations is discussed.

Regione Puglia is a leading European region in this field thanks to the activities realized by Distretto Tecnologico Aerospaziale in the creating a stable and collaborative eco-system including research organizations, SMEs and large enterprises, and end users, and in deploying the research and experimentation infrastructure Grottaglie Airport Test Bed, which include also the Bari Urban Drone Range.

The report proposes some application areas in which drones can contribute to the improvement of quality of services provided to the society, considered as a system of public actors, private companies and citizen.

## Introduction

This Factsheet report aims to assist the Managing Authority of the Interreg IPA CBC Italy-Albania-Montenegro programme, now known as IPA CBC South Adriatic, in establishing a knowledge base for the development of long-term and strategic guidelines. The report focuses on the use of specific UAS technologies and advanced air mobility services as innovative aerospace solutions for applications in smart cities and rural areas, in line with European trends.

With the report "Drone Strategy 2.0 for a smart and sustainable unmanned aircraft ecosystem in Europe", the European Commission introduced the generic term Innovative Aerial Services (IAS). IAS encompasses all services that drones can provide, from observation to transport of passengers and small packages. It is a dynamic technology domain in the development of airborne platforms, air traffic services, payloads and applications. Therefore, the development of this technology domain is expected to bring significant changes in smart city, where public administrations will use drones to monitor urban and peri-urban areas and for urgent or emergency transport as well as for improving quality of life of citizen.

The report takes into account the context of reference areas of the South Adriatic Programme, as reported in the "Territorial Analyses Realised by ARTI", as well as the objectives stated in the South Adriatic Programme for 2021-2027.

### Purpose of the Factsheet

This factsheet presents the main areas of application of UAS (Unmanned Aircraft Systems). In addition, the development of experimental and operational ground infrastructure is discussed due to its impact on development dynamics and trends. The objective of the report is to highlight the way to develop the technology domain of IAS for the benefits of the three reference countries, Italy, Albania, Montenegro, with the mission of contributing to making the area attractive for private investment in innovative domains.

### Structure of the factsheet

The factsheet focuses on contractual issues and was adapted to the meetings held with contract reference persons and is divided into 2 main sections. The first one is intended to introduce the state of the art of the Innovative Aerial Service (IAS) domains. Several aspects will be considered: what IASs are, the infrastructure needs they poses, the key technologies. The second section proposes few intervention actions that focus on key opportunities the program regions can grasp: while society (smart cities, public and private organizations, citizen) benefit of innovative aerial services provision, the local players can become knowledge expert, develop local infrastructures, deepen innovation capacity and, in the end, create attracting factors for future private investments.

### Reference documents

1. Contract between DTA and ARTI and its annex 'Oggetto dell'affidamento e articolazione delle attività'
2. Interreg IPA South Adriatic, version no. 1.2
3. Annex 04 Territorial analysis to Interreg IPA South Adriatic, version no. 1.2
4. A Drone Strategy 2.0 for a Smart and Sustainable Unmanned Aircraft Eco-System in Europe
5. Project SKEYE - Strengthening Key aErospace technologyY for smart transport monitoring systEms, and related documents
6. Piano Strategico Nazionale AAM (2021-2030) per lo sviluppo della Mobilità Aerea Avanzata in Italia, ENAC

## Acronyms and definitions

UAS: unmanned aerial system (in this report the acronym UAS and drone are used with the same meaning)

IAS: innovative aerial service

ATM: air traffic management

ANSP: Air navigation service provider

UTM: unmanned air traffic management

USSP: U-space service provider

UAM: urban air mobility

VLL: very low level (air space)

GATB: Grottaglie Airport Test Bed

RF: radio frequency

TELCOM: telecommunication

SATCOM: satellite communication

EO: Electroptical sensor

IR: Infrared sensor

MS: Multispectral sensor

HS: hyper spectral sensor

DLL: Drone Living Lab

## Innovative aerial services in Europe

### Definition

The European Aviation Safety Agency (EASA) has introduced the new concept of Innovative Aerial Services (IAS). This refers to services or operations that make use of new aeronautical technologies and are of benefit to citizens and the aviation industry. IAS can be divided into two parts: "aerial operations" such as surveillance, inspection and imaging, and "innovative air mobility" (IAM), which is a new market covering international, regional and urban air mobility. Aerial operations are of great benefits to public agency managing environmental issues (i.e. city development planning) as well as to private companies whose business is related with the processing of natural resources (i.e. farming). IAM focuses on the use of innovative aircraft designs that have VTOL capabilities, special propulsion features and can be operated unmanned. These aircrafts are expected to provide new air mobility options for people and cargo, especially in congested urban areas, using integrated air and ground infrastructure. IAM includes a variety of aircraft types, such as manned and unmanned, made possible by advances in hybrid and electric propulsion systems, lightweight materials, energy storage, digitalisation and automation (extract from COMMISSION STAFF WORKING DOCUMENT - EU Drone Sector state of play, accompanying the Drone Strategy 2.0 document).

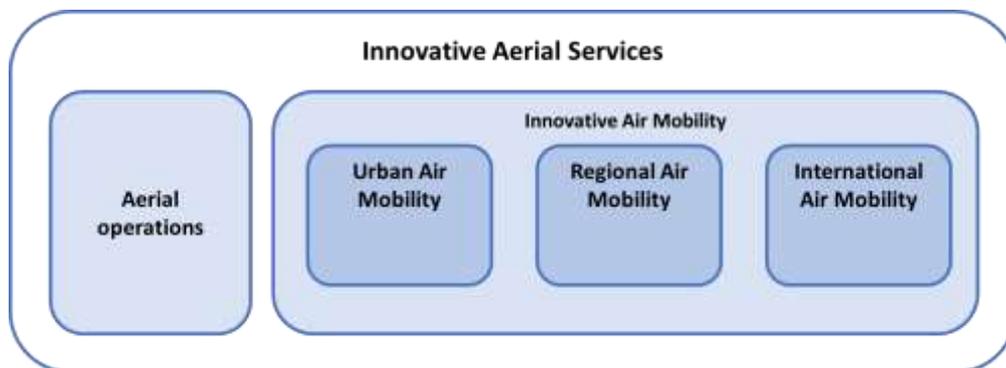
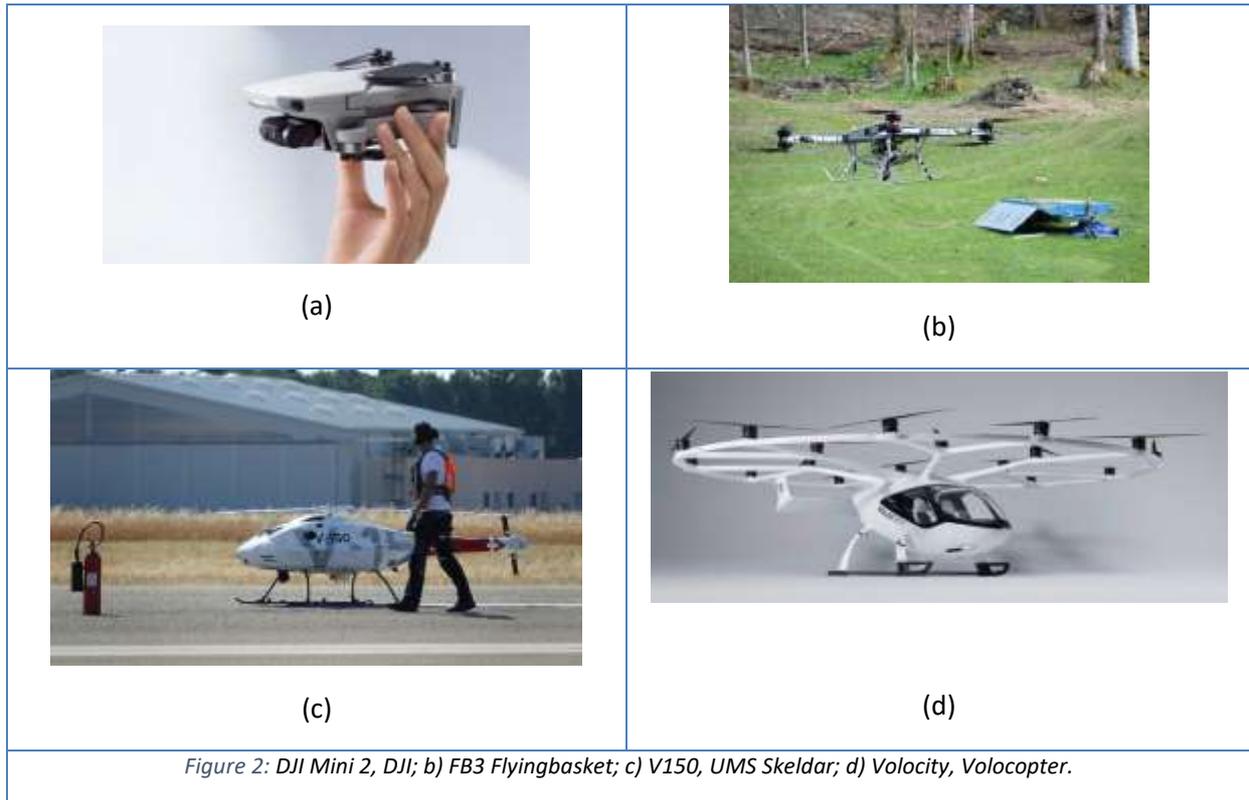


Figure 1: Innovative Aerial Services structured concept.

### Aerial operations

Aircrafts are widely used for passengers and goods transport at regional, inter-regional and global levels, but air vehicles are also employed to carry out specific operations that do not involve cargo or passenger transport, such as firefighting operations and aerial observation of areas affected by catastrophic events. Unmanned Aerial Systems (UASs) have enabled a wide range of new air operations, providing value to end users. These operations are mainly conducted in the Very Low Level (VLL) airspace, from ground to 120 meters, and UASs come in a variety of sizes, from a few decimeters and few kilograms to standard aircrafts remotely piloted or autonomously operated. Small UASs are particularly suitable for many new applications in urban areas. Aerial operations involve the use of one or more UASs to collect data or provide services to end users, with the payload being either a sensor or an electronic device. The data collected is then pre-processed and processed, generally through Artificial Intelligence (AI) applications, to extract and deliver information to end users, such as tagged maps, highlighted features and patterns in maps, warnings, and alerts.



### Innovative air mobility

Innovative air mobility is an important industrial sector, as it is expected to contribute significantly to the European Green Deal by participating in the implementation of the Sustainable and Smart Mobility Strategy and being part of the Zero Pollution Action Plan. This class of services includes all transport services, from logistics to passenger services, and UASs can transport small and heavy packages depending on their features, as well as cover distances from hundreds of meters to several kilometers. A lot of research and innovation initiatives are preparing logistic and passenger transportation services, focusing on different technology building blocks such as aircraft transport capacity, loading and unloading mechanics, ground logistic and intermodal transport infrastructures and concepts of operations. While many UAS operators are working on this domain, the current maturity level is quite low and only a few experimental delivery services are already in place in Europe. In the passenger transport subsector, there are some relevant EU operators, but the design and development of the service is still in its infancy.



The Italian Civil Aviation Authority (ENAC) has developed a roadmap focusing on the development of innovative air mobility, with the challenge of experimenting IAM services during the Jubilee in 2024 from Fiumicino airport to the center of Rome and during the winter Olympiad in 2026 in Lombardia. However, technologies and solutions to enable real valuable and marketable innovative air mobility services operated with drones are still in the research and innovation phase, and planned timelines are quite long.



Figure 3: Italian roadmap issued by ENAC (excerpt from ENAC) .

## U-space

Innovative air mobility projects were launched by airport managing companies, such as Aeroporti di Roma and SAVE. In this case the interaction between traditional air traffic and UAS air traffic has to be defined with high details. ENAV (Italian ANSP) and D-Flight (USSP) are working to defining procedures and system to manage air traffic flow between ATM and UTM.

On the contrary, innovative air services, as described in the previous section, are expected to be operated mainly in air space not used by current air transport services.

To manage the highly congested and automated drone traffic, the European Commission introduced the concept of U-space. U-space is a set of services and procedures designed to ensure safe, efficient, and secure access to airspace for a large number of drones. These services rely on a high level of digitalization and automation. In Italy, ENAV, Leonardo, and Telespazio created D-Flight to develop and provide U-space services.



Figure 4: U-space services development steps (Source: SESAR)

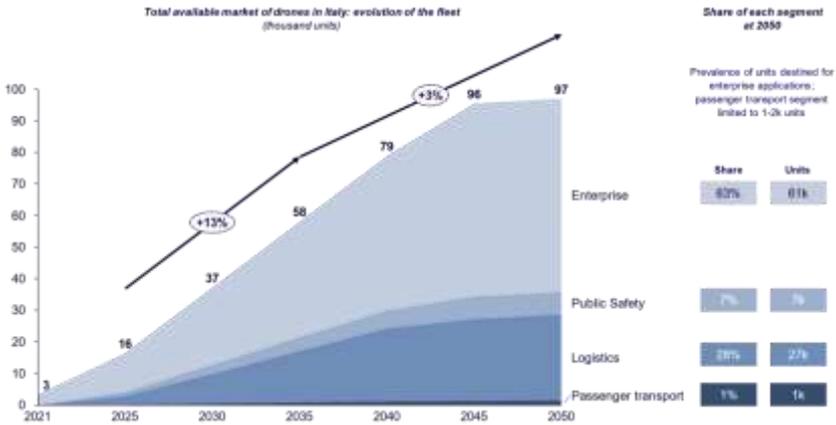


Figure 5: Fleet evolution in Italy, TAM governmental & commercial applications, 2021-2050 (source: U-space2 project report)

U-space deployment is essential for the successful marketing of IAS. Therefore, the European Union issued a regulation (Commission Implementing Regulation (EU) 2021/664) in 2021 to support national aviation authorities in promoting U-space development. This regulation allows the establishment of U-space airspace, provided that four certified U-space services are provided by a certified U-space service provider. This regulation came into effect on January 26, 2023, but, to the authors' knowledge, no U-space airspaces have been established in the EU.

Status of the art and trend of Innovative Air Services – EU perspective

The use of drones to provide services began several years ago but has become more structured in the last five years. It is important to emphasize that this report focuses on UAS applications, operations, and services, while also UAS design and manufacturing is a relevant innovation domain for the South Adriatic regions. Challenges include researching UAS configurations, innovative propulsion systems, PNT devices and framework, flight capacity and performance, integration into air space of any classes, and testing and certifying.

Technology disciplines such as electric and fuel cell propulsion systems, data fusion and artificial intelligence for autonomous flight, PNT electronic systems, payload sensors, ground and air communication solutions, and integrated data management systems are necessary for UAS production. Testing and certification procedures are also in preparation as civil UASs are a new product integrating technologies with very low or recent applications in aeronautic history.

In Puglia, a large initiative is ongoing under the lead of DTA with the objective of deploying the Grottaglie Airport Test Bed, a research and experimentation infrastructure, planned into the National Plan for Research Infrastructure 2014-2020. Laboratories and several flight tests were already realized in the last 3 years with European outreach.

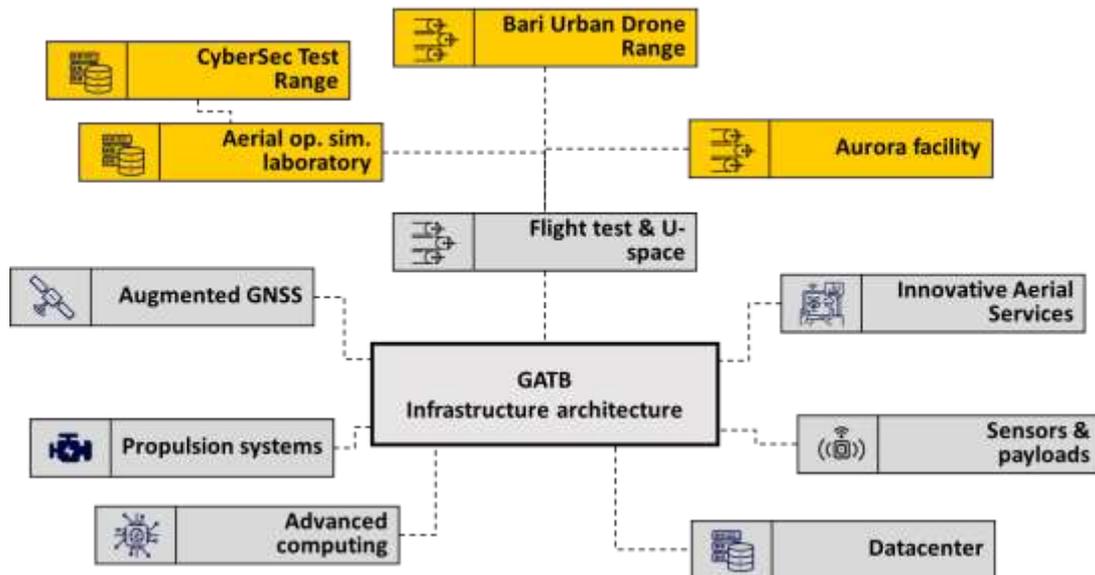


Figure 6: Grottaglie Airport Test Bed, architectural view of research and technology laboratories.

## Aerial operations

The EU drone research and industry system has developed several use cases in the aerial operation sub-sector. These use cases vary in complexity and maturity. The most advanced ones involve the use and processing of data collected by payload sensors. Other UAS applications are also in development.

The applications of remote sensing capacity are numerous:

- Scientific research increasingly relies on UAS as a valuable source of data. UAS and the payload sensor are typically integrated into wider service provision models. Data collected through UAS is used to power data computing systems with AI applications. These applications can identify specific events or facts in images, compare them with other sources of data, or trigger decisions and actions from service end users (such as warnings, alerts, and automatic actions).
- Surveillance through Unmanned Aerial Systems (UAS) photos or videos is a valuable source of information in the security sector, providing improved situation awareness in a given area. For instance, UAS can be utilized to efficiently monitor large private or critical infrastructures (i.e. energy infrastructure, ...).
- Surveying and inspecting are UAS services that can be used to monitor public areas and civil and industrial infrastructures. This can provide security services and situation awareness services to end users, giving them an understanding of the target's actual conditions including information on quality of the infrastructures. UAS flight limitations must be considered when designing the aerial operations. Exploiting ground information can help assess several aspects of targeted objects, areas, or cities, such as buildings' energy efficiency, the health status of infrastructures (e.g. bridges, electro/gas pipelines, buildings, etc.), and urban development status. This service sector is also useful for city development planning. For example, the European Space Agency's Earth Digital Twin program focuses on creating digital twins of large areas to collect and manage data and information, and to simulate events happening there.

- Drones are widely used in the entertainment and advertising industries. They create spectacular light shows with swarms of drones, eliminating the risks and negative impacts of fireworks, such as noise, pollution, and hazardous supply chains.
- UASs (Unmanned Aerial Systems) are becoming popular in precision agriculture for collecting data about crops. Different sensors can be used to gain insight into the crops. UASs offer fast and efficient data collection and automatic computation, which can increase the efficiency of farming. They can provide accurate knowledge on the health of crops and enable targeted decisions, such as providing the right amount of water, fertilizers, and phyto pharmacy. Moreover, drones can be used to spray fertilizers quickly and efficiently, as well as to carry out other farming activities, such as seeding.

Space Earth observation data can further enhance precision farming services. These data are used to assess the terrain before seeding, monitor weather forecasts, and assess the health status of crops. Compared to space EO data, drones provide more precise and accurate information, and data can be collected with the best process with respect to daylight, altitude, inclination, etc. Therefore, drones should be part of a wider automated, precise, and smart farming system.

- Emergency and other public services, such as police, firefighting, and natural disaster response, are the main sectors in which drones are already widely used, although not to their full potential. Drones can be used to monitor large areas looking for natural risk conditions. Drones are used to survey areas affected by disasters, quickly and safely creating maps of damages and hazards, and to identify, prioritize, organize, and coordinate support interventions. With their flexibility in operations and payloads, drones are expected to help create local area communication networks when ground telcos are degraded or not working.

Drones provide an effective and relevant source of data in all reported application sectors. However, the challenge lies in how to use and exploit this data. This involves research and industry organizations working together to design and implement solutions such as data integration, algorithms, data presentation, service system architecture, and control rooms. Ultimately, the goal is to integrate drones into the wider business processes of end user organizations.



Figure 7: Main segments of the governmental & commercial drones' market (source: U-space2 project report)

## Innovative Air Mobility

Incorporating cutting-edge Air Mobility into cities and regions can meet the needs of a growing population and their mobility requirements. This advanced Air Mobility is anticipated to fulfill certain specific purposes, such as last-mile-delivery, post-delivery, emergency deliveries, and monitoring the Earth.

### *Earth Observation*

Observing and assessing changes in the environment, both natural and man-made, is essential. Aerospace technologies provide dependable and frequent data sets that offer a unique way to collect information when combined with suitable research and development. Drone-assisted Earth observation does not require the installation of complex sensor-based systems. Nevertheless, it is a low-impact approach that allows machine learning and computer vision techniques to monitor the Earth's surface proactively and predictively. This methodology can be applied to various issues, from Agriculture 4.0 to asset monitoring, climate change risks, natural disaster prevention and smart cities for intelligent traffic management.

Drones are increasingly used for Earth observation, particularly for environmental monitoring, surveying, and mapping, risk prevention, disaster management, surveillance and reconnaissance, industrial monitoring and inspection, forestry and agriculture. The benefits of using drones for Earth observation include lower data collection costs, the ability to survey and map inaccessible regions in detail, and reduced field time. Drones can be equipped with advanced data-gathering technology such as GPS and infrared cameras and can fly at high altitudes and manoeuvre in confined spaces when needed. Thus, UAVs or Unmanned Aerial Vehicles have the potential to revolutionise Earth observation due to their cost-effectiveness, convenience, and versatility.

### *Cargo Drones*

Cargo drones offer numerous advantages over traditional delivery methods, such as faster delivery times, reduced road congestion, lower emissions, access to remote areas, lower shipping costs and increased safety. They can operate without roads, allowing them to deliver goods much faster and with fewer emissions, even in not accessible areas such as mountains or area affected by catastrophic event. Cargo drones have the potential to revolutionize the logistics industry, as they can reduce costs and improve delivery times.

However, they must operate in a regulatory environment governed by EU and national regulators. Competent authorities will set operational parameters and maintain oversight. Initially, delivery of goods will only be allowed in areas with registered landing sites or delivery sorting centres. Regulators will have access to operational information about drone deliveries. Drone delivery service providers will receive and exchange information, and operators of drones will adhere to common intent and be aware of the purpose of other operations in the vicinity.

The using scenario will change over time:

**Baseline scenario – 2025.** The development of vertical take-off aircraft is advanced, but infrastructures, management technologies, and regulations are still in progress. Thus, the baseline UAM scenario until 2025 will focus on transport in urban areas with a real pilot. Automated drone deliveries are expected to be in the testing phase. Consequently, minimal ability to use ICT solutions is predicted.

**Intermediate scenario – 2035.** Parcel delivery and cargo drone operations are fully integrated into supply chain management, providing functionalities such as shipment tracking that indicate the real drone position. This integration also allows for increased sustainability optimisation of cargo operators’ capacities, resulting in a reduction of their carbon footprint.

**Final scenario – 2045.** A fully autonomous and paperless supply chain is expected to emerge, facilitating a highly integrated and digitised transport system for parcel delivery. This system will include automated warehousing, loading, and unloading of goods, as well as the use of cargo drones in densely populated metropolitan areas, operating between dedicated and secured ground infrastructure nodes.

Status of the art and trend of Innovative Air Services – Apulian perspective

2018, 2019, 2020	2021	2022	2023	In valutazione
RPASinAIR (MIUR)	ASSURED-UAM (H2020)	PJ34/AURA (SESAR)	GATB (Regione Puglia)	WADIT (MISE)
CRUISE (ESA)	CORUS-XUAM (H2020/SESAR)	UFLIC (private)	DRONE-TECH (MAECI)	SPINNER (HE/EUSPA)
ECARD (EUSPA)	URANO (ASI)	AURORA (ESA)	ENSURE (H2020/SESAR)	AI-SAM (ASI)
ACROSS (MIUR)	U-space2 (ESA)	CERTIFLIGHT (HE/EUSPA)	SCIAME (MISE)	ASTIS4UAM (ESA)
SAPERE (PON Puglia)	REDOX (MISE)		CALLIOPE (MISE)	MINERVA (ASI)
TEBAKA (MIUR)	Casa delle Tecnologie Bari (MISE)			FYXILL (ASI)

Figure 8: Projects led or participated by DTA and involving research, development and experimentation in UAS technology and solution domains.

The Apulia region is a major contributor to the Italian research and development of innovative solutions in the UAS industry. This includes research on technologies, innovation in drone operations, U-space services, and specialized services for smart cities and infrastructures. At the center of this action is the Grottaglie Airport Test Bed (GATB) program, a research and flight test infrastructure that supports research and industry organizations in accelerating innovation. GATB is more than just a physical infrastructure; it is a community of leading and experienced stakeholders, including the Aerospace Technological Cluster (DTA), universities, research centers, companies, and end users. Additionally, GATB includes the Bari Urban Drone Range, an area of the city of Bari where innovative UAS services are experimented in the framework of the Bari Open Innovation Hub.

In the following the main actions and results achieved for each identified point:

**Research on technologies**

GNSS and PNT solutions are essential for research into autonomous air vehicles, which require precise, accurate, and secure localization for improved safety. Research is ongoing to design and develop more effective solutions.

Innovative propulsion systems are necessary for less impacting aerial operations. Electric and fuel cell propulsion systems are the focus of research and innovation initiatives in Puglia.

Ground and space communications (RF, TELCOM, and SATCOM) create the link between ground and air infrastructure, allowing for command and control as well as payload data to be communicated. Depending on the UAS application and operational areas, they must be carefully considered to ensure the right level of safety.

### **Innovation in drones' operations capacity**

UAS relies solely on the data collected and processed through avionic modules. It is essential to integrate these modules into the UAS configuration and assess their security and operational performances. Advanced PNT module, SATCOM module, AI-based flight control systems, and the ability to interact with other air vehicles through U-space services and U-space services themselves are all subject to research, development, and testing, mainly within the GATB framework.

### **Innovative services provided through drones.**

The goal of these projects is to design, develop, and experiment with innovative services. Specifically, the main objective is to create a services architecture that incorporates UAS operations, collected data and data from other sources.

### **Specialized services for smart city and infrastructures**

Smart cities and farming are two areas where Apulia initiatives are being applied. In the smart city framework, aerial observation can provide Public Administration (PA) and other agencies with timely and accurate data on specific urban areas, which can be integrated into scenario monitoring systems to create a new level of urban situation awareness for end users. These systems are designed to support PA in city development planning processes. Logistic and transport services, such as urgent transport from large hubs to local hubs and then to end users (last mile delivery) in Manduria, have also been tested using drones.

In the farming sector, the aim is to effectively use drone-collected data in farming processes, such as assessing crop health. Several challenges must be addressed: a) flight operations (altitude, frequency of data collection, inclination of pictures, etc.); b) payloads (identifying the relationship between payloads (EO, IR, MS, HS) and crop features); c) data processing and computing to gain maximum knowledge about the crops, including multi-source data management architecture and AI applications.

Some of the Apulian infrastructure are:

**GATB** is a laboratory for real-time simulation of UAS operations in ATM and U-space. It is already operational, and upgrades are planned. The laboratory ecosystem includes UAS simulators, an innovative air traffic control system, a simulated air traffic generator, satellite communication (provided in collaboration with Telespazio), and a UTM system.

The real-time simulation laboratory can also manage real UAS flights, creating an environment where a mix of manned and unmanned, real and simulated traffic can be managed in the experimental airspace around the Grottaglie airport. Other laboratories are being deployed through the GATB project funded by Regione Puglia and implemented by DTA, Università di Bari, Università del Salento, and Politecnico di Bari (see *Figure 6: Grottaglie Airport Test Bed, architectural view of research and technology laboratories.*).



Figure 9: the air space assigned for UAS flight tests.

**The Drone Living Lab (DLL)** is a collaborative effort between the DTA and the Municipality of Bari. It is a community of research organizations, private companies, end users, and institutions. Their focus is to introduce aerospace technology and aerospace-based solutions into the Bari Smart City program. Earth observation applications and services, aerial observation through drones, and related technologies and urban infrastructures (droneport) development are the main initiatives.

**Network of UAS manufactures and operators and other service providers.** DTA has launched the Drones Beyond initiative, an event that showcases the state of the art of the UAS industry and its efforts in realizing the Innovative Aerial Services industry while evaluating European scenarios. Over 30 companies participated with live demos, recorded demos, and exhibitions. In 2021, the session was held at the Grottaglie airport in conjunction with the Mediterranean Aerospace matching event, and the demos focused on UAS configurations and flight capacities. In 2022, the session was held as part of the Casa delle Tecnologie Emergenti di Bari (Bari Open Innovation Hub) project, and the demos focused on urban flight conditions and regulations.

The Drones Beyond initiative of DTA is a platform that invites national and international operators to showcase their capacity and assess the innovation opportunities of the Apulian ecosystem. The 2022 session was realized with the contribution of Eurocontrol and the UAM Initiative Cities Community - UIC2. Both DTA and the Municipality of Bari are members of UIC2. The event was a great opportunity to bring the Bari Urban Drone Range into the European panorama.

## Experimentation and operational ground infrastructures

Infrastructure is the "underlying structure" of a country and its economy, consisting of fixed installations like roads, bridges, dams, water and sewer systems, railways and subways, airports, and harbors. These are usually built and owned by the government. For UAM, this refers to the equipment and structures needed to carry out UAM operations with UAS. These include tangible elements such as vertiports, passenger terminals, goods terminals, maintenance facilities, and charging stations, as well as non-tangible elements like air space design, approach/departure routes, dispatch services, satellite tracking, and weather reporting.

A UAM operation requires infrastructure for:

- Take-off
- Landing
- Servicing and Preparation for the subsequent flight.

Operations to deliver goods also needed.

Delivering goods requires infrastructure to move them from the UAS to the next mode of transport or to the destination. Servicing UAS requires facilities for post-flight and pre-flight inspections, maintenance, and refueling or reloading batteries.

Helipads, vertipads, and vertiports are areas for take-off, landing, and parking UAS and VTOL aircraft. They can be on land, water, or a structure.

A 'Ground Station' is part of the aircraft system and is necessary for safe flight. The RPS can be a simple hand-held device or a complex, networked, multi-console configuration. It can be stationary or mobile, installed in a vehicle, ship, or aircraft. Security must be ensured, both physically and digitally.

For controlling the airspace traffic, the designing and activation of a sandbox is a paramount: it allows a series of conditions to be met to guarantee the safety, control, and coordination.

### Control Room

The concept of a sandbox is an experimental UTM service's geographical area of validity. The range of validity is defined based on the volume of UAS operations that a volatile activity coordination centre manages. The sandbox needs not be associated with a physical concept (e.g., the radar dome).

An example can be described as the following: the control room can consist of three workstations connected to seven monitors, each communicating the most relevant information to guarantee a level of situational awareness appropriate to the activities.

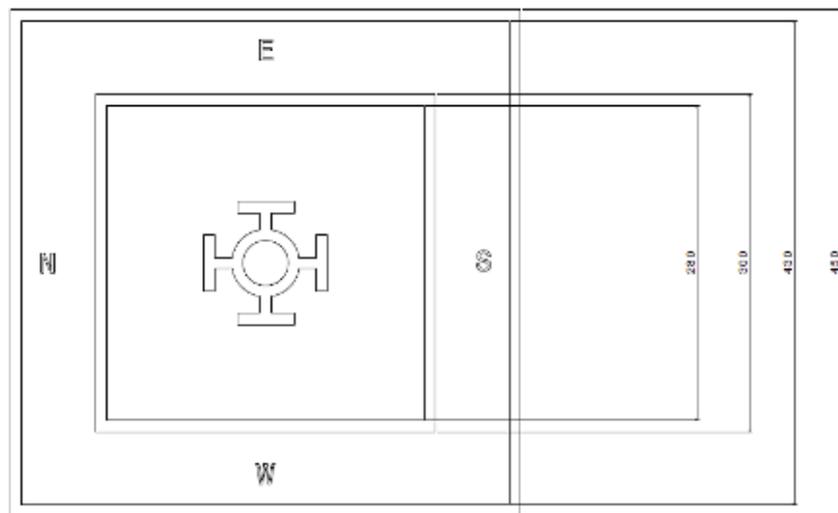
### Ground infrastructure (vertiplaces): Vertihubs, vertiports, and vertistations



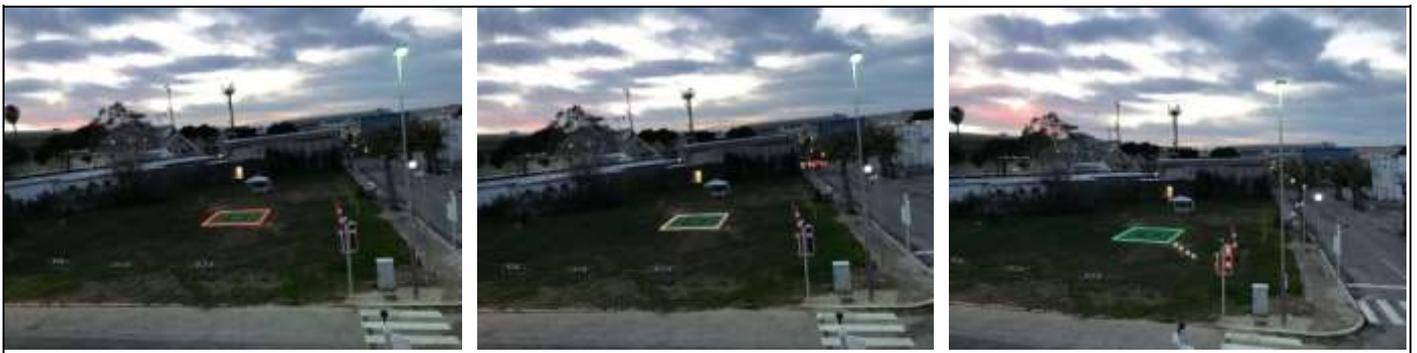


Example of vertistop for earth observation and last mile parcel delivery

The Vertipad monitoring station is the dispatch point for commands sent by control centre operators to pilots in the field. This area is monitored by a camera system and light indications for UAS pilots. The lights are positioned in the safety area and the FATO (Final Approach and Take-Off) area, and they can be switched on, off, and changed in colour.



Using the FAA document (eb-105-vertiports) as guidelines, a 5m square turf area was created and the following image was reproduced (units [mm]) for the Drone Beyond 2022 initiative in Bari.



## Possible intervention actions

### Developing local UAS/IAS industry by collaborative research and experimentation actions

The supply chain for drones typically includes avionic developers, payload manufacturers and assembly, distributors, and service providers, ground and air service providers (USSP) and Innovative Aerial Service Providers. The development of local drone supply chains is crucial for improving efficiency, reducing costs, and increasing sustainability [Rejeb 2021, Juned 2022, Benes 2022].

Quality of job is also very high. To develop these skills, it is essential to focus on several aspects, such as collaboration between industry, academia, and government, innovative technology adoption, training ....

Regione Puglia is supporting the realization of Grottaglie Airport Test Bed (GATB), a research and flight test infrastructure, where academia and industry can exploit advanced research and light test services. The GATB is an European asset for UAS/IAM industry development. DTA and Municipality of Bari have deployed the Bari Urban Drone Range for IAS experimentation in urban areas. Both of them deliver services to research organization and private companies to develop technologies, solutions, business cases.



Figure 10: the CORUS-XUAM team during flight test in Grottaglie Airport. More information at: <https://corus-xuam.eu>.

#### NEEDS

- Partnerships and collaboration from research to end users.
- Support R&I initiatives: design and develop IAS and related solutions, including U-space services.
- Business case: identify business areas where drones can bring the most value.
- Regulatory compliance: familiarize with the regulations and requirements for drone operations (permits, licenses, risk assessment and safety guidelines).
- Infrastructure and technology: invest in the necessary infrastructure and technology to support drone operations.
- Training and skill development for local operators and staff involved in drone operations.

#### Action Areas:

**Collaboration between industry, academia, and government:** Establishing partnerships among these stakeholders can facilitate the development of innovative solutions and the adoption of drone technology in supply chains [AIRushood 2023]. Automation and digitalization are pillars for innovative air services, U-space services and mobility in smart cities. GATB is a knowledge and technology hub in the reference regions.

**Collaborate with local stakeholders:** Engage with local businesses, government agencies, and other stakeholders to identify opportunities for drones.

**Local procurement strategies:** Encourage

local procurement of goods and services for drone construction and maintenance, which can have a positive impact on the local industrial sector. This may involve working with local suppliers to ensure they can meet the demand for materials and components needed for drone production [Balanda 2022].

**Pilot services:** demonstrating business cases by piloting innovative aerial services to explore the relationship between the operational context and IAS operations [Rejeb 2021].

**Training and education:** Developing technical skills in drone operations and maintenance is vital for supply chain professionals. Provide training and capacity-building opportunities for local stakeholders to develop the necessary skills and expertise to manage and operate drones in supply chain management [Rejeb 2021]. Virtual reality-based training systems can be used to train inspectors and operators in drone-assisted tasks, such as bridge inspections [Li 2021]. Universities should focus on incorporating both hard and soft skills required by the supply chain industry into their curriculums [Luke 2019].

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#### MOTIVATIONS:

**Improving sophistication of public services:** drones can be used by public agencies and administrations to improve situation awareness, identify problems, plan the development of cities.

#### Increased Efficiency:

Figure 11: flight tests in Grottaglie airport for ECARO project.

Drones can be used at various points in the supply chain (warehouse operations, inventory management, and last-mile, emergency delivery). They can assist with both land and air portions of delivery, improving overall efficiency.

**Cost and greenhouse savings:** Utilizing drones can lead to cost savings. Drones contribute to reduce delivery times, eliminate the impact of road conditions on delivery, and optimize routes, resulting in more cost-effective operations while avoiding the emission of greenhouse emission in populated areas.

**Bridging the Gap Between Rural and Urban Areas:** Drones have the potential to bridge the gap between rural and urban areas in the supply chain. They can enable faster and more efficient delivery of goods to remote locations, improving accessibility and connectivity.



### Reference geographical areas

The drone industry in the Balkan regions is comparatively smaller. Nevertheless, it has been gaining traction due to heightened awareness and adoption of drone technology.

The use of drones is expanding in various sectors, including agriculture, inspection and monitoring, photography, and logistics.

The drone industry in Italy, including the reference South regions, has seen a steady growth in demand for drones across various sectors such as agriculture, infrastructure inspection, surveillance, and photography. Recently, the industry has experienced exponential growth in drone operators.

The aerospace cluster is leading a complex ecosystem (research organization, companies, end users) in developing the industrial sector through large demonstrations campaigns.

### Available experiences

The project SKEYE created a preliminary network involving three relevant players in the regions.

### Natural and man-made risk monitoring with drones

Balkan and South-Italy Adriatic regions are prone to various natural risks such as earthquakes, floods, and landslides, wildfires. Moreover, Balkan are characterized by complex topography and geological conditions. Effective monitoring of these risks is critical to mitigate their impacts and enhance disaster preparedness and response.

Environmental monitoring is necessary to face the growing effect of natural risks. Among the risks that affect the regions there are: flooding, subsidy or other natural risks, in urban areas greenhouse gas emissions and air quality is a relevant task. Illegal waste and landfills identification affect instead many peri-urban areas.

A number of technics are currently applied generally composed by some ground sensors connected to remote control rooms, but those are generally inefficient due to degradation and limited coverage.

Drones offer immense potential for natural risk monitoring, enabling timely and efficient data collection in hard-to-reach areas. Their mobility, flexibility, and cost-effectiveness make them a promising tool for disaster preparedness and response. However, addressing technical, regulatory, and ethical challenges is crucial for realizing the full potential of drone-based monitoring. They can be used for a wide range of applications, including environmental monitoring, risk assessment, emergency response planning, mitigation strategies

NEEDS
- Natural environment monitoring for risk preparedness and response
- Areas affected by illegal waste or dumps
- Areas affected by natural risks
- Areas affected by man-made risks



identification, disaster management. Drones can be equipped with various sensors, such as multispectral cameras, LIDAR scanners, and gas sensors, to collect data on environmental variables and provide near real-time information to end users, i.e. public agencies managing environment and risks. The use of drones for environmental monitoring can help identify areas of concern and inform decision-making processes for mitigating risks and planning development of the areas.

Drones are already widely used also from fire brigades to manage wildfire management, i.e. example to assess the situation, identify and localize persons in distress, coordinate operating teams, deliver supplies (food, water, and medical supplies), assess damages after events, with the expected benefits of reducing persons at risks during operations.

Research and experimentation initiatives are needed to advance drone operational capacity, to design flight operations, sensor usage, data management processes, and integrate them into existing monitoring systems (if any), and to create a comprehensive and robust approach to natural risk management.

Accurate maps of natural and man-made risky areas as well as technological architectures including drones, off-shelf or innovative sensors, data management system, AI-based applications to classify risks are potentially object of innovation. Difficult to reach natural areas should be in the primary focus.

Some projects of INTERREG IPA CBC 2014-2020, among other tasks, faced the theme: 3 WATCH OUT, BLUE LAND, TO BE READY, WELCOME, SKEYE. They were mostly focused on sharing approaches in the community to improve risk management processes.

Anyway, no one focused the attention on a general and modular technological architecture aimed at preventing or reducing the risks.

### Drone-assisted farming

Farming has a relevant role in the Balkan and south Italy economy. The objective of improving quality, improving efficiency of farming, tracking products are positively impacted by aerospace technology. Space earth observation is widely applied in assessing features of agricultural areas and their long term dynamics, i.e. its level of preparedness to specific productions. Drones on the other side can be applied to monitor the plantation during the whole life cycle. Aerospace-based solutions can be applied also to esteem production at local farm level as well as larger areas (i.e. multi-farm, province, ...).

Problems encountered by public decision makers and farmers are mainly related with the catastrophic event, i.e. flooding, hail storm, climate changes, i.e. catastrophic events or long term territory transformation, and with facing infestations, i.e. production of olive and oil in Puglia region is heavily affected by *Xylella phastidiosa*. Aerospace technologies, eventually joined by other digital and automation technologies, are applied also to reduce the consumption of water, of phitofarmacy as well as other treatments required by the plants so

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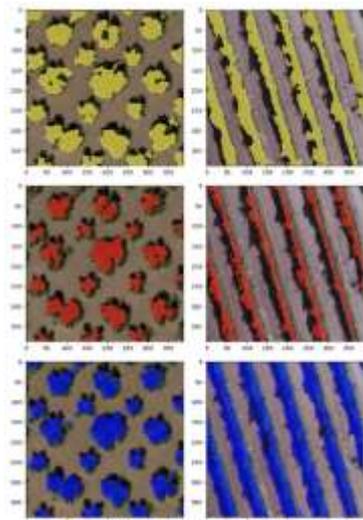


Figure 12: Processed data collected through drone operation. Source: Epifani, D'Avino, Caruso (2023), *TEBAKA: Territorial Basic Knowledge Acquisition. An Agritech Project for Italy: Results on Self-Supervised Semantic Segmentation*.

reducing cost of production while improving quality of products. The strategy is based on the capacity to early detect negative events, to precisely localize the negative events, to prepare reactions and re-act timely. Drones are also used for spraying in a precise and safer way.

A general system and service architecture includes satellite, drones, sensors (off-the-shelf or innovative), data management system, AI-based applications. The challenge in deploying such a service is mainly related with the

- definition of concept of operations (CONOPS) and concept of use (CONUSE) for drones with respect to areas (i.e. frequency of data collection, sensors, altitude, angles of data acquisition...)
- definition of local drones facility (vertistop, vertipad...) and related services,
- U-space services,
- Big data management systems,
- Algorithms for identification of specific farming problems,
- business models with respect to service providing entity, end user needs.

Artificial intelligence is an effective technology to compute quickly large amounts of data and identify relevant facts. Training procedures is a very important phase of application development and the active participation of end users (farmers) has a relevant role in deploying efficient solutions.

Business model has to be taken in consideration to face the highly fragmented farming industry. Services are widely scalable so that large areas or many farmers can be served with the same system provided that drones are distributed with the right density on the served areas.

### Sea and cost monitoring system

Sea and costs are a natural as well as and economic development resources in the reference areas. They are a tourism attraction factor, a fishing and fish farming resource and biodiversity environment. They are also affected by a number of natural and man-made attacks: climate change will increase coastal erosion, man-made pollution degrades tourism attractiveness, urban abuses affect quality of coastal cities and of environment. Offshore energy plants are planned in the near future. Safety and services in ports are to improve by leveraging digitalization, connectivity, smart mobility and other key enabling technologies. The monitoring of the sea is currently limited because of the extensive effort and assets that are required.

Aerospace technologies, space and drones, are diffusely experimented in Europe to improve situation awareness in sea and coastal areas with the objective of preventing natural and man-made risks, support risk management activities, improve fishing by assessing quality of sea as well as identifying illegal fishing activities. Ports are users of aerospace technologies: drones can be applied to monitor industrial and passenger traffics and operations in port areas, to monitor traffic in congested areas, to assess quality of the infrastructures.

**NEEDS**

Constant monitoring of coast and sea (near costs). As risky areas the following are considered:

- Cost saffected by periodic natural or man-made wildfire
- Costs affected by erosion
- Sea with high naval or tourist traffic
- Sea near industrial or civil infrastructure (firms exploiting water, natural canals for water flow, ...)
- Smarter port
- Marine parks

Drones can be applied to monitor sea and costs with minimal human intervention. Using the right payloads illegal fishing and natural and man-made risks can be monitored. AI can be applied to provide end users with actionable knowledge.

Some projects, among other tasks, faced the theme: 3 WATCH OUT, BLUE LAND, TO BE READY, WELCOME, SKEYE. They are mostly focused on sharing approach to manage risks. Noone of them proposed a system to monitor in a periodic approach the environment.

### Drone last-mile / urgent delivery

Emergency mobility is an area of continuous improvement. Remote areas (rural, mountains, ...) often face challenges in delivery service due to geography, low population density, and limited infrastructures (hospital, clinical services, health centers...). Transportation networks play a crucial role in rural areas for economic development and the population's well-being. Remote areas are generally affected by slow emergency services. Poor ground transportation networks can negatively impact the income of businesses, moreover in case of local disaster mobility and connectivity can be degraded affecting the capacity of public agency to deliver safety critical services. Lastly, a number of small hospitals have reduced clinical exam capacity so that they rely on sample transport to provide the service.

Each time a medical car moves, ground traffic increases, greenhouse gases are emitted, persons are at risks, and economic and personnel resources are consumed. Drones have positive impacts with respect to all the mentioned aspects.

Last-mile delivery refers to transporting goods from a hub to their destinations, often the most challenging and costly aspect of a package's journey (around 50% of the total shipping cost)

Drone-based logistic solutions can address various last-mile consumer needs, including delivering fresh/prepared foods, convenience items and small packages. It can also address B2B needs by transporting medical/sanitary package (i.e. urgent medicine, samples to laboratories...).

Goals: improve customer service, reduce delivery costs, reduce transport carbon footprint, reduce ground traffic congestion.

Areas positively impacted by drone medical/emergency transport:

- energy consumption and greenhouse gas emissions
- areas not served by ground mobility infrastructures
- servicing areas affected by catastrophic events,
- urgent delivery time, etc.

**NEEDS**

- Improved Access to Remote Areas
- Make delivery faster and cheaper
- Reducing greenhouse effects
- Decreasing the missing deliveries



Figure 13: Drone equipped for medical transport.

**Research domains:**

- Drone delivery solutions, integration with current mobility chain, and pilot testing.
- Last-mile delivery concepts, operational research, and joint optimisation of customer location clustering and drone-based routing.
- Routing multifactor optimization.

**Some bibliographic resources**

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# **Enhancing Mobility and Regional Connectivity for a More Connected South Adriatic Programme Area**

*Author*

Angela Stefania Bergantino

## Summary

This document aims to provide a boarded overview of the social, economic, trade and infrastructure development of the areas of the South Adriatic Interreg programme – Apulia, Molise, Albania and Montenegro – and to propose forth intervention action for the regional connectivity. The first part of the analysis brings the attention to critical aspects that affect growth and generates economic imbalances throughout the programme area. These areas are facing demographic decline with several negative effects on employment, outmigration, social and economic disparities. On the other hand, enterprises are mainly of micro and small size, limiting their competitiveness and the potential to innovate and prosper. In Albania and Montenegro, the business sector is primarily specialized in activities like agriculture, fishing, tourism, textile and clothing, while in Apulia and Molise, despite these sectors, have consolidate their specialization also in machinery and motor vehicles, pharmaceuticals and chemicals. These vocations will be able to play a crucial role for the future increase of trade potential among neighbor partners and other emerging economies.

Transport infrastructure and logistic performance are the main concern of trade and integration. The lack of sustainable, climate resilient and intelligent mobility together with poor accessibility to the TEN-T network are a bitter reality for the two candidate EU countries, Albania and Montenegro. Cross-border actions are a useful instrument to improve connectivity, in such a manner that for this purpose four intervention actions are proposed in this document. The first two actions designed aim to improve the sustainability of transport infrastructures, both of ports and road networks, as the cold ironing (onshore power supply) and alternative fuel infrastructures along TEN-T respectively. Moreover, port facilities are able to improve their accessibility, and in doing so they will increase their competitiveness and specialization. More than half of the trade occur by sea in the programme area, and being able to provide ports of the TEN-T network with services for ships is essential, also for promoting the development of a sustainable and innovative shipbuilding, repair and maintenance industry. The latter aspect is discussed in the third intervention action, while the fourth intervention proposed aims to enhance trade through improving the logistic platform and promoting the Special Economic Zones (ZESs) thus act as facilitator of interregional trade and economic activities.

## Geographic and demographic context

### Geography and population growth

The Programme Area is located strategically between Eastern Europe and the Mediterranean Sea. It covers a total surface of 66,562 km<sup>2</sup>. Albania is the largest territory of the cross-border cooperation area (around 43%) and represent over 36% of its population, whereas Apulia region is the first territory per population and coastline length (51.4% and 55% respectively), corresponding to about 12% of the almost 8,000 km Italian coastline and to 6.4% of the population of Italy.

**Table 1. Geographic and demographic characteristics of the programme areas (in %).**

	Km2	Population*	Population density	% var. of population (2012-2022)	% of the Programme population	Coastline length
Albania	28,798	2,761,785	96	-4.9%	36.4%	418
Montenegro	13,812	630,344	46	+0.6%	8.3%	294
Apulia	19,541	3,900,852	200	-3.7%	51.4%	903
Molise	4,461	289,840	65	-7.5%	3.8%	36
Total	66,612	7,582,821	114	-3.9%	100.0%	1,651

Note: (\*) Population at 1<sup>st</sup> January 2023. Source: Instat, Eurostat, Istat.

### Migration

All the territories (with the exclusion of Montenegro) registered a decrease in total population during 2012-2022, even if the population density has not registered particular changes over time. All the territories in the Programme area are affected by migration, particularly in Albania and Molise the phenomenon is quite relevant.

Migration flows, within and out of the Programme area, are still an issue as they have continuously increased over the last years. Albania recorded a population decrease due to net migration and statistical adjustment from 2011 to 2021 of -0.8 % yearly, while Montenegro recorded a decrease of -0.2 % (Eurostat, 2022)<sup>1</sup>. Only in 2021, over 55 thousand first resident permits were issued by the EU countries to Albanian citizens, for 54% of them Italy was the destination (Eurostat, 2022)<sup>2</sup>. At the same time, Albanians still represent the second most important foreign community in Apulia (after Romanians). Conversely, the total amount of citizens from Montenegro appears modest in relation to the overall foreign population in the region.

There are 139,750 foreign citizens residing in Puglia in 2021 (3.6% of the regional population), of which 19% of foreign citizens are minors, 54,000 employed, 18,504 students. In Molise 3,9% of the population are foreign citizens (around 11.500 inhabitants in 2021)<sup>3</sup>. Molise registered 94,469 Italians abroad in 2021 for an incidence of 32.5% of the resident population. In all of Italy it is 9.5%, while in Apulia are 378.486 residents living abroad (about 6.5%)<sup>4</sup>

<sup>1</sup> [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Enlargement\\_countries\\_statistics\\_on\\_migration\\_residence\\_permits\\_citizenship\\_and\\_asylum&oldid=485831#Population\\_change:\\_natural\\_change\\_and\\_net\\_migration](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Enlargement_countries_statistics_on_migration_residence_permits_citizenship_and_asylum&oldid=485831#Population_change:_natural_change_and_net_migration)

<sup>2</sup> [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:WBT23\\_First\\_residence\\_permits\\_issued\\_by\\_EU\\_Member\\_States\\_to\\_citizens\\_of\\_WBT\\_2021.png](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:WBT23_First_residence_permits_issued_by_EU_Member_States_to_citizens_of_WBT_2021.png)

<sup>3</sup> Dossier statistico immigrazione 2022. <https://cgilpuglia.it/news/dossier-statistico-immigrazione-2022-in-puglia-139mila-cittadini-stranieri-residenti-12>

<sup>4</sup> Rapporto italiani nel mondo, 2022. [https://www.primonumero.it/wp-content/uploads/2022/11/Sintesi\\_RIM2022.pdf](https://www.primonumero.it/wp-content/uploads/2022/11/Sintesi_RIM2022.pdf)

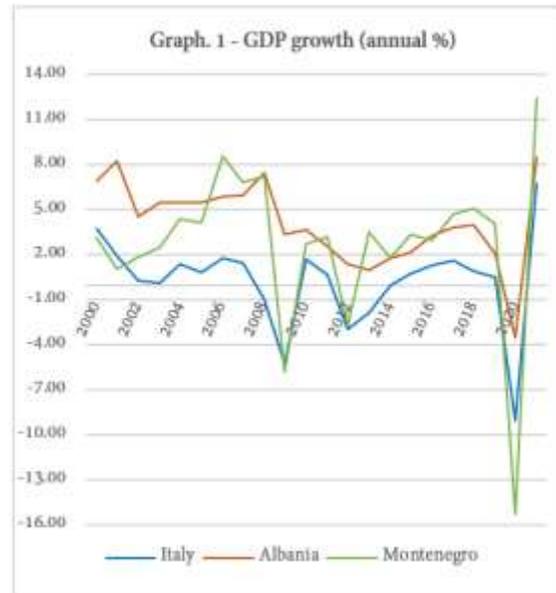
## Economic and Social Context

### Economic growth

Several crises, as those in 2008, 2011 and 2020, have severely affected all the countries of the Programme. Despite that, regardless Molise that experienced a significant decrease in terms of GDP growth, the other partners display significant signs of recovery in terms of GDP. Nevertheless, these values are still below the EU averages.

Albania and Montenegro economies continue to grow rapidly. In the last 20 years (period 2002-2021), countries have shown average growth rates of GDP of 3,7 and 2.8 per cent respectively, in contrast to only 0,5 per cent growth of Italy's GDP. Apulia and Molise growth rates for the same period were 1,3% and 1 per cent respectively (Instat, 2022)<sup>5</sup>.

Among the partners, Albania accounted for the smallest GDP per capita level (5,277 euro in 2021). Conversely, Montenegro experienced a higher increase of GDP per capita during years (7,966 euro in 2021). Apulia, Molise and Calabria rank among the last three poorest regions of Italy, both with just over 16 thousand euros per inhabitant (MEF 2022)<sup>6</sup>. The pandemic crisis and the lockdown heavily affected the economic structure of the Programme area, in terms of production lost and GDP decrease from 2019 to 2020: Albania (-3.5%), Montenegro (-15.3%) and Italy (-9.04% - Apulia and Molise register -7.5 and -8.5% respectively<sup>7</sup>).



Source: Own elaboration based on World Bank (2023).

### International trade

#### Albania and Montenegro

The economic transition has followed countries' transformation, with increase in competitiveness and business attractiveness. Consequently, trade among partner countries has also grown. In particular, Italy is the 1<sup>st</sup> and the 4<sup>th</sup> main exporter country for Albania and Montenegro, and the 1<sup>st</sup> and the 11<sup>th</sup> import partner country in 2020 respectively (WITS, 2023). Also, the recovery from the Covid outbreak was faster for these two countries.

**Table 2. Top 5 trade partners per partner share (in %).**

Albania				Montenegro					
Year 2020, partner share (%)				Year 2020, partner share (%)					
	Importer		Exporter			Importer		Exporter	
Italy	25.25	Italy	45.33	Serbia	19.76	Serbia	28.25		
Turkey	9.64	Serbia	12.14	China	10.39	Slovenia	9.98		
China	8.98	Spain	6.00	Germany	9.7	Hungary	6.30		
Greece	8.96	Germany	5.45	Italy	6.41	Bosnia and Herz.	6.23		
Germany	7.75	Greece	4.96	Bosnia and Herz.	5.68	China	6.19		

Source: (Own elaboration based on WITS – World Integrated Trade Solutions, 2023).

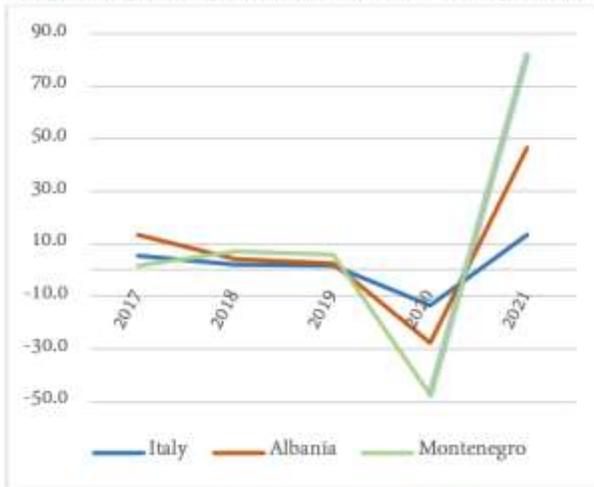
<sup>5</sup> Yearly mean value of growth rate for the period 2002-2021.

<sup>6</sup> [https://www1.finanze.gov.it/finanze/pagina\\_dichiarazioni/public/dichiarazioni.php](https://www1.finanze.gov.it/finanze/pagina_dichiarazioni/public/dichiarazioni.php)

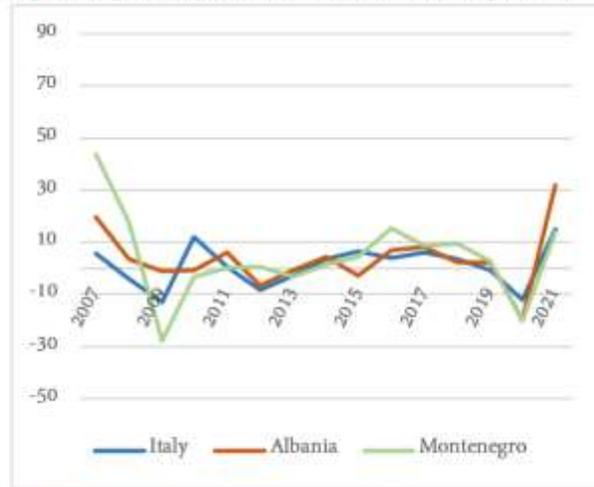
<sup>7</sup> Instat, 2023 (calculations based on values concatenated with the reference year 2015).

Also import and export activities have shown similar trends: in the period 2007-2021 exports of goods and services have grown by 6.6% for both countries, while more moderated have been the imports, 3.6 and 4.2 for Albania and Montenegro respectively. Italy, for the same period, has grown by 1% in imports and 1.5% in exports.

Graph. 2 Exports of goods and services (annual % growth).



Graph. 3 Imports of goods and services (annual % growth).



Source: Own elaboration based on World Bank (2023).

Data on trade between the two sides of the Adriatic involved in the Programme area show that up to now trade is essentially concentrated on agricultural products, food processing and textile-clothing-footwear sectors. But there are many areas of trade not yet fully exploited, as shows in Rapporto ICE 2021-2022 using the Export Potential Analysis and Development methodology<sup>8</sup>.

## Apulia region

Apulia holds an export volume equal to 25% of Southern Italy's exports (excluding islands) and 1.7% of the national one in 2021. Exports are handled in Apulia by around 5,615 foreign trade operators<sup>9</sup>. The propensity to export stands at 10.8% compared to the national average of 27%, showing an under development in trade to the average of the country. However, the pandemic made itself felt a lot on Apulian exports: in the post Covid-19 (2019-2020), Apulia recorded a drop in exports of 12%, higher than the national average of 8% and double the average of the southern regions (-6%).

The structure of Apulian exports denotes a primacy of the machinery sector (15.8%), then motor vehicles (14.6%), the agrifood sector (10.8%), pharmaceuticals (8.9%) and chemicals (8.5%), wood and furniture (6%) and footwear (5.6%). The Apulian aerospace sector (4600 employees in 2020 for a turnover of 1.5 billion) in recent years has gone from 289 million (4.7% of Italian exports) in 2011 to a peak of 739 million (12.5%) in 2019. However, there was a collapse during the pandemic which continues its negative effects also in 2021.

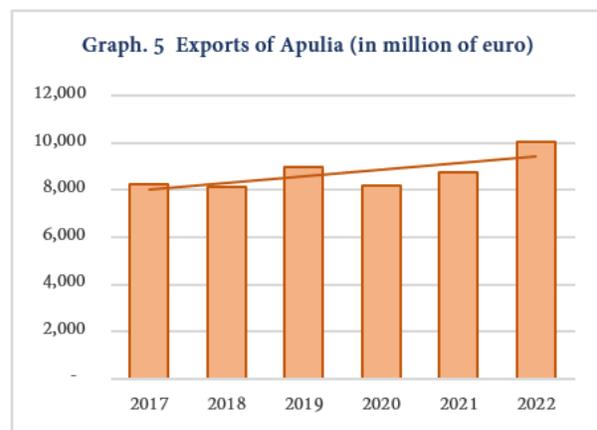
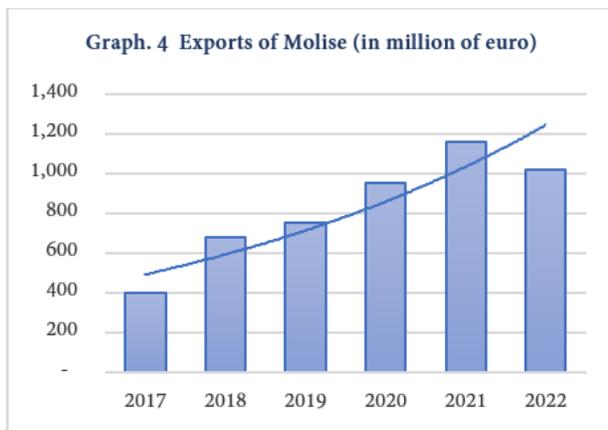
In 2021, 77% of Apulian exports involves advanced markets (5.8 billion euros): namely Germany, the United States, France, Spain, Switzerland, the UK, Belgium, Japan, Poland and the Netherlands. The share of Apulian exports destined for emerging markets is equal to 23%, which corresponds in volume to 1.7 billion euros in 2021. Among the emerging destination countries, we find Albania, Turkey, Romania and China as commercial partners in which Apulian products are more present. In

<sup>8</sup> [https://www.ice.it/it/sites/default/files/inline-files/Quaderno%20Le%20esportazioni%20della%20Puglia\\_struttura%20e%20potenzialita.pdf](https://www.ice.it/it/sites/default/files/inline-files/Quaderno%20Le%20esportazioni%20della%20Puglia_struttura%20e%20potenzialita.pdf)

<sup>9</sup> Foreign trade operators are economic subjects identified on the basis of the VAT number, which have carried out at least one commercial transaction abroad in the period of analysis. Source: SACE from Yearbook 2022.

emerging countries, however, the sectors with the greatest potential are machinery (300 million euro), chemicals (140 million euro), agri-food and motor vehicles (both with 120 million euro).

The analysis highlights the importance of Albania for the foreign trade of Apulia, a neighboring and well-guarded country, which is in first place as a destination market, accounting for 282 million euros in 2022, mainly in the textile and clothing (160 million euro), food and beverage (48 million euro), chemicals (21,3 million euro), rubber and plastic (14.5 million euro) and agrifood sector (9.6 million euro). Trade with Montenegro counts for 12.77 million euros in 2022 showing a significant drop of more than 50% in the 2020-2021 pandemic period, but fully recovered in 2022 (1.84 million in 2019). The main export sector are the food and drink (4.9 million euro) and manufacturing (3.1 million euro).<sup>10</sup> Furthermore, there is also a strong commercial link with Eastern Europe, considering the exports made to Hungary (109 million euro), Romania (232 million euro) and Bulgaria (69 million euro). Russia is also present, albeit to a small extent (about 1%), but is destined for a marginal role after the various sanctions imposed on it for the invasion of Ukraine.



Source: Own elaboration base on Istat-ICE-SACE, 2023.

Fig. 1 Molise exports by sector, year 2022.

9%  
24,00 € mln  
Altri

2%  
22,85 € mln  
Macchine strutturali

2%  
21,70 € mln  
Prodotti in metallo

3%  
20,70 € mln  
Farmaceutica

23%  
230,54 € mln  
Alimentari e bevande



32%  
328,43 € mln  
Mezzi di trasporto

29%  
291,35 € mln  
Prodotti chimici

36%  
3,320,70 € mln  
Altri

7%  
720,39 € mln  
Farmaceutica

8%  
764,80 € mln  
Tessile e abbigliamento



16%  
1,810,05 € mln  
Mezzi di trasporto

13%  
1,338,01 € mln  
Alimentari e bevande

10%  
107,85 € mln  
Prodotti agricoli

10%  
902,73 € mln  
Macchine strutturali

Source: SACE, 2023.

## Molise region

Molise holds an export volume equal to only 3.3% of Southern Italy's exports (excluding islands) and less than 0.2% of the national one in 2021. The weight of exports on the total GDP of Molise is on average 18.2% according to SACE in 2022. Exports are handled in Molise by around 385 companies. The structure of Molise exports denotes a primacy of the machinery sector (32%), then chemicals (29%), food and beverage (23%) and pharmaceuticals (3%).

<sup>10</sup> <https://www.sace.it/italy-map/dettaglio/puglia>

At the beginning of 2018 the automotive sector as a real development sector for foreign trade and for the economy of Molise that will become in recent years more than half of Molise exports. In the years relating to the covid-19 crisis, however, there was a percentage increase in sales for all product sectors by 26%, exceeding 1.15 billion exports in 2022.

Molise's exports are greater to non-EU countries (59%) than to EU countries (41%). In 2022, advanced markets involved are Germany, Netherlands the United States, France, Spain, Switzerland, the UK, Belgium, Japan, Poland and the Netherlands and Spain, while among the non-EU countries are the United States, Switzerland and the UK.

The analysis highlights underdeveloped trade relations with Albania, which as a destination market accounts for 4.7 million euros in 2022, mainly in the textile and clothing (3.1 million euro) and agrifood sector (0.86 million euro). Even less developed is the trade with Montenegro that counts for only 0.01 million euros in 2022 showing a significant drop after the pandemic crisis (0.06 million in 2019). The main export sector is the food and drink.<sup>11</sup>

### The export potential of Apulia region: An overview.

According to the analysis of export potential of Apulia region carried out in the Rapporto ICE 2021-2022<sup>12</sup>, there are high margins for an increase in exports in emerging countries, above all in China and Eastern Europe. The analysis shows that Apulia's potential in emerging markets is much lower than that in advanced markets in terms of volume (1.2 billion against 3.6 billion euros). However, if expressed in relative terms as a ratio to actual exports, the region's potential in these markets weighs more than in advanced countries (67% against 62%).

#### Advanced countries

Among the advanced countries, the highest potential is recorded in the sector of motor vehicles and means of transport (over 900 million euros, equal to almost a third of the total potential of Puglia), agrifood and machinery (both with an exploitable potential of around 400 million euros, who's the main outlet markets are represented by the United States and Germany) and pharmaceuticals (mainly in Switzerland). As far as the advanced non-EU markets are concerned, the importance of South Korea in the textile and wood-furniture sector should be noted, and Japan in the means of transport.

Fig. 3 Export potential in advanced countries

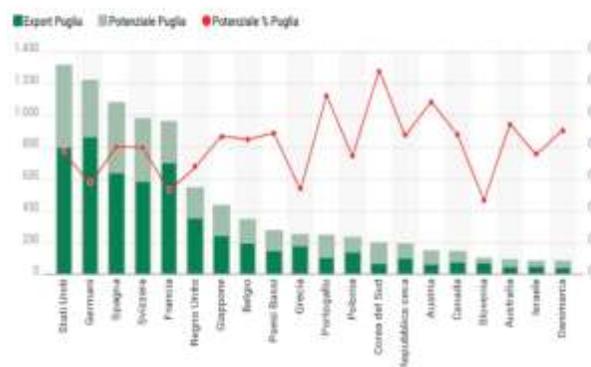
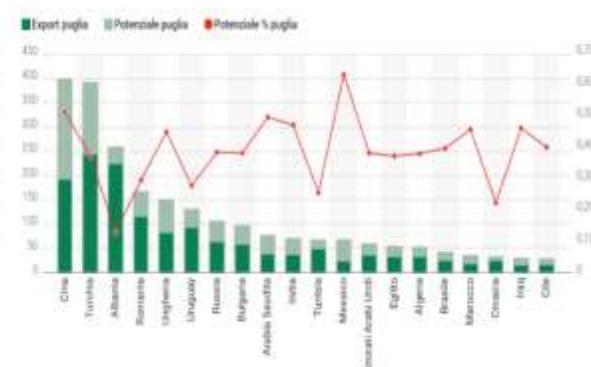


Fig. 4 Export potential in emerging countries



Note: The y-axis on the left describes the total potential expressed in millions of euros, given by the sum of actual exports (blue) and the still exploitable potential (green). The triangles, measured on the right axis, represent the exploitable potential expressed as a percentage of the total potential. Source: Manlio Masi Foundation elaborations on ISTAT and UN-Comtrade data. Rapporto ICE 2021-2022.

<sup>11</sup> <https://www.sace.it/italy-map/dettaglio/molise>

<sup>12</sup> Le esportazioni della Puglia: Struttura e potenzialità. (Rapporto ICE 2021-2022) [https://www.ice.it/it/sites/default/files/inline-files/Quaderno%20Le%20esportazioni%20della%20Puglia\\_struttura%20e%20potenzialita.pdf](https://www.ice.it/it/sites/default/files/inline-files/Quaderno%20Le%20esportazioni%20della%20Puglia_struttura%20e%20potenzialita.pdf)

## *Emerging countries*

The first emerging market in terms of potential is China, which has an exploitable potential of more than 200 million euros, as well as actual exports of the same amount. This is followed by Turkey which, in addition to being the main destination market in terms of exports, has an exploitable potential of around 150 million euros. Another aspect that emerges from the analysis is the strong relevance of the emerging markets of Eastern Europe for the potential of Apulian exports. If in Albania, which is the second largest export country, Puglia enjoys a relatively solid position (only 13% of exploitable potential), Hungary, Romania and Bulgaria offer ample room for improvement for Apulia's exports, especially in the automotive sector.

The analysis shows that the sectors with the greatest potential in emerging countries are machinery (nearly 300 million euro of exploitable potential), chemicals (about 140 million euro), agri-food and motor vehicles (both with 120 million euro). As far as motor vehicles and machinery are concerned, the exploitable potential in China stands out above all. Of absolute importance is also the exploitable potential of Turkey in the chemical, pharmaceutical and metal sectors, of Uruguay in the chemical sector and of Eastern European countries in the automotive, agri-food, textile and rubber-plastic sectors. Furthermore, the Middle East market should also be mentioned, an area characterized by classes of consumers with high spending power. A brake on the achievement of potential exports, especially in more distant markets, is represented by the presence of non-tariff barriers and import duties, with the latter still quite high especially in the agrifood sector, which historically characterizes the exports from the South. Table 3 shows in detail the potential of the main sectors by emerging trading partner.

## ***Economic activities and specialization***

### **Albania**

In 2021, agriculture contributed around 17.66 per cent to the GDP of Albania, 21.82 per cent came from the industry and 47.71 per cent from the services sector. Agriculture is the primary sector for Albania, the country's fundamental economic activity that employs approximately 33.8% of the labour force in 2021 (Instat, 2023). The industry sector is composed of numerous light industries active in the area, particularly in the food, textile, footwear and tobacco sectors. The tertiary sector is developing and absorbs 44.3% of the working population. In recent years, the most developing sectors are: energy production (renewable sources), mining-oil and gas, tourism, manufacturing, agriculture, transport and logistics and telecommunications. In 2021, active enterprises in Albania were 104,031 - 99.8 % of those are SME, accommodation and food services absorb most of the latter. The proportion of employed in this group of enterprises is 81.6 % from 64.4 % in EU. Only 174 large enterprises with more than 250 employees operates in the territory, which contribute to 23.9% of the value added and occupies 18.4% of the workforce (Instat, 2023)<sup>13</sup>.

### **Montenegro**

In 2021, the share of agriculture in Montenegro's gross domestic product was 6.46 per cent, industry contributed approximately 14.84 per cent and the services sector contributed about 59.86 per cent. The service sector employs 73.83% of the labour force, tourism and banking sectors are the main contributors. Only tourism contributes by 20% of GDP (European Commission). Agriculture employs 7.36% of the labour force, but it remains hampered by outdated methods. The industry sector occupied almost 18.82% of the labour force, exports of steel and aluminium represent an important part of total exports and, in the future, they will drive the economic development. Manufacturing sector is still underdeveloped and it represent around 4% of GDP. The number of business entities in Montenegro in 2021 was 39 682 which increase by 6.5% from 2020 pandemic year. Most of the

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<sup>13</sup> <https://www.instat.gov.al/media/11356/results-on-sme-2021.pdf>

enterprises are engaged in the wholesale and retail trade, repair of motor vehicles and motorcycles (28.8% of the total), professional, scientific and technical activities (13.3%) and accommodation and food service activities (12.6%). SMEs with less than 250 employees represent 99.8% of the total enterprises, only 54 large enterprises are active in the country (Monstat, 2023)<sup>14</sup>.

### Apulia region

In Apulia, the primary sector represents 4.4% of the regional gross product and occupied 8.8% of the labour force, 19.4% is given by the secondary sector with 22.2% of employees, and 76.3% by the tertiary one with 69% of the occupied labor force (ARTI, 2022)<sup>15</sup>. The main sector remains agriculture which occupies almost 12% of the labour force. Agriculture still represents one of the most important sources of wealth for the region. Indeed, Puglia is an export leader of wheat, olive oil and tomato. Furthermore, Puglia region is historically specialized in traditional manufacturing such as textiles and metal products, but also in some more advanced sectors, such as aerospace technologies. Moreover, Apulia has the biggest steel production plant of Europe located in Taranto. Active enterprises in 2021 were 332.506. The main sectors are represented by: wholesale and retail trade, repair of motor vehicles and motorcycles (31.9% of the total), agriculture, forestry and fishing (23.6%), accommodation and food service activities (8.1%)<sup>16</sup>. The highest concentration of firms is located in the provinces of Bari (38.2% of the total regional local units) and Lecce (19.8%) and Foggia (19.2%)<sup>17</sup>. In 2021, 5.4% of registered businesses are foreign-owned comparing to 10.5% in Italy (Unioncamere, 2021)<sup>18</sup>.

### Molise region

Agriculture is still today the backbone of the Molise economy, despite having lost a high percentage of employees in recent years, in 2021 agriculture occupies 6.9% of workers. The secondary sector is based on the mechanical sectors (FIAT plant in Termoli), food (in the Campobasso-Bojano area), footwear and clothing (in the Venafro-Pozzilli area), and it represent the 23.4% of the work force, while the construction sector occupies 6% of the total. The services component is prevalent, with about 64% of the work force. The Molise economy is based on a production structure of a substantially "traditional" nature, with approximately 30,629 active enterprises in 2022. They are of a prevalently agricultural nature (almost 28%, while trade and construction represent, respectively, 22% and 13% of the total enterprises), while the manufacturing sector itself produces 34% of the total production value (8% of the total enterprises). Most of businesses are SMEs with less than 250 employees (99.7%). Large companies, despite being only 0.3%, realize a production value equal to 18.2% of the total value. On the contrary, companies with "foreign" participation/management see the lower regional incidence compared to the Italian one (respectively 6.6% against 10.8%) (Unioncamere, 2022).<sup>19</sup> The main areas of specialization focus on automotive, mechanics, textiles and clothing, and agri-food. It's worth to be mention that in Termoli is located the Fiat plant (Stellantis) and in 2024 it is planned the conversion into the third giga-factory for batteries for electric cars in Europe that will occupy 2 thousand employees.

<sup>14</sup> <http://monstat.org/uploads/files/publikacije/registri/Number%20and%20structure%20of%20enterprises%202021.pdf>

<sup>15</sup> <https://apulianinnovationoverview.arti.puglia.it/indicatori/occupati-per-settore-economico>

<sup>16</sup> <https://www.unioncamerepuglia.it/wp-content/uploads/2021/09/Report-sul-sistema-dimpresa-in-Puglia-e-sulla-sua-evoluzione-storica.pdf>

<sup>17</sup> [https://www.fg.camcom.it/sites/default/files/upload/mercato\\_e\\_tutela/statistica/trend\\_impresa/report\\_2021\\_iv\\_trimestre.pdf](https://www.fg.camcom.it/sites/default/files/upload/mercato_e_tutela/statistica/trend_impresa/report_2021_iv_trimestre.pdf)

<sup>18</sup> <https://www.regione.puglia.it/web/ufficio-statistico/-/unioncamere.-impresa-straniere.-i-semester-2021>

<sup>19</sup> Le strategie di R&I per la specializzazione intelligente – Regione Molise 2022 (Sviluppitalia, 2022)

file:///C:/Users/User/Downloads/LestrategieR\_I.pdf

[https://www.molise.camcom.gov.it/sites/default/files/contenuto\\_redazione/informazione\\_economica/commento\\_ai\\_dati\\_del\\_cruscoito\\_statistico\\_anno\\_2022\\_4\\_trimestre.pdf](https://www.molise.camcom.gov.it/sites/default/files/contenuto_redazione/informazione_economica/commento_ai_dati_del_cruscoito_statistico_anno_2022_4_trimestre.pdf)

## Labour market and occupation

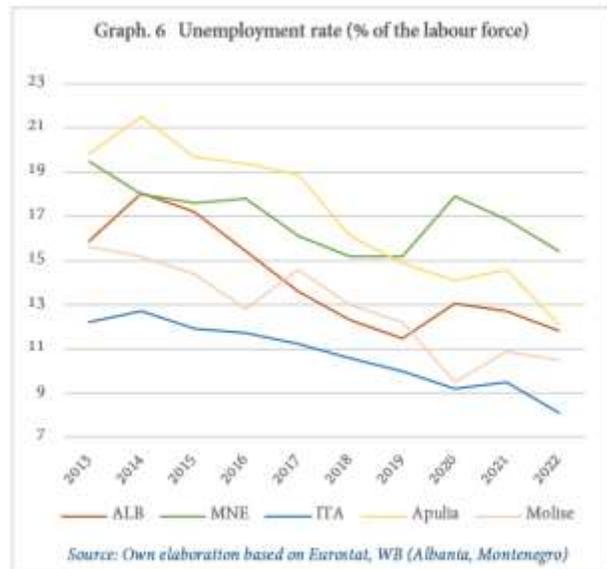
On the whole in the Programme area unemployment continuous to drop down, but still remain higher than the EU average (6.2% in 2022)<sup>20</sup>. Montenegro shows the higher unemployment rate after the pandemic crisis, also Albania has not yet reached the pre-pandemic level.

Unemployment rates began to drop down fast for Apulia and Molise in the last years, but at a slower pace with respect to national average (8.1% in 2022). Gender gap in labour force still remain higher with respect to national average (9.1% for female and 7.3 for male in 2022). Apulia shows the higher unemployment rate for females (15.7% over 10.4%)<sup>21</sup>. Youth unemployment (age group 15-24) slightly decreases over years, but it still remains higher in Apulia (32%) and Molise (30.8%) comparing to the national average (23.7% in 2022).

Worthy of attention is the data on NEETs (not in education, employment or training) for the age group 15-29. In 2020, the Southern regions record the highest share of people who are unemployed and not receiving an education or vocational training (NEET): 29.4% and 28.3% in Apulia and Molise respectively, compared to a national average of 25.1%. There is no country in the European Union that has such a high rate of NEET than Italy (the EU average is of 13.7% (Eurofund, 2021)), it is a complex socio-economic phenomenon to be solved. In the light of this worsening situation, the Italian government adopted on the 20th January 2022 a “NEET plan” that aims at reducing the more than 3 million young people between 15 and 34 years in the country that are presently neither working nor in education or training.

This data underlines a long-standing dynamic regarding the youngest part of the workforce. Detailed policy options to support the unemployed people in the Programme area are needful, mostly addressed to more vulnerable social groups, like women and youth.

Investing in the future to reverse course to get out of this impasse public investment in education and research needs to be increased. Italy is currently investing a % of GDP in education less than its European counterparts. In a world where the technological content of goods and services is the key to driving the economy of a country, knowledge should be put first. In Italy are observed excessively high rates of functional illiteracy and digital illiteracy. These data are closely linked to the production capacity of a country. In this context, the paradox is that a large part of the entrepreneurial fabric is unable to absorb qualified labor supply. From 2010 to 2022 more than 1 million Italians moved abroad and over 23% of them had a university degree<sup>22</sup>.



## Transport infrastructure and Connectivity

Despite much investment over the past 30 years, transport infrastructure in the Western Balkans lags behind much of the rest of Europe, in both quality and density. This has a direct impact on the movement of goods and the people within the region and beyond. According to the World Bank (2019), “delays at crossings in the Western Balkans are five times longer than in many EU

<sup>20</sup> Eurostat, 2023. Data based on EU 27 countries.

<sup>21</sup> Instat Albania, 2023.

<sup>22</sup> <https://italiaindati.com/disoccupazione-in-italia/>

countries and trucks spend some 26 million hours at crossings in the region each year – that's nearly 3,000 years<sup>23</sup>.

Albania and Montenegro have the lowest LPI<sup>24</sup> among Western Balkans countries<sup>25</sup>, respectively 2.08 and 2.28 out of 7. This reflects infrastructure gaps these countries face compared to their neighbours, consequently affecting efficiency and reliability of all the transportation system.

Also, Italy faces lower performance in the LPI dimension related to the ease of arranging competitively priced shipments, and the efficiency of the clearance process (i.e., speed, simplicity and predictability of formalities) by border control agencies, including customs.

Fig. 5 - International LPI by country and key dimensions, 2023.



### Maritime connections

The main link for connecting the two sides of the South Adriatic is maritime transport. Ports of Bari and Brindisi have stable daily connections with ports of Durres and Bar, and Valona respectively. Durres is the biggest one and it is considered the main gateway for Central and Western Europe (UNECE, 2014).

The Ro-Pax traffic has shown stable trends over years. But the recover from pandemic is still challenged in terms of passengers: in 2021 passengers travelled by sea were half of that in 2019 in Albanian ports, but almost doubled in 2022<sup>26</sup>. On the other hand, Montenegro process high cruiser activities within the port of Kotor, being the second largest cruise port in the Adriatic Sea, following the port of Corfù, while Albania with the port of Saranda occupies only the 14<sup>th</sup> position<sup>27</sup>. Ports act as gateways for regional connectivity, especially for countries like Albania and Montenegro which process by the maritime transport sector 50% and 51% of the total goods respectively.<sup>28</sup>

In 2022 the traffic of the goods in the ports of Montenegro has marked a strong growth of +57.6% related to 2021, but the decrease (-30.4%) of loads to and from Italy was accentuated. In the same period, Albania's cargo traffic at its seaports down -20%, while Italy remains its first trade partner.

<sup>23</sup> Press release No: 2019/ECA/108, World Bank.

<sup>24</sup> The international score uses six key dimensions to benchmark countries' performance and also displays the derived overall LPI index. The logistics performance (LPI) is the weighted average of the country scores on the six key dimensions: (1) Efficiency of the clearance process (i.e., speed, simplicity and predictability of formalities) by border control agencies, including customs; (2) Quality of trade and transport related infrastructure (e.g., ports, railroads, roads, information technology); (3) Ease of arranging competitively priced shipments; (4) Competence and quality of logistics services (e.g., transport operators, customs brokers); (5) Ability to track and trace consignments; (6) Timeliness of shipments in reaching destination within the scheduled or expected delivery time. Note: Data of Montenegro refers to Serbia and Montenegro together.

<sup>25</sup> Kosovo is not included in the analysis; no data are provided. LPI for other Balkan countries are: North Macedonia (3.1), Serbia (2.8), Bosnia and Herzegovina (3.0).

<sup>26</sup> Albanian port traffic has registered 862.757 passengers in 2021 over 1.574.095 in 2019 (Instat, 2023).

<sup>27</sup> Adriatic Sea Tourism, Report 2022, Risposte turismo.

<sup>28</sup> For Albania: calculation based on Open Data Albania <https://ndiqparate.al/?p=18776&lang=en>, year 2021. For Montenegro: own calculation based on Monstat data, year 2021.

Table 4. Gross weight of goods handled in all ports (in thousand tons), 2017-2022.

	2017	2018	2019	2020	2021	2022*
Albania	4,022	3,890	4,455	4,277	4,844	3,840
Montenegro	2,096	1,956	2,035	2,044	1,859	2,930
Apulia	39,338	41,120	33,663	32,113	34,355	34,174
Taranto	21,648	20,433	18,125	15,778	17,529	14,573
Bari, Brindisi, Monopoli, Barletta, Manfredonia	17,689	20,687	15,538	16,335	16,826	19,601

Source: Montenegro (Eurostat), Albania (Instat), Apulia (own calculations based on Assoport), 2023. \* The data refers to 11 months traffic (January-November).

## Road network

The Western Balkans owns only 8% of the European road network, while Albania is the less endowed country. Its' road network has a density of 0.012 km/sq. km. Montenegro, which has half of area than Albania, counts almost triple as many kilometers, according to the European Statistical Institution (Eurostat, 2021).

While the needs for further improvement are still great, the limited funding sources is the main bottleneck. The Albanian government has tested new financing instrument, through Public-Private Partnership contracts, as the Arber Road project. But the International Monetary Fund has expressed reservations about the way these investments are being engaged both in terms of the profitability of the projects and the risks they create in the country's fiscal stability.

## Railway network

Railway networks are not well developed in Albania and Montenegro, especially in terms of capillarity on the territory. The Programme Area lacks high-speed railways and most of the system consists of nonelectrified one-track lines.

Specifically, Albania has the lowest railway density with only 0.008 km/sq. km, followed by Montenegro with 0.018 km/sq. km, while the mean density of Western Balkan countries is 0.40 km/sq. km. In 2021, rail freight transport in Albania represents only 13% of the volume of goods transported by sea, while Montenegro has moved 943 thousand tons by train, representing more than 50% of maritime transport, as well as around 26% of the freight transport<sup>29</sup>.

However, new investments in infrastructures are foreseen in all territories: Albania engaged within the Corridor VIII development and Montenegro has invested in the rail connection with Serbia. Those infrastructures are fundamental for promoting economic growth and cohesion.

## Air connections

Air flows have mainly grown in all the area<sup>30</sup>, with except to Covid period. There were almost 3 million passengers operated by 20 carries in 2021 (Instat, 2022) and almost 2 million passengers in 2022 (Monstat, 2022) in Albania and Montenegro respectively. Passenger traffic has doubled in the last 10 years for both countries. This positive dynamic can be associated with the concurrent development of the tourism sector. Moreover, investments in infrastructures are foreseen on existing airports and in the constructions of new ones (especially in Albania and Montenegro). In 2021 Albania opened a new international airport located in the North, named Zayed - Kukësi International Airport.

## Maritime trade and transport infrastructures in Apulia and Molise regions

Apulia's maritime trade, which amounts to over 6.1 billion by 2020, has a very significant weight in overall regional trade, accounting for 46% of the total compared to 34% for Italy. In other words,

<sup>29</sup> Own calculations based on Instat and Monstat data.

<sup>30</sup> Molise does not have airports in its territory. Land connections to Bari, Naples and Rome are used to reach the nearest airports.

almost half of the goods exchanged from Apulia travel by sea (Istat, 2023). Corridor VIII is therefore a strategic axis between the Adriatic Sea and the Black Sea, which connects the Italian Adriatic-Ionian southern regions with Albania (Durrës, Tirana) through the ports of Bari and Brindisi (ASSET, 2019).

At the national level, Mezzogiorno has a higher contribution to the “maritime economy” with 30.4% of the value added, while Apulia (4,1%) Molise (1,5%) are positioned as the last regions in Mezzogiorno. In 2020, 4.9% and 1.8% of employees were occupied in sectors of the “maritime economy” for Apulia and Molise respectively, Nel 2021, despite Apulia ranked 4th region at country level for the number of enterprises in the maritime economy, by counting 18.461 firms (+3% with respect to 2020), it reflects the small dimension that characterizes the firms in these sectors. Molise, is instead ranked among the last regions with only 808 firms (+1.5% with respect to 2020) (X Rapporto sull'Economia del Mare, 2022).

Apulia has 1,542 km of railways, 39% of which is one-binary and 42.8% not electrified. On the other hand, Molise has 265 km of railways, 91.3% of which is one-binary and 77.3% is not electrified (at national level they are respectively 56.3% and 29.8%). Most of the railway network is located on coastlines for both regions, some of which are not electrified and needed to be speeded-up. More than 43% of trains operating in Apulia, and 95% in Molise are more than 15 years old (Legambiente, 2023)<sup>31</sup>. Moreover, more than 10% of the population in that areas takes more than 30 minutes to reach a main station (Istat, 2020)<sup>32</sup>.

Molise is one of the least served regions in Italy by the motorway network, with only 1 km per 100 sq. km, while Apulia has a network extension of 1.8 km per 100 sq. km, both above the national road network density of 2.4 km per 100 sq. km. Consequently, the accessibility to the highway network is limited: approximately 30% and 40% of local population need over 45 minutes to reach a highway entrance (ISTAT, 2020).

On the other hand, there was an increased accessibility of air transport in recent years which has resulted in significant growth in traffic. In Apulia region, air traffic has increased by 37% in the period 2012-2022, reaching almost 10 million passengers and ranking the 9<sup>th</sup> region at national level (Assoporti 2023).

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31 Legambiente (2019a) Rapporto Pendolaria. <https://www.pendolaria.it/wp-content/uploads/2020/02/Rapporto-Pendolaria-2019-completo.pdf>.

32 [https://www.istat.it/storage/rapporti-tematici/territorio2020/capitolo\\_7.pdf](https://www.istat.it/storage/rapporti-tematici/territorio2020/capitolo_7.pdf)  
Data refer to year 2017 for railways and 2016 for roadways (Istat, 2020)

## SUSTAINABLE (GREEN) INFRASTRUCTURES (2 Factsheets)

### SUSTAINABLE INFRASTRUCTURES - Cold Ironing for Sustainable Ports

#### *The context*

CO<sub>2</sub> emissions by shipping activities go in the opposite desired direction in the decade 2012-2022 growing by almost 24% (UNCTAD, 2023). On the other hand, the largest part of emissions in ports is generally from shipping activities, it is estimated to be between 70% to 100% (OECD, 2014)<sup>33</sup>. The expected increase of maritime trade associated to the environmental impact, represent challenges for the maritime sector and ports in the future, like demand for low carbon emission fuels and for sustainable facilities when moored in ports. Major improvements in landside port facilities, both for alternative fuels and electric facilities, are required to fulfill demand changes.

The maritime sector is moving in this direction due to the EU policies that have been introduced in 2023 with “Fit for 55” package. Specifically, the FuelEU Maritime regulation has imposed the obligation to use the power supply on land when mooring on the quay in the main EU ports starting from 2030, with extension to all other ports from 2035. This implies for ports to invest in infrastructures to assure vessels reaching EU sustainability targets, but at the same time increasing competitiveness and integration in the Ten-T network.

#### *What is missing?*

In the ports of Bari, Brindisi and Taranto the design for docks electrification has started in 2023 and it has been financed by PNRR funds (14, 8 and 55 million euro respectively). Montenegro and Albanian ports do not provide these types of facilities for vessels, and financing these infrastructures must be more challenged. Anyhow, the required investments to build the land infrastructure can vary considerably depending on the specific conditions/position of the port, on the demand for power, voltage and frequency of the vessel<sup>34</sup>. Technical and



economic feasibility studies are not yet done for ALB and MNE ports.

#### *What to do?*

- Estimate the energy needs of ships in the considered ports;
- Identification of the technical, administrative and economic conditions necessary for the construction of an electrical network dedicated to supplying ships.

#### *Expected results and impact of the Intervention Action*

- Feasibility study for infrastructure and intervention needs;
- Improve access to TEN-T for ships that require specific infrastructure and facilities to anchor in ports;
- Increase cross-border mobility and trade flows offering new and sustainable port facilities;
- Improve competitiveness and environmental performance of ports.
- promotion and greater appeal for shipping companies, increasingly projected to choose green products;
- Improve quality of life of inhabitants and further strength port and urban community relations.
- Economic growth (port activities, trade, employment, tourism, overall enterprises growth, enterprises specialization in biofuels and sustainable energies).

**Related projects:** Interreg Adrion - SUPAIR (Sustainable Ports in the Adriatic-Ionian Region). <https://supair.adrioninterreg.eu/> It supports port authorities (Trieste, Venice, Koper, Bar, Durres, Thessaloniki and Piraeus) in the implementation of low-carbon and multimodal transport and mobility solutions.

<sup>33</sup> <https://www.itf-oecd.org/sites/default/files/docs/dp201420.pdf>

<sup>34</sup> An indicative order of magnitude is that the infrastructure costs around €300k-€600k for each MW of power required. For example, it goes from €255,000 for the construction of two plants designed in Gothenburg to power ferries and without the need for frequency converters, to the approximately € 4 million per pier in the feasibility studies for the port of Rotterdam.

## Integrate the TEN-T network with Alternative Fuels Infrastructures (Electric charging)

### *The context*

Electric vehicles are the key technology to decarbonise road transport, a sector that accounts for around 20% of global emissions. Recent years have seen exponential growth in the sale of electric vehicles, only in 2022 more than 10 million electric cars were sold worldwide (IEA-International Energy Agency, 2023). In Europe, 25% of vehicles sold in 2022 were full electric (European Alternative Fuels Observatory, 2023). Publicly accessible chargers are increasingly needed in order to provide the same level of convenience and accessibility as for refueling conventional vehicles. In Europe there were 460 000 total slow chargers and over 70 000 fast charges in 2022, a 50% increase from 2021. There is a clear ambition across the European Union to further develop the public charging infrastructure, as indicated by provisional agreement on the proposed Alternative Fuels Infrastructure Regulation (AFIR), which will set electric charging coverage requirements across the trans-European network-transport (TEN-T). Following the “Fit for 55” package, which aims to reduce greenhouse gas emissions by 55% by 2030, charging stations for electric cars will be placed every 60 km along the EU’s main highways by 2026. Higher-powered chargers for trucks and buses must be rolled out on at least half of the EU’s core network every 120 km by 2028, while hydrogen refueling stations will be installed at least every 200 km by 2031.



### *What is missing?*

Apulia has 1332 charging point at the end of 2022 and 175 in Molise (Motus-e, 2023)<sup>35</sup>. While, from Electromaps data, in Montenegro and Albania there are respectively 47 and 9 charging stations mainly located in urban areas and with no additional information provided. There is lack of public charging infrastructure availability, especially in motorways. Despite electric vehicles are less spread in Albania (624 in 2021) and in Montenegro (99 in 2019), charging infrastructures are required for supporting trade and tourism activities, since the main trade partners and tourist flows are from EU countries.

### *What to do?*

- Estimate the need for public charging infrastructure across TEN-T;
- Mapping existing and future charging stations;
- Set harmonised standards with EU and remove trade and tourism barriers;
- Infrastructure investments in selected TEN-T areas.

### *Expected results and impact of the Intervention Action*

- Improve TEN-T accessibility for electric vehicles;
- Respond to the increase future demand for alternative fuels, related to trade and tourism sectors;
- Increase intermodal and sustainable sea-road transport;
- Feasibility study for charging infrastructure network.

**Related projects:** #DynaMob 2.0 promotes the use of environmentally friendly forms of transport, focusing on electric car sharing and bike sharing. The project aims to improve public infrastructures and eco-services limited to the municipalities of Tirana and Skrapar. It is applied only to urban context.<sup>36</sup> Interreg Mediterranean: EnerNETMob implemented pilot projects for installing charging stations (also in Albania and Montenegro ports).<sup>37</sup>

<sup>35</sup> <https://www.motus-e.org/wp-content/uploads/2023/02/Report-Infrastrutture-di-ricarica-a-uso-pubblico-Italia-quarta-edizione.pdf>

<sup>36</sup> <https://dynamob20.italy-albania-montenegro.eu/>

<sup>37</sup> <https://www.enetnetmob.eu/p/intermodal-sea-road-transport>

## PORT FACILITIES AND ACCESSIBILITY (1 Factsheet) – Innovation Platform and Network for vessels' mechanic, electronic and engineering services

### **The context**

Italy is a world leader in the nautical sector: 2nd producer and exporter of pleasure crafts, and leadership in the superyacht sector (units >24m), large pneumatic units and accessories. On a national level, the nautical industry is among the top ten sectors of Made in Italy for twenty years of export growth (1999-2019) with a larger trade surplus. It is composed by over 18,000 local production units and 23,500 employees. It activates a supply chain of over 183,000 employees, for an added value of around 12 billion euro in 2019 (Confindustria Nautica and Symbola Foundation, 2020). In particular, refit, repair and maintenance services contribute by over 357 million euro in 2021, and more than half has generated from services to foreign boats (Confindustria Nautica, 2022). Mainly these activities are concentrated in the North Adriatic and Ligurian ports, while in Apulia mainly the port of Taranto has developed a vocation in repair and maintenance of military ships. This sector is also a component of the Maritime Strategy for the Adriatic and Ionian Seas as part of EUSAIR strategy and it is included in the Smart Specialization Strategy (S3) of Apulia region on which to focus for future growth.

An inter-regional network, supported by innovative tools and online-platforms, can lead companies to organize their activities by collaborating and building stable and organized networks of skills, resources, personnel and means, capable of raising the levels of competitiveness of the sectors and of South Adriatic ports, and at the same time assure prompt, qualitative and innovative services for vessels and pleasure crafts.

### **What is missing?**

These services are of particular relevance for ship activities and ship owners: there is often high pressure placed on maintenance technicians to keep the downtimes of the ships as low as possible, and consequently work to respect deadlines as much as its technical expertise by becoming ship repair and maintenance extremely challenging. The entrepreneurial fabric that operates in the supply chain are widespread and fragmented, with various production specializations and thousands of production units located throughout the territory. An induced group made up of small and micro companies that create value and quality, but which are not always structured on an organizational level

and coordinated by limiting the ability to innovate the system, exchange of skills and know-how may jeopardize the future development of this strategic sector. For vessel owners is represent difficulties to interface with many differentiated companies to respond to their technical needs, while ports may lose competitiveness and productivity due to limited services for vessels.



### **What to do?**

- Port and nautical system: favor the integration and development of the nautical sectors, but also tourism, to enhance the offer and improve the quality of port services.
- Business system: foster the birth of a new entrepreneurship that strengthens existing realities, generates new activities also in other productive sectors.
- Create a hybrid and innovative network structure to support the sustainable growth of companies offering technical-engineering and design services to the nautical sector.

### **Expected results and impact of the Intervention Action**

- Promote the technological capacity of the nautical industry and create an innovative platform for cluster in the shipbuilding industry;
- Improve ship owners' access to the most suitable facilities;
- Positive effects on growth, also on the tourism sector.
- Increase international competitiveness of ports;
- Implementation of new processes and technologies for ship repair activities (advanced robotics, augmented reality, machine simulation and process optimization, digital twin, remote control, etc.)

### **Related projects:**

Interreg Adrion – NORION and NEORION PLUS aim at establishing a transnational Cluster in the Adriatic-Ionian on Green Shipbuilding. <https://neorion.adrioninterreg.eu/> FUTURE 4.0 developed an experimental methodology of knowledge transfer addressed to the naval industry. <https://future4.adrioninterreg.eu/>

## PROMOTING COMMERCIAL NETWORKS AND LOGISTICS (1 Factsheet)

### Develop infrastructure and logistics and Strengthen Cooperation for enhancing commercial flows in integrated and intermodal ZES areas

#### *The context*

Special Economic Zones (SEZs) as a policy instrument are important for achieving several specific policy objectives: increasing employment, attracting FDI and/or increasing foreign exchange earnings. After Covid-19 pandemic, reshoring/nearshoring policies are being generated in the world and Italy is the second country in Europe, after France, for the return of foreign companies, according to the estimates of the Politecnico di Milano<sup>38</sup>.

Mainly SEZs are made up of ports, retro-port areas, logistics platforms and interports, include areas that are not adjacent but connected on an economic and infrastructural level. In 2017 two SEZs were instituted, the Apulia-Molise Adriatic SEZ and the Apulia-Basilicata Ionian SEZ (Law 123/2017), while in Albania was defined three “Zone of Economic and Technological Development” (TEDA) – in Durres, Tirana and Valona – which are not fully operative, and in Montenegro one Free Zone in Bar that houses 36 companies, 15 of which are foreign investments<sup>39</sup>.

#### *What is missing?*

The particular interest on these areas where trade and foreign investments could potentially be concentrated, highlights the key role of maritime transport in the foreign projection especially of the Southern Adriatic regions, to develop their export potential and specialization in some sectors like machinery, automotive and agriculture with trade partners as Romania and Bulgaria connected to the area by Corridor 8 and Hungary. A main role is played by innovative logistic platforms as a pivotal element in competitiveness and sustainability development of the areas along with fiscal incentives.

The coordination among the areas is fundamental for creating a synergic economic system, beside investments upon the explored



needs, of innovative logistic platforms and technological start-up creation in specific sectors.

#### *What to do?*

- Creating networks to support internationalization and business growth in SEZs and share common business challenges and objectives relating to overseas growth;
- Facilitating public-private dialog (PPD) focused on improving government and regional policies;
- Develop measures directed to generate critical mass in trade and commercial relation;
- Initiatives for lowering the costs associated with non-tariff measures (alignment and simplification of custom procedures);
- Study of the needs for developing high integrated ports and network infrastructure for SEZs;
- Develop measures based on infrastructure and logistic needs for technologic start-ups establishment in SEZs.

#### *Expected results and impact of the Intervention Action*

- Increase regionalization in trade and nearshoring;
- Facilitate regional FDI inflows, trade and value-chain development;
- Develop more efficient value-chains; - Reduce trade policy uncertainty;
- Increase specialization in potential and hi-tech sectors;

**Related projects:** ALMONIT-MTC aims to improve connections between both the two sides of the Adriatic Sea, and the two sides of Shkodra/Skadar Lake, through multimodal inland water and maritime transport connections. <https://almonitmtc.italy-albania-montenegro.eu/> ISACC aims to define information methodologies, models, processes and structures that can simplify and harmonize the introduction of innovative approaches in the anti-fraud inspection and control phases. <https://isacc.italy-albania-montenegro.eu/>.

<sup>38</sup> POLIMI-Osservatorio Export Digitale, Scenari del commercio mondiale e il ruolo dell'Italia: trend in atto, catene globali del valore e potenziale dell'e-commerce, 2021.

<sup>39</sup> <https://www.investinsee.com/country/montenegro>

# **Internationalisation Processes and Paths for Italian, Albanian, and Montenegrin SMEs**

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## Summary

This fact-sheet analyzes the peculiarities that characterize the economic contexts of Albania, Montenegro and Italy and analyzes the sectors and companies that strengthen the trade relations between the three countries.

A number of actions are presented below in the document at the aim to increase both the export vocation and the level of internationalization of Italian, Albanian and Montenegrin companies. The proposed actions are designed to foster investments in highly traction sectors which will allow Italian, Albanian and Montenegrin enterprises and economies to make a qualitative leap in terms of technology and in the modernization of production systems.

The potential areas of intervention proposed by the fact-sheet, at the aim to strengthen cooperation between the three countries, are:

1. circular economy, recycling, energy production and energy independence of involved territories.
2. Internationalization of the processes and access to credit
3. the production and recovery of rare earths and precious metals
4. the recovery of highly polluting materials in the textile industry
5. synergies to encourage the quality growth and the exchange of skilled labor and technologies

The development potential of each of the proposed areas of intervention is, to a certain extent, connected and interdependent on the development performance of the others.

## Context Analysis

The following paragraphs describe and compare the main characteristics that distinguish the economic contexts of Albania, Montenegro and Italy and highlight the sectors and businesses that strengthen trade relations between the three countries.

### Analysis of the Albanian economic context

Albania is one of the fast growing countries on the European continent. The country is increasingly competitive and innovative, ranking 52nd - out of 180 countries examined - in the Doing Business 2019 report on friendliness in doing business.

The geographical proximity, the strategic position nearby the markets of the European Union and the Balkan area, and the strong economic integration are conditions that traditionally make Italy and Albania natural economic partners, and represent a strong point for the development of economic relations and bilateral trade.

The following SWOT summarizes the main aspects that come out when analyzing the Albanian macro-economic context.

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"><li>• Strategic position in the center of the Mediterranean and proximity to the markets of the Balkan countries</li><li>• Low cost-of-life</li><li>• Good stability of the Albanian economy and compatibility with the Italian production system.</li><li>• Diffusion of the Italian language among the local population</li><li>• Favorable general taxation</li></ul>	<ul style="list-style-type: none"><li>• High level of corruption</li><li>• Limited transparency</li><li>• Uncertainty of the law and of the application of binding rules and decisions; issues related to land and real estate ownership titles.</li><li>• Burdensome bureaucracy and inefficiency in administrative procedures, regarding to licensing and payments by administrations above all.</li><li>• State bureaucracy</li></ul>

<b>OPPORTUNITIES</b>	<b>THREATS</b>
<p><b>sectors to invest</b></p> <ul style="list-style-type: none"> <li>• Textile</li> <li>• Activities related to other services</li> <li>• Buildings</li> <li>• Tourism</li> </ul> <p><b>What to trade in Albania</b></p> <ul style="list-style-type: none"> <li>• Food</li> <li>• Textile products</li> <li>• Machinery and equipment</li> <li>• Information and communication services</li> </ul>	<ul style="list-style-type: none"> <li>• Political Risks (Political Risks)</li> <li>• Customs issues (operational risks)</li> <li>• Business climate (economic risks)</li> </ul>

## Relations between Albania and Italy

Italy remains a privileged interlocutor for Albania; indeed, the Peninsula not only represents the main trading partner of the country but is also one of its main investors. Based on data from the Italian National Institute of Statistics INSTAT, between January and November 2022 Italy was once again confirmed as Albania's first commercial partner, with 29.5% of total Albanian trade with the rest of the world, for a total amount of over 3.2 billion euros. The value of the first eleven months of the year (+21.5% vs the same reference period in 2021) has already exceeded the total figure achieved in the whole of 2021 (2.9 billion euros). Followed by Turkey with 8.5%, Greece with 7% and Germany with 6.4%.

Italy is by far the main supplier of Albania, accounting for about a quarter of imports into Albania (22%). In the first eleven months of the year, Albanian imports from Italy amounted to 1.58 billion euros, up by 7.4% compared to the corresponding period last year. Followed by Turkey (12.2%), Greece (8%) and China (7.9%).

The main products imported into Albania from Italy are: textiles and footwear (24% of imports from our country); machinery, equipment and spare parts (19.8%); food, drink and tobacco (13.9%); construction materials and metals (13.2%); chemicals and plastics (12%).

Albanian exports to Italy in the period January-November 2022 had an increase of 38.6% compared to the same period of 2021, reaching the figure of 1.64 billion euros and thus exceeding, already in October, the total figure for the whole of 2021. They make up 43.9% of total Albanian exports. Italy thus confirms itself as Albania's main client country, followed at a great distance by Kosovo (7.8%), Germany (6.8%) and Greece (5.2%).

The main products exported from Albania to Italy in the period considered are textiles and footwear (for 49.6% of total exports to Italy); building materials and metals (16%); machinery, equipment and spare parts (9.4%); minerals, fuels and electricity (9.2%).

The 2,675 companies with Italian participation in their share capital (2021 data) allow Italy to be the first country in terms of number of foreign companies active in Albania, representing over 40% of all the foreign ones active in Albania, playing an important role in the production system and Albanian labor market.

Of the 2,675 companies with Italian and mixed capital active in Albania, 1,911 are those with entirely Italian share capital; 658 companies (25%) carry out production activities (mainly manufacturing and commercial), while the other 2017 companies (75%) carry out service activities (including numerous single-member consultancy companies).

Medium-large industrial groups have established themselves mainly in the energy, construction, agro-food and banking sector (the Italian Intesa San Paolo is the fourth largest bank in the country). The energy

sector has been the most successful field for high-level Italian penetration. The textile, clothing and footwear sectors represent the main source of employment in manufacturing.

Based on data from the Bank of Albania, the amount of Italian FDI is 1.14 billion euros (data referring to the third quarter of 2022) out of a total of 10.3 billion euros, which places Italy in 4th place among foreign investors, preceded by Switzerland (€1.84 bn ), the Netherlands (€1.75 bn ) and Canada (€1.4 bn ).

### Italian companies in Albania

Acmar scpa .	<a href="http://www.acmar.it">http://www.acmar.it</a> - Construction
Albacall Sh.a .	<a href="http://www.albacall.eu/">http://www.albacall.eu/</a> - Information and communication services
Albacus Shoes shpk	<a href="http://www.cofra.it">http://www.cofra.it</a> - Leather articles (clothing excluded) and the like
ALBAN CONSTRUCTION - IMINER GROUP	<a href="http://albancostruzioni.com/">http://albancostruzioni.com/</a> - Construction of poles for the transmission of electricity, carpentry and stone and marble processing. - Products of other manufacturing industries
Albanian Green Energy Shpk	<a href="http://gruppomarseglia.it/albanian-green-energy/">http://gruppomarseglia.it/albanian-green-energy/</a> - Electricity, gas, steam and air conditioning (also from renewable sources)
Camunalb shpk	<a href="http://www.camunalb.com">http://www.camunalb.com</a> - Electricity, gas, steam and air conditioning (also from renewable sources)
Coca-Cola Bottling Shqiperia shpk	<a href="http://www.ccbs.al">http://www.ccbs.al</a> - Drinks
Colacem Albania Shpk	<a href="http://www.al.colacem.com">http://www.al.colacem.com</a> - Products of other manufacturing industries
Conad Shqiperia shpk	<a href="http://www.conadalbania.al">http://www.conadalbania.al</a> - Food products - Beverages
Elettrotek shpk	- Electrical appliances and non-electrical household appliances
Enpower Albania Shpk	<a href="http://www.moncadaenergy.com">http://www.moncadaenergy.com</a> - Electricity, gas, steam and air conditioning (also from renewable sources)
EUROCOSTRUCTION srl	<a href="http://www.eurocostruzioni-spa.com">http://www.eurocostruzioni-spa.com</a> The company has extended its activity in Albania, also in the energy sector - Construction
EUROFISH SH.PK	<a href="https://eurofish.al/">https://eurofish.al/</a> DELICIOUS GROUP - PARMA ITALY - Agricultural, fishing and forestry products
Euronova shpk	<a href="http://www.euronuovo.al">http://www.euronuovo.al</a> - Food products - Beverages
ITALIAN FARM	Dairy production - Food products
GREEN RECYCLING SHPK	INDUSTRY/environment, waste recycling - Water supply; sewerage, waste treatment and remediation activities
Edilcentro group	<a href="http://www.gruppoedilcentro.com/">http://www.gruppoedilcentro.com/</a> - Production of tiles and pipes for the building industry - Construction
GTS (Gazra Technike Shqiptare sh.pk.) - GROUP SOL	<a href="http://www.sol.it/it">http://www.sol.it/it</a> - Electricity, gas, steam and air conditioning (also from renewable sources)
San Paolo agreement Bank Albania	<a href="http://www.intesasanpaolo.com">http://www.intesasanpaolo.com</a> - Financial and insurance activities
The Italian-Albanian oil company Sha	<a href="http://www.gruppopir.com/la-petroliera-italo-albanese">http://www.gruppopir.com/la-petroliera-italo-albanese</a> - Coke and products deriving from petroleum refining
Maccaferri Balkans shpk	<a href="http://www.maccaferribalkans.com/al/">http://www.maccaferribalkans.com/al/</a> Activities: steel wire products with hexagonal mesh, geosynthetics , fibers, production and sale of metal mesh and gabions - Construction
Manufacture Italiana Shpk	<a href="http://www.manitalia.com">http://www.manitalia.com</a> - Metal products, excluding machinery and equipment
MEDITERRANEA SH.PK	- Articles of clothing (even in leather and fur)
Salus Hospital	<a href="http://www.salus.al">http://www.salus.al</a> - Health and social assistance
Shqiperia Trikot shpk	<a href="http://www.cotonella.com">http://www.cotonella.com</a> Production activity: made-to-measure clothing (underwear) - Articles of clothing (also in leather and fur)
Uji i Ftohte Tepelene shpk	<a href="http://www.acquatepelene.com">http://www.acquatepelene.com</a> Manufacturer of mineral water & soft drinks (tea) - Beverages
Valcuvia Shpk	<a href="http://www.valcuvia.it">http://www.valcuvia.it</a> Production activity: underwear - Articles of clothing (also in leather and fur)

## Analysis of the Montenegrin economic context

Montenegro entered in NATO in 2017, uses euro currency, with some strong critical objections coming from ECB, and it is exempt from the Schengen visa regime. Montenegro is member of the main International Organizations. It has been a member of the WTO since 2011. According to the World Bank's Doing Business 2020 report, Montenegro ranks 50th for easy conditions in doing business out of a global ranking of 190 nations.

The small country, with the geographical dimensions of an Italian region, overlooks the Adriatic and has a key position for the maritime connection routes with the Mediterranean. Bar, the main commercial port, is also a free zone with numerous benefits for foreign investors. There are also two international airports in the country (Podgorica and Tivat). However, further reforms are needed in the country to open up the internal market and improve its dynamics. The economy of Montenegro, seventeen years after regaining its independence and after a decline due to the pandemic, has started to grow again at a rapid pace.

According to data published by the IMF, the Montenegrin economy grew by 13% in 2021 and by 4.8% in 2022. The recovery of the economy, partially negatively affected by the outbreak of the conflict in Ukraine, was driven by the re-opening of tourist flows, because the country is largely worldwide known and appreciated for the beauty of its landscapes.

The Balkans represent a strategic area for Italian foreign policy, linking the Eastern and Western markets. Italy represents a strategic partner and Italian is the second most widespread foreign language.

Since the independence from Serbia, Montenegro has pursued a competitive tax policy, with a lean tax system, characterized by low levels of tax rates and specifically aimed at attracting foreign capitals. Corporate income tax goes from 9 to 15%. The personal income tax ranges from 9 to 15%. VAT amounts to 21% for most goods and services. For basic consumer goods, the VAT is 7%. In order to achieve EU membership, the rates could be raised in the future.

Montenegro has at least 4 assets. 1) currency: thanks to the euro, businesses are protected from hidden inflation and exchange risk; 2) degree of openness: it is a country open to international trade; 3) financial services: there are numerous banks including one with a majority of Italian capital, Hipotekarna ; 4) Telecom: excellent connections with the rest of the world via optical fiber, the 4G network and a fast internet service.

<b>STRENGTHS</b>	<b>POINTS OF WEAKNESS</b>
<ul style="list-style-type: none"> <li>• Solid economic growth in the last period</li> <li>• Favorable tax environment</li> <li>• HUB for regional businesses</li> </ul>	<ul style="list-style-type: none"> <li>• Instability of the political framework</li> <li>• Inadequacy of infrastructure</li> <li>• Burdensome State bureaucracy</li> </ul>
<b>OPPORTUNITY'</b>	<b>THREATS</b>
<p><b>In which sectors to invest</b></p> <ul style="list-style-type: none"> <li>• Electricity, gas, (also from renewable sources)</li> <li>• Transportation and storage</li> <li>• Construction</li> <li>• Tourism</li> <li>• agriculture, fishing and forestry</li> </ul> <p><b>What to trade in Montenegro</b></p> <ul style="list-style-type: none"> <li>• Goods and services for electricity, gas, steam and air conditioning (also from renewable sources)</li> <li>• Water supply; sewerage, waste treatment , and drainage</li> <li>• Drinks</li> <li>• Mobile</li> <li>• Foodstuffs</li> </ul>	<ul style="list-style-type: none"> <li>• Political Instability (Political Risks)</li> <li>• Difficulty in accessing credit (operating risks)</li> <li>• Economic Stagnation (Economic Risks)</li> </ul>

## The economic relations of Montenegro with Italy

The total trade between Montenegro and Italy in the period January-September 2022 amounted to 1.125 billion euros, Montenegrin exports to Italy were 886 million euros and Italian products to Montenegro were e 239 million of imports. The trade balance is therefore in favor of Montenegro for 647 million euros.

The main products exported by Italy in the period January-September 2022 were "electricity" (104.8 million euros), "ships and boats" (22.1 million euros) and " clothing, excluding fur clothing" (€10.9 million).

As regards Italian imports from Montenegro in the period January-September 2022, the main goods were "electricity" (849.7 million euros), "precious base metals and other non-ferrous metals; nuclear fuels" (23, 3 million euros) and " waste" (2.9 million euros).

According to data from the Economic Observatory, from January to October 2022 Italy was the sixth supplier of Montenegro with Montenegrin imports equal to 5.6% of the market share and in 6th place as a customer with Montenegrin exports equal to 3.4% of the market share.

## Italian companies in Montenegro

Italy is the first investor and strategic partner of Montenegro in the energy sector. Terna is building the submarine power line between Italy and Montenegro, and a2a, was joined by ENI, which was awarded the off-shore exploration rights.

Since 2015, thanks to the company Pizzarotti, Italy has a considerable presence in the construction sector. Italian engineers and experts built a luxury mega- resort in the Bocche di Cattaro . The Italian company has also won other contracts in the tourism sector. Other companies, from DBA to Geodata , operate successfully in the infrastructure sector.

Furthermore, Ocean Interlog, after having won the international tender on the privatization of maritime services, now is operating in Bar.

Generali group holds a leading position in the insurance sector, and Italians are also Banka Hipotekarna majority shareholders, the Montinari and Gorgogni families from Puglia.

The following table summarizes the main companies present in the Montenegrin economic context:

A2A Montenegro	<a href="http://www.a2amontenegro.eu">http://www.a2amontenegro.eu</a> - Electricity, gas, steam and air conditioning (also from renewable sources)
environment sc	<a href="http://www.ambientesc.it/">http://www.ambientesc.it/</a> Activities: environmental engineering and laboratories - Other service activities
As Fid DOO Holding Companies - Serbia & Montenegro	Corporate finance - Other service activities
AZ Consulting doo .	<a href="http://azconsulting.me/">http://azconsulting.me/</a> Foreign investment consultancy - Other service activities
AZIMUT GROUPS doo	Activity: Production of metal doors and windows - Metal products, excluding machinery and equipment
Cervesi doo	<a href="http://www.studiocervesi.it/">http://www.studiocervesi.it/</a> Cervesi & Cervesi Ingegneria Srl Head of Piazza G. Bartoli 1 – 34121 Trieste T +39 040 637756 – F +39 040 637771 <a href="mailto:segreteria@studiocervesi.it">segreteria@studiocervesi.it</a> - Construction
ENI doo .	- Electricity, gas, steam and air conditioning (also from renewable sources)
Fleka doo .	<a href="https://www.fleka.me/">https://www.fleka.me/</a> Digital studio specialized in web and mobile development , graphic design, bands and online marketing. - Other service activities
GENERAL OSIGURANJE MONTENEGRO	<a href="http://www.generali.me/">http://www.generali.me/</a> - Financial and insurance activities

ITALIAN CONTRACT GROUP	<a href="http://www.italiancontract.com/cms/">http://www.italiancontract.com/cms/</a> Activity: furniture contract - Other service activities
NOVOMONTE	<a href="http://www.novomonte.eu/">http://www.novomonte.eu/</a> Activities: Services to businesses and individuals, handling paperwork for opening a company, accounting management - Administrative activities and support services
Ocean	- Other service activities
omnitech doo .	<a href="http://omnitechit.eu/">http://omnitechit.eu/</a> Computer security service - Other service activities
Paduema doo .	<a href="http://www.paduema.me/store/">http://www.paduema.me/store/</a> Marketing of Italian wines - Beverages
Pizzarotti & C. SpA	<a href="http://www.pizzarotti.it/">http://www.pizzarotti.it/</a> On 30 October, the Pizzarotti & CSpA company was awarded the contract for the construction of the Portonovi luxury tourist complex , the first of the " One and Only " chain in the Mediterranean. - Buildings
Triad	<a href="http://www.terna.it/">http://www.terna.it/</a> - Electricity, gas, steam and air conditioning (also from renewable sources)

## Comparing economies

### Benchmark of the main economic sectors

In order to compare the economies of the three countries under analysis, we put together in the following table the various areas of interest that characterize the three main macro-sectors we outlined: primary, secondary and tertiary.

Country:	ITALY	MONTENEGRO	ALBANIA
Primary sector	Agriculture, livestock	Agriculture, fishing and forestry	Agribusiness
		Energy market	Renewable energies
			Mining
Secondary sector	Especially manufacturing, textile, construction and automotive industries	Construction sector	Especially manufacturing industry
Service industry	Tourism (all Italy)	Tourism	Tourism
	Telecommunications		Telecommunications and ICT
	Transportation	Transportation	Transportation
	Trade (all Italy)		
	Services		

The analysis shows that agricultural production in Italy is not present in all regions of the country, but at the same time it is an internationally competitive market player for the production of citrus fruits, legumes, tomatoes, wine and olive oil. Other agricultural products made in Italy are wheat, rice and fruit. There are several livestock farms, while fishing is not very developed.

In Montenegro the primary sector is highly developed either the agricultural, breeding and fishing. In particular, the production of tobacco, vegetables (tomatoes, peppers, cucumbers, plums), fruit (apples, grapes, citrus fruits), olives and wine, livestock production, honey, fish and natural water are the main activities. Furthermore, medicinal and aromatic plants are harvested. Moreover, the presence of woods and forests favors the timber processing sector.

The agri-food sector is a very important for Albania and its economic growth.

As for the **energy sector**, Italy lacks energy and mineral resources. Instead, Montenegro is a large producer of electricity, also through renewable sources. In fact, this sector represents an important drive for the country's economy. Also for Albanian economy the energy sector is very important, in fact, it has enormous capacities in the field of hydroelectric energy, solar energy and wind energy. In Albania, another leading sector is also the mining sector. In particular, Albania has mineral deposits of chromium, copper, iron-nickel, limestone, sandstone, natural asphalt and bitumen, decorative limestone, and massive decorative sandstone. Furthermore, the country has one of the largest on- shore oil fields in continental Europe.

As regards the **secondary sector**, Italy is one of the ten industrial powers in the world and is above all characterized by small and medium-sized enterprises. Italy has a good level in all kind of industries, from manufacturing to construction, but the textile, automotive (especially in Northern Italy) and many industries that transform agricultural and livestock products into packaged foods are particularly developed and productive. The worldwide customers highly appreciate a significant part of the Italian industrial and handicraft production: for many in the world the Made in Italy brand means high quality. In Montenegro, the industrial sector is not very important, the most relevant sector at the national level is the construction one. In Albania, the manufacturing sector, and the textile industry in

particular, represent an important factor for the country's economy. The country is a major producer of footwear and leather.

The **tertiary sector** contributes for the most part to the Italian wealth, and it is mainly based on tourism. Tourism is a key role sector for the whole country economy, and an important drive to commerce, transport, telecommunications and all services in general. Likewise, the inflow of money from tourism, plays a huge, if not fundamental, role for the Montenegrin national GDP. Indeed, the Montenegrin sector of accommodation and restaurant services is well developed. Furthermore, Tourism gives also a strong justification for possible investments in all compartments of the transport sector, (maritime, railways, roads) thus its transversal importance positively affects the entire economy of the country. Also for Albania, tourism has acquired more and more importance over the time, becoming a strategic sector for the economy and a government priority. Furthermore, Albania enjoys a very favorable geographical position which facilitates investments in infrastructure and the development of the transportations. Finally, the telecommunications and ICT sector is becoming increasingly important for the country, which aims to promote competition and the efficiency of telecommunications infrastructures and therefore to ensure necessary and adequate services throughout the Albanian territory.

### Benchmark of the main economic partners

In the following tables, we analysed the countries that are the Italian, Albanian, and Montenegrin economic partners. we outlined for each country, both for imports and exports, the percentage and volume in dollars of imported/exported quantities. Based on this, we can say that, as regards both imports and exports, the main economic partner for Italy is Germany, for Montenegro it is Serbia and for Albania it is Italy.

Imports		
ITALY	MONTENEGRO	ALBANIA
Germany (15.6% - \$88.7B)	Serbia (25.7% - \$961M)	Italy (25.2% - \$1.91B)
France (8.06% - \$46B)	Greece (9.51% - \$355M)	Greece (21.3% - \$1.62B)
China (8% - \$45.6B)	Croatia (7.4% - \$276M)	Türkiye (10.4% - \$790M)
Netherlands (5.47% - \$31.2B)	China (7.13% - \$266M)	China (7.72% - \$586M)
Spain (5.37% - \$30.6B)	Bosnia and Herzegovina (6.29% - \$235M)	Germany (4.73% - \$359M)
Russia (3.89% - \$22.2B)	Italy (4.94% - \$184M)	Serbia (2.96% - \$225M)
Belgium (3.66% - \$20.9B)	Germany (4.37% - \$163M)	Other countries under 2%, such as Russia, Bulgaria, Hungary, North Macedonia, Spain, Poland, etc.
Switzerland (3.06% - \$17.4B)	Türkiye (3.33% - \$124M)	
Poland (2.64% - \$15.1B)	Slovenia (3.01% - \$112M)	
Austria (2.31% - \$13.1B)	Other countries under 2%, such as France, Netherlands, Switzerland, Spain, etc.	
Türkiye (2.04% - \$11.6B)		
Other countries under 2%, such as UK, Czech Republic, Greece, Romania, Hungary, etc.		

Exports		
ITALY	MONTENEGRO	ALBANIA
Germany (13.1% - \$78.4B)	Serbia (15.7% - \$130M)	Italy (40.8% - \$1.42B)
France (10.3% - \$61.6B)	Spain (11.3% - \$93.9M)	Greece (12.7% - \$441M)
Spain (4.97% - \$29.7B)	Pakistan (9.43% - \$78.1M)	Spain (6.06% - \$211M)
United Kingdom (4.53% - \$27B)	Switzerland (7.66% - \$63.4M)	Germany (4.98% - \$174M)

Switzerland (4.42% - \$26.4B)	South Korea (5.7% - \$47.2M)	China (4.27% - \$149M)
Belgium (3.44% - \$20.5B)	Bosnia and Herzegovina (4.85% - \$40.2M)	North Macedonia (2.88% - \$100M)
China (3.21% - \$19.1B)	Germany (4.72% - \$39.1M)	Czech Republic (2.53% - \$88.2M)
Poland (3.19% - \$19.1B)	Italy (4.16% - \$34.5M)	Serbia (2% - \$69.6M)
Netherlands (3.1% - \$18.5B)	Russia (3.9% - \$32.3M)	Other countries under 2%, such as Turkey, Montenegro, Bulgaria, Romania, Poland, etc.
Austria (2.28% - \$13.6B)	Türkiye (3.72% - \$30.8M)	
Other countries below 2%, such as Romania, Russia, Sweden, Turkey, Japan, South Korea, etc.	Slovenia (3.48% - \$28.8M)	
	Albania (2.85% - \$23.6M)	
	Poland (2.44% - \$20.2M)	
	Netherlands (2.37% - \$19.7M)	
	Other countries under 2%, such as Greece, Czech Republic, Croatia, Cyprus, China, Canada, etc.	

Analyzing the data, we can state that:

- Italy's main economic partners are Germany, France, China, the Netherlands, Spain, Belgium, Switzerland, Poland, Austria, Turkey, the United Kingdom and others of lesser "relevance", such as Greece, Russia, Romania, Hungary, etc. .
- The main partners of Montenegro are Serbia, Greece, Croatia, China, Italy, Germany, Spain, Pakistan, etc.
- The main economic partners of Albania are Italy, Greece, Turkey, China, Germany, the Czech Republic, etc.

### Benchmark of the main economic partners and market volumes by sector

In the following tables, we analysed the products imported and exported by the three countries and the market volumes both in percentage and in dollars, divided into the different sectors.

Imports			
Countries:	ITALY	MONTENEGRO	ALBANIA
Energy sector, raw materials, such as minerals, metals, wood	Crude Oil (5.45% - \$31B)	Refined oil (10% - \$374M)	Refined Oil (7.93% - \$602M)
	Oil Gas (5.35% - \$30.5B)	Electricity (3.56% - \$133M)	Electricity (2.67% - \$203M)
	Other below 2%, such as refined oil, electricity, etc.		Raw Iron Bars (2.19% - \$166M)
Agricultural and livestock products		Other below 2%, such as tobacco, coffee	Other below 2%, such as tobacco
Chemical and sanitary products industry	Packaged Medicines (3.08% - \$17.6B)	Packaged Medicines (3.03% - \$113M)	Packaged Medicines (2.81% - \$214M)
	Vaccines, Blood, Antisera (2.02% - \$11.5B)	Other below 2%, such as vaccines, etc.	Other below 2%, such as cleaning products
Automotive industry	Machines (4.59% - \$26.2B)	Machines (2.99% - \$112M)	Machines (2.99% - \$227M)
Transportation		Pleasure Crafts (2.34% - \$87.2M)	

<b>Exports</b>			
<b>COUNTRY:</b>	<b>ITALY</b>	<b>MONTENEGRO</b>	<b>ALBANIA</b>
<b>Textile and footwear industry</b>	below 2%, such as leather footwear, jewelry, etc.		Footwear Parts (7.8% - \$272M)
			Leather Footwear (7.28% - \$254M)
<b>Automotive industry</b>	Machines (2.76% - \$16.5B)		
	Motor Vehicles: Parts and Accessories (2.5% - \$14.9B)		
<b>Energy sector, raw materials, such as minerals, metals, wood</b>	Refined Oil (2.54% - \$15.2B)	Copper: ore (14.1% - \$117M)	Electricity (5.86% - \$204M)
		Raw aluminum (12.4% - \$102M)	Crude Oil (5.85% - \$204M)
		Electricity (9.1% - \$75.4M)	Iron Alloys (4.5% - \$157M)
		Scrap Iron (3.37% - \$27.4M)	Other below 2%, such as raw iron bars, raw aluminum, etc.
		Sawn Wood (2.56% - \$21.2M)	
<b>Agricultural and livestock products</b>		Dried Legumes (8.68% - \$71.9M)	Other below 2%, such as perfume plants
		Other below 2%, such as wine, tobacco, preserved meat, etc.	
<b>Chemicals industry</b>	Packaged Medicines (4.48% - \$26.8B)	Packaged Medicines (7.11% - \$58.9M)	
	Other below 2%, such as vaccines, blood, antiserum, valves		

Analyzing the data, it can be stated that as far as imports are concerned, Montenegro mostly imports goods related to the energy sector and raw materials, such as refined oil and electricity, while in a slightly lower percentage it imports chemical goods such as packaged medicines. Albania mainly imports in the energy and raw materials sector, goods such as refined oil, electricity, crude iron bars. Albania mostly imports other goods related to the chemical and health industries such as packaged medicines and, in a percentage of less than 2%, cleaning products. Italy mainly imports goods in the energy sector and raw materials, such as crude oil, oil, gas and in quantities less than 2% also refined oil and electricity. As for the chemical and health sector, it mainly imports pre-packaged medicines and vaccines, antiserum, etc.

In relation to exports, Albania exports mostly energy and raw materials, such as crude oil, electricity. As for the textile and shoe industry, it exports shoe parts and leather shoes in large quantities. Montenegro also mainly exports energy and raw materials, such as copper, raw aluminum, electricity, scrap iron, sawn wood. In the agricultural sector, Montenegro exports large quantities of dried legumes and, in a percentage of less than 2%, tobacco, coffee, preserved meat. Instead, Italy exports a greater percentage of packaged drugs and, under 2%, vaccines. As for the automotive industry, Italy mostly exports cars and vehicle parts and accessories. As for the energy and raw materials sector, it exports refined oil. Finally, with regard to the textile and footwear sector, in a percentage of less than 2%, it exports leather footwear.

## ***Possible intervention actions to be implemented.***

A number of actions are presented below in this section at the aim to increase both the export vocation and the level of internationalization of Italian, Albanian and Montenegrin companies.

The proposed actions are designed to foster investments in highly traction sectors which will allow Italian, Albanian and Montenegrin enterprises and economies to make a qualitative leap in terms of technology and in the modernization of production systems.

The potential areas of intervention proposed by the fact-sheet, at the aim to strengthen cooperation between the three countries, are:

1. circular economy, recycling, energy production and energy independence of involved territories.
2. Internationalization of the processes and access to credit
3. the production and recovery of rare earths and precious metals
4. the recovery of highly polluting materials in the textile industry
5. synergies to encourage the quality growth and the exchange of skilled labor and technologies

The development potential of each of the proposed areas of intervention is, to a certain extent, connected and interdependent on the development performance of the others.

In the following five sub-paragraphs, for each of the potential areas of intervention proposed, the possible forms of cooperation, the synergies and the economic ecosystems / ecosystems that could be created are detailed.

## **1 Joint management model to support circular economy, recycling, energy production and energy independence of involved territories.**

### ***Short description***

The Topic concerns the test of a joint actions plan in favour of circular economy, recycling and energy production initiatives and an energy crisis joint management plan to encourage energy independence from other countries outside the programme area. This action is coherent with PA2 (*A greener South Adriatic programme area, by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk management - GREEN-*) – S.O. 2.3 Promoting energy efficiency with joint crossborder actions

### ***Needs and develops***

Energy crises have economic and territorial effects. To promoting energy efficiency and to counter energy dependence from other countries a joint effort is needed to increase the use of alternative energy sources, the recycling and the reuse of materials as raw materials.

Country	Renewable energy consumption (% of total)	Recycling rate (% of municipal waste)	Material reuse rate (% of municipal waste)
Italy	19.4%	48.5%	18.6%
Albania	17.1%	23.5%	12.3%
Montenegro	32.2%	31.0%	13.7%

*data from World Bank's World Development Indicators*

It is necessary to develop a joint action plan to foster the use of green and blue innovative technologies in all economic sectors and a more efficient energy consumption and an energy crisis joint management plan involving institutional partners, energy producers, SME's and local stakeholders. The plan is meant to support energy authorities, producers and stakeholders of the programme area to jointly intervenes (sharing resources, knowledge and strategies) to mitigate and to reduce the risks associated to energy crises.

### ***Implementation of a set of actions:***

*Energy efficiency joint action plan.* For instance, the plan could propose initiatives such as:

- Interventions to foster the use of green and blue innovative technologies in all economic sectors;
- Interventions to encourage and support, even economically, the building up on successful practices in place;
- Partner networks testing innovative energy efficiency measures for the strengthening of alternative and clean energy sources and for the reduction of CO2.

*Energy crisis joint management plan.* The plan could cover topics such as, for instance:

- Territorial analysis of social and economic impact of a potential energy crisis situation;
- Involvement of stakeholders (Energy producers, Government, Province, Municipalities, Organizations, Business Associations, etc.);
- Distribution of responsibilities and activities between authorities and other stakeholders in the management processes of an energy crisis situations;
- Plan's monitoring processes;
- Plan's update.

### ***Territorial relevance***

Relevant at regional and national level

1. S.O. 3.2 / N. 397 - ADRIA\_Alliance - Creation of a shared model of strategic planning and an extended governance model for the programme area, aimed at energy efficiency and to safety of cities from the risks generated by climate change.
2. S.O. 3.2 / N. 420 - CO-CLEAN - Increase of energy efficiency and use of renewable energies in the programme area, through the implementation of innovative actions, training and awareness-raising activities.
3. S.O. 3.2 / N. 446 - DE-RESS - Promotion of common efficiency and sustainable energy plans in order to reduce carbon emissions and improve energy efficiency in the private and public sector of the Programme area.
4. SO 3.2 / N. 475 – EFFECTS - Development of strategies for Energy Efficiency in school buildings of the programme area, in order to reduce negative impacts on the environment and climate change, and to improve indoor comfort.
5. S.O. 3.2 / N. 384 – ENEA - Enhancement of research commercialization and technology transfer in the field of Energy Efficiency in Buildings, through strategic collaborations interacting in a Living Lab environment in the Programme area.
6. SO 3.2 / N. 413 – LEC - Improvement of energy efficiency and renewable energy usage in the programme area through the development of a "local community of active energy consumers" (LEC).
7. SO 3.2 / N. 195 - REEHUB - Increase of energy efficiency of public buildings inside the Programme area, through a network of hubs, enabling the training of building managers on energy-efficiency measures.
8. SO 3.2 / N. 436 - REEHUB PLUS - Strengthening of the role of energy efficiency Hubs as an agora where policy makers in the programme area can dialogue with citizens, industries, designers, green SMEs for the implementation of local energy plans.
9. SO 3.2 / N. 437 – SMARTPORT- Development of an intervention strategy for the optimization of energy saving, aimed at increasing energy efficiency in port sites of the programme area, following European standards.

## 2 Cross-border joint actions to support companies of the program area in internationalization processes and access to credit

### Short description

The Topic concerns cross-border joint actions to support companies of the program area in internationalization processes and access to credit. The action is coherent with PA 1 (*A smarter South Adriatic programme area, by promoting innovative and smart economic transformation – SMEs*) - S.O. 1.1 Enhancing growth and competitiveness of SMEs through joint cross-border actions

### Needs and develops

In Montenegro, a study by the World Bank found that only 10% of small and medium-sized enterprises (SMEs) had access to formal credit. In Albania, a study by the European Bank for Reconstruction and Development found that the average interest rate on a loan to an SME was 18%.

Country	Percentage of companies with access to credit
Italy	61.9%
Albania	33.4%
Montenegro	43.2%

*data from World Bank's Doing Business 2023 report*

There are a number of reasons why companies, particularly in Montenegro and Albania, have difficulty accessing credit.

These include:

- *Lack of financial history:* Many businesses in these countries are relatively new, so they don't have a long track record of financial performance. This makes it difficult for lenders to assess their creditworthiness.
- *High levels of informality:* A significant portion of the economy in Montenegro and Albania is informal, meaning that it is not

regulated or taxed. This makes it difficult for lenders to track the financial activities of businesses and to enforce loan repayments.

- *Low levels of trust:* There is a general lack of trust between businesses and lenders in these countries. This is due to a number of factors, including the history of political instability and corruption.
- *High interest rates:* Interest rates on loans in Montenegro and Albania are typically high. This is due to a number of factors, including the high cost of doing business in these countries and the high risk of default.

These factors have made it difficult for businesses in Montenegro and Albania to access the credit they need to grow and expand. This has had a negative impact on the economic development of these countries. As a result, these countries have experienced lower levels of economic growth than other countries in the region. In recent years, there have been some efforts to improve the availability of credit to businesses in Montenegro and Albania. These efforts have included the establishment of new lending institutions, the introduction of new financial products, and the improvement of the legal and regulatory framework. However, more needs to be done to address the challenges that businesses face in accessing credit.

There are a number of things that can be done to address these challenges. These include: improving the financial literacy of businesses; providing more training and technical assistance to businesses; reducing the cost of doing business; improving the legal and regulatory framework. By taking these steps, Montenegro and Albania can make it easier for businesses to access credit and grow the economy and the

economic exchanges between programme area countries.

***Implementation a set of actions:***

Taking as a reference successful Italian cases such as SIMEST and SACE, it is suggested to set up a private entity (guaranteed by public resources) that provide financial and insurance services to support businesses of the programme area, and in particular SMEs, that are operating in international markets by providing financial assistance and export credit insurance, such as loans and guarantees, to help SMEs invest in and expand into foreign markets and to protect exporters from the risk of non-payment by foreign buyers.

***Territorial relevance***

Relevant at regional and national level

***Relevant Project approved in 2014-2020  
Programming period***

SO 1.1 / N. 128 - 3C4SME - Facilitation of the access to credit for firms in the Programme area and check of the replicability of the cooperative guarantee instrument successfully tested in Puglia.

### 3 A cross-border joint actions plan to manage the production and recovery of rare earths and precious metals

#### Short description

The Topic concerns a cross-border joint actions plan to manage the production and recovery of rare earths and precious metals. The action is coherent with PA 1 (*A smarter South Adriatic programme area, by promoting innovative and smart economic transformation – SMEs*) - S.O. 1.1 Enhancing growth and competitiveness of SMEs through joint cross-border actions

#### Needs and develops

Rare earths are a group of elements that are essential for a wide range of high-tech products, including electric vehicles, wind turbines, and smartphones. The Western Balkans area is a region that is rich in rare earth resources. Moreover, in Albania and Montenegro there are an important series of rare earths and precious elements that can be recovered through the recycling of the components that constitute old machinery and technologies that are now disused and highly polluting.

Country	Rare earths production (metric tons)	Precious metals recovery (metric tons)
Italy	0	14
Albania	0	0.1
Montenegro	0	0.02

*data from United States Geological Survey (USGS)*

The importance of rare earths for countries of IPA programme area can be summarized as follows:

- **Economic importance:** Rare earths are a valuable commodity, and their extraction and processing can create jobs and generate revenue for these countries.

- **Strategic importance:** Rare earths are essential for the production of many high-tech products, and their control is seen as a strategic asset by many countries.
- **Environmental importance:** The extraction and processing of rare earths can have a significant impact on the environment, and these countries need to be mindful of the environmental impact of their rare earths industry.

Italy, Albania, and Montenegro are well-positioned to benefit from the growing demand for rare earths. These countries have the resources, the expertise, and the strategic location to become major players in the global rare earths market. However, there are also some challenges that these countries need to address in order to fully realize the potential of their rare earths resources. These challenges include:

- **Environmental regulations:** These countries need to ensure that their environmental regulations are adequate to protect the environment from the extraction and processing of rare earths.
- **Investment:** The development of the rare earths industry in these countries requires significant investment.
- **Technology:** There is the need to develop the necessary technology to extract and process the rare earths resources and to recycle old technological components with precious metals and other reusable items.

If these challenges can be addressed, then Italy, Albania, and Montenegro have the potential to become major players in the global rare earths market. This would bring significant economic and strategic benefits to these countries.

***Implementation of a set of actions:***

For instance, the cross-border joint actions plan could propose initiatives in order to standardize the regulations; promote the traceability of waste, the traceability of the production processes of rare earths and the traceability of the recovery processes of precious elements; propose measures to encourage the sharing of organizational and technological best practices and measures to encourage cooperation.

***Territorial relevance***

Relevant at regional and national level

***Relevant Project approved in 2014-2020  
Programming period***

1. S.O. 1.1 / NO. 461 - SME BE SMART - Promotion of innovation and competitiveness in the field of green and blue economy, with the aim to boost the creation of new business opportunities in the programme area.
2. S.O. 1.1 / N. 376 – LONETA - Enhancement of the administrative, industrial and technical framework conditions for the development of new cross-border green market niches in Italy, Albania and Montenegro, by fostering pilot investments on NETs.

## 4 Cross-border joint management procedures for the recovery of highly polluting materials in the textile industry

### **Short description**

The Topic concerns the test of a joint management procedures for the recovery of highly polluting materials in the textile industry and the exchange of best practices and technologies in the programme area. The action is coherent with PA2 (*A greener South Adriatic programme area, by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk management - GREEN*) S.O. 2.2 Enhancing biodiversity, green infrastructure in the urban environment, and reducing pollution with joint crossborder actions

### **Needs and develops**

The textile industry is a major polluter, generating large amounts of hazardous waste. In the Western Balkans, the textile industry is a significant economic sector, employing over 100,000 people. However, the lack of proper waste management in the textile industry is a major environmental problem.

The textile industry generates a wide range of hazardous waste, including: 1) Acid dyes: These dyes are used to color textiles and can be harmful to human health and the environment; 2) Heavy metals: These metals are used in the textile industry to produce dyes and other chemicals. They can be toxic to human health and can cause environmental damage; 3) Organic solvents: These solvents are used in the textile industry to clean and process textiles. They can be harmful to human health and can cause environmental damage.

The improper disposal of hazardous waste from the textile industry can have a number of negative consequences, including:

- Pollution of air, water, and soil: Hazardous waste can pollute the air, water, and soil, making them unsafe for human health and the environment.

- Health problems: Exposure to hazardous waste can cause a variety of health problems, including cancer, birth defects, and respiratory problems.
- Environmental damage: Hazardous waste can damage ecosystems and habitats, making them unsuitable for wildlife.

Country	Recovery rate of highly polluting materials in the textile industry (% of total)
Italy	40%
Albania	15%
Montenegro	20%

*data from Ellen MacArthur Foundation's Textiles-to-Textiles Circularity Gap Report 2021*

There is the need of a cross-border joint management procedures for the recovery of highly polluting materials in the textile industry between Italy, Albania, and Montenegro. It would help to ensure that hazardous waste is properly managed and disposed of, preventing it from entering the environment and causing pollution. It would help to protect the health of people and the environment in the region. In addition to the environmental benefits, cross-border joint management procedures would also have a number of economic benefits. First, it would help to reduce the cost of waste disposal, as it would be possible to share resources and expertise across borders. Second, it would help to create jobs in the waste management sector, providing new opportunities for economic development. Third, it would help to improve the competitiveness of the textile industry in the region, as businesses would be able to comply with environmental regulations more easily.

***Implementation of a set of actions:***

For instance, the cross-border joint actions plan could propose initiatives in order to standardize the regulations; promote the traceability of waste, of textile production process and of highly polluting materials recovery processes; propose measures to encourage the sharing of organizational and technological best practices and measures to encourage cooperation.

***Territorial relevance***

Relevant at regional and national level

***Relevant Project approved in 2014-2020  
Programming period***

1. S.O. 1.1 / NO. 461 - SME BE SMART - Promotion of innovation and competitiveness in the field of green and blue economy, with the aim to boost the creation of new business opportunities in the programme area.
2. S.O. 1.1 / N. 376 – LONETA - Enhancement of the administrative, industrial and technical framework conditions for the development of new cross-border green market niches in Italy, Albania and Montenegro, by fostering pilot investments on NETs.

## 5 Training and work: synergies to encourage the quality growth and the exchange of skilled labor and technologies

### **Short description**

The Topic concerns the test of a joint actions plan to encourage the quality growth and the exchange of skilled labor and technologies in the programme area. The action is coherent with PA4 (*A more social South Adriatic programme area - SOCIAL-*) – S.O. 4.1 Skills

### **Needs and develops**

In the programme area, especially in IPA countries, there is a lack of specialised and skilled persons in all economic sectors, vocational training and recognition of professional qualifications are lagging. It is a relevant problem if we taking into account the progressive social transformation, due to the technological transition in all sectors of the economy.

Country	Percentage of the population with a tertiary education	Percentage of the employed population in skilled occupations
Italy	54.3%	47.2%
Albania	0.2%	31.4%
Montenegro	36.7%	33.8%

*data from World Bank's World Development Indicators*

Equal access to streamlined education/training, and targeted quality training could contribute to contrasting the migration of skilled and young population, the depopulation of some regions, and could support the status improvement of vulnerable social groups and the social cohesion.

Many cooperation actions should aim at increasing skills for specific citizens groups, economic sectors or regional areas.

There are a number of ways to encourage the quality growth and the exchange of skilled labor and technologies in Italia Albania e Montenegro. These include:

- Establishing cross-border cooperation agreements: This would allow

governments, businesses, and educational institutions to work together to promote the exchange of skilled labor and technologies.

- Providing financial incentives: This could include tax breaks, grants, and loans to businesses that invest in new technologies or hire skilled workers from other countries.
- Removing trade barriers: This would make it easier for businesses to trade goods and services across borders, which would promote the exchange of technologies.
- Promoting education and training: This would help to ensure that there is a skilled workforce available to meet the needs of businesses in the region.
- Creating a favorable business environment: This would include things like reducing bureaucracy, improving the legal framework, and providing access to finance.

By taking these steps, Italy, Albania, and Montenegro can create a more favorable environment for the exchange of skilled labor and technologies. This would help to promote quality growth and economic development in the region.

### **Implementation a set of actions:**

Some specific examples of actions that could be implemented to encourage the quality growth and the exchange of skilled labor and technologies in Italia Albania e Montenegro are the follow:

1. Establishing cross-border cooperation agreements by signing agreements to cooperate on education, training, and research or establish businesses joint ventures and other forms of cooperation

to share resources and expertise between enterprises.

2. providing tax breaks or grants to businesses that invest in new technologies or hire skilled workers from other countries. Businesses could also provide in-house training or offer scholarships to employees to help them develop new skills.
3. Promoting education and training: investing in education and training programs or providing on-the-job training to employees.
4. Promoting procedure for the recognition of professional qualifications and qualitatively equivalent study programs between countries

### ***Territorial relevance***

Relevant at regional and national level

### ***Relevant Project approved in 2014-2020***

#### ***Programming period***

1. SO 1.1 / N. 229 – HISTEK - Promotion of the competitiveness of SMEs in the Programme area, by training young people in Key Enabling Technologies (KETs), and creating a culture of innovation

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# **Applications and Potential Offered by New Models of Energy Communities**

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## Abstract

In Europe, there are various models of energy communities, including local energy communities, virtual energy communities, rural energy communities, self-sufficiency energy communities, and energy cooperatives. Local energy communities involve a geographically defined community collaborating to develop and share renewable energy resources. Virtual energy communities connect different renewable energy generation facilities through a digital platform. Energy cooperatives involve citizens joining to own and manage renewable energy production facilities. Rural energy communities focus on involving rural communities in renewable energy, utilizing local resources. Self-sufficiency energy communities aim for self-production of renewable energy.

In the following pages, some of the most significant cases of successful energy communities operating in Europe will be mentioned.

Best practices for energy communities include active participation of residents, involvement of complementary skills, use of innovative technologies, collaboration with local authorities, a clear and stable legislative environment, and financial incentives. These strategies promote awareness, reduce energy costs, promote energy efficiency, and create resilient local communities.

Energy communities offer benefits to both public and non-profit entities, such as reducing energy costs and increasing environmental sustainability. Public entities can benefit from leadership in the energy sector and promotion of the local economy, while non-profit entities can generate income by selling excess energy and engage the community.

In the Program Area, regions have the potential for renewable energy production, with incentives encouraging investments in the sector. However, some regions, like Albania, need further progress in diversifying energy sources.

To define Renewable Energy Communities (RECs), key elements such as the type of community (public or private), ideal size based on available resources, governance tools, and the country's regulatory situation are important.

In summary, energy communities represent an essential pathway to promote a transition towards a more sustainable and decentralized energy system in Europe, actively involving the community and harnessing local renewable resources.

## Current Models of Energy Communities in Europe

In Europe, various models of energy communities have emerged and been implemented. Some of the main models include local energy communities, virtual energy communities (Virtual Power Plant - VPP), energy cooperatives, rural energy communities, and self-sufficiency energy communities.

Local energy communities involve a geographically defined community, such as a neighborhood, city, or village, coming together to develop, manage, and share local renewable energy resources, such as solar and wind energy.

Virtual energy communities connect different renewable energy generation facilities through a digital platform, enabling centralized resource management and the participation of users and consumers.

Energy cooperatives involve citizens or groups of citizens coming together to own, manage, and benefit from renewable energy production facilities, promoting democratic participation and a community-based approach to energy transition.

Rural energy communities focus on involving rural communities in renewable energy, utilizing local resources such as biomass, solar, or wind energy to meet their energy needs and create local economic opportunities.

Self-sufficiency energy communities concentrate on self-producing renewable energy, reducing dependence on conventional energy sources, and promoting sustainable energy solutions like solar, wind, and energy efficiency.

## Main Examples of Energy Communities

Some examples of energy communities in Europe include the rural energy community of **Güssing** in Austria, which has become energy self-sufficient through the use of biomass, biogas, and solar energy. Another example is the energy community of **Samsø** in Denmark, an island that achieved energy self-sufficiency by 2007 through an integrated approach involving wind energy, biomass, and solar energy.

An example of a virtual energy community is the **SonnenCommunity** in Germany, which connects solar energy storage systems installed in participants' homes, enabling them to self-produce and consume renewable energy efficiently and participate in energy markets.

In Denmark, there's **ØstjyskEnergi**, an energy cooperative owned by local citizens and businesses, which invests in renewable energy production from solar and wind power plants and involves its members in governance and profit-sharing.

One successful rural energy community is located in **Feldheim**, Germany. The village has installed a collectively owned wind farm that supplies most of the community's electricity consumption. Additionally, solar power plants and biomass heating systems have been developed. The residents of Feldheim actively participate in energy procurement and management, reducing dependence on traditional energy sources.

It is important to note that these energy community models may vary from country to country based on legislation, energy policies, and local needs. Furthermore, there can be overlaps and combinations of these models depending on specific situations and the goals of energy communities.

## Analysis of Best Practices

Best practices for energy communities in Europe encompass several general recommendations that may vary based on the local context and specific regulations of each country. Some examples of these recommendations are:

1. Participation of residents: Actively involving citizens in the creation and operation of energy communities is essential for promoting the transition to a more sustainable and decentralized energy system. Citizen participation fosters a sense of ownership and awareness of the importance of sustainable energy, enables residents to reduce energy costs by reducing dependence on traditional sources, and offers citizens the opportunity to become active actors in the energy system rather than passive consumers. This can be incentivized through informative campaigns, active involvement in decision-making, and offering financial incentives or tax benefits.
2. Involvement of complementary skills: Promoting the active participation of members with complementary skills within energy communities is crucial for ensuring the success and sustainability of such initiatives. Experts in engineering, finance, law, and communication can form a multidisciplinary team within the energy community capable of addressing complex challenges and maximizing opportunities offered by the energy transition. This diversity of skills promotes innovation, problem-solving, and informed decision-making. To encourage the active participation of members with complementary skills, it is important to create an inclusive environment that values and encourages diversity of knowledge and perspectives. Ensuring adequate information exchange and effective collaboration among community members is also necessary. Additionally, establishing networks of professionals with specific skills can facilitate knowledge exchange and collaboration among experts from different disciplines.
3. Use of innovative technologies: Adopting advanced monitoring and control systems is a key element for the success and efficiency of energy communities. These systems enable real-time data collection, analysis of energy facility performance and consumption within the community, implementation of corrective measures to maximize resource utilization, and may include predictive analytics to anticipate potential energy facility failures or issues and optimize overall community operations. Energy communities can also be integrated into smart grids, enabling more efficient and resilient energy management. These technologies enhance the efficiency, safety, and sustainability of energy communities.
4. Collaboration with local authorities: Collaborating with local authorities is crucial for the development and success of energy communities. Local authorities can integrate the goals of energy communities into territorial and urban planning and sustainable development strategies, promoting energy transition at the local level. They can also play a vital role in mobilizing financial and technical resources to support the development of energy communities and in involving citizens in these initiatives. To achieve this, public meetings, workshops, and informative campaigns can be organized to raise awareness among the population about the benefits and opportunities for participation. Additionally, local authorities can facilitate the creation of networks and platforms for sharing experiences and best practices among energy communities.
5. Legislative environment: A clear and stable legislative environment provides security and legal certainty to stakeholders involved in energy communities. Well-defined legislation encourages investment by reducing uncertainty and risks associated with the energy sector. It stimulates citizen participation through fiscal incentives or streamlining administrative procedures. Furthermore, it incentivizes technological innovation by promoting research and development in renewable energy and energy efficiency. Lastly, it provides clear rules and guidelines for the establishment and operation of energy communities.
6. Incentives and other financial tools: Financial incentives make energy projects more accessible, reducing the initial cost of investments and encouraging citizen participation. These incentives can take the form of feed-in tariffs, which guarantee a set price for energy

produced by energy communities, often higher than the market price. Additionally, subsidies and grants, as well as tax benefits such as exemptions or reductions in income taxes, VAT, or other energy-related taxes and fees, can be offered. At the local level, facilitated financing, such as low-interest loans or favorable terms, provided by financial institutions, banks, or public bodies, as well as crowdfunding and collective investments, which are increasingly popular as financial instruments for energy communities, allowing citizens to directly invest in local energy projects and become shareholders or members of energy communities. These instruments play a key role in the development and promotion of energy communities.

Encouraging resident participation allows for awareness-raising, cost reduction, increased citizen empowerment, environmental benefits, and the creation of resilient local communities. Involvement of complementary skills fosters innovation, problem-solving, and informed decision-making. The use of innovative technologies enables performance monitoring, self-consumption optimization, smart grid management, improved energy efficiency, predictability, and preventive maintenance. Collaboration with local authorities offers advantages in territorial planning, regulatory and normative support, resource mobilization, citizen involvement and participation, and energy services management. A clear and stable legislative environment encourages investments, citizen participation, technological innovation, and provides clear rules and guidelines. Incentives and other financial tools, such as feed-in tariffs, subsidies, tax breaks, favorable financing, crowdfunding, and collective investments, financially support energy communities.

In summary, to successfully promote energy communities in Europe, it is essential to incentivize active resident participation, promote the involvement of complementary skills, use innovative technologies, collaborate with local authorities, create a clear and stable legislative environment, and provide financial incentives and other tools to support the transition towards a more sustainable and decentralized energy system.

## Analysis of Benefits for Proponents

The establishment of an energy community can offer several advantages to the proposing entity, whether it is a public entity or a non-profit organization, regardless of its purpose.

### Common Advantages:

The main advantages are naturally connected to renewable energy production:

1. **Energy Cost Reduction:** Creating an energy community can allow the proposing entity to reduce energy costs. Locally produced energy from renewable sources such as solar or wind can be used to meet part or all of the entity's energy needs, reducing dependence on external energy supplies and related costs.
2. **Environmental Sustainability:** Establishing an energy community can contribute to promoting environmental sustainability. The use of renewable sources for energy production reduces the environmental impact and greenhouse gas emissions. This enables non-profit organizations to carry out their activities in a more eco-friendly and aligned manner with their mission, while public entities can demonstrate a concrete commitment to sustainability and the implementation of environmental policies.

### Advantages for Public Entities:

In addition to the common advantages mentioned above, public entities can achieve other benefits:

1. **Leadership in the Energy Sector:** The entity can become an example of best practices in renewable energy and energy efficiency, improving the public entity's image, attracting investments and collaborations, and inspiring other organizations to follow suit.
2. **Stimulus to the Local Economy:** Establishing an energy community can stimulate the local economy by creating new job opportunities and promoting economic growth at the local level.
3. **Energy Security and Resilience:** Diversifying energy sources and producing energy locally reduce the dependency on external energy supplies and increase the capacity to cope with interruptions or crises in energy supply. This ensures a more reliable and continuous energy supply for the activities of the public entity, even in emergency situations.
4. **Community Involvement:** The public entity can involve citizens, local organizations, and stakeholders in the planning, implementation, and management of the energy community. This creates a sense of participation and belonging, promoting democratic involvement, and improving collaboration between the public entity and the community.

### Advantages for Non-Profit Entities:

In addition to the common advantages mentioned above, non-profit entities can experience further benefits:

1. **Income Generation:** An entity that produces excess energy compared to its consumption can sell it to other members of the community or local energy grids. This creates opportunities for additional income that can be reinvested in the organization's activities.
2. **Community Involvement:** The non-profit entity can leverage this involvement to strengthen ties with the community and promote its mission and values.
3. **Energy Resilience:** Diversifying energy sources and producing energy locally enable the entity to cope with potential disruptions in external energy supply, ensuring a more reliable and continuous energy supply for its activities, even in emergency situations.
4. **Education and Awareness:** Establishing an energy community offers the non-profit entity an opportunity to educate and raise awareness in the community about energy and environmental issues. The entity can organize events, workshops, or training programs to inform the community about the benefits of renewable energy, energy efficiency, and carbon emissions reduction. This contributes to promoting greater awareness and adoption of sustainable energy practices.

## Production Potential of Renewable Energies in the Program Regions

In the Program Area, especially in Puglia and Molise, incentives have encouraged investments in renewable energy in both the public and private sectors. In Albania, the primary source of renewable energy is hydroelectric, but there is a need to diversify sources to reduce dependence on energy imports. Montenegro has a significant production of renewable energy and is updating its regulatory framework in the energy sector. The green economy is considered essential in the cooperation area.

In **Puglia**, renewable energy consumption surpassed the regional target for 2020, reaching a rate of 16.5% in 2018. Renewable energy production is mainly dominated by wind and solar parks. The region has invested significant structural funds in the energy efficiency of public buildings, demonstrating high eco-innovation. The green economy represents a strategic asset as it involves many aspects of the regional economic system. This is evident in the "Rapporto Italia Verde" (Green Italy Report) by Fondazione Symbola-Unioncamere (2019a), which shows that during the period 2015-2018, 31.5% of businesses in Puglia invested in eco-innovation, placing it among the top seven performing regions. Progress has also been made in terms of "green jobs" in private companies, accounting for 11.6% of the total regional economy. Puglia slightly surpasses the average of Southern regions (11.1%) (Fondazione Symbola-Unioncamere, 2019a).

In **Molise**, one of the most performing regions in Italy in the renewable energy sector, the share of energy consumption covered by renewable sources exceeded the regional target for 2018, reaching 39.1%. The region has adopted an Energy and Environmental Plan and invested European structural funds in the energy efficiency of public buildings. During the period 2015-2018, Molise had the highest share of businesses investing in eco-innovation compared to the total number of businesses in the region (37.6%). Additionally, Molise had the highest share of green jobs (13.5%) during the same period, making it one of the most performing regions among Southern regions.

In **Albania**, renewable energy has increased significantly, but the dependence on hydropower calls for greater diversification. The country is introducing incentives for renewable energy. In 2017, the Albanian Government partially incorporated the EU Directive 2009/28/EC through Law 7/2017 on the promotion of energy use from renewable resources, aiming to align its energy policy with EU regulations and reduce its dependency on energy imports through the use of renewable energies<sup>1</sup>. Most public buildings are owned and managed by the central or local government and still require improvements in energy efficiency.

**Montenegro** has significant renewable energy production, but the regulatory framework is under update. The region has opened both the wholesale and retail electricity markets, incentivizing the reduction of energy consumption in households and buildings, partly through the introduction of the Minimum Energy Performance Requirements (MEPR).

To achieve the 2030 Agenda for Sustainable Development, all territories are called upon to play a crucial role in the development of technologies with a lower environmental impact. The green strategy is considered essential for cooperation in the area, although some countries like Albania need further progress in this field.

## Identification of Strategies

### Key Elements for the Definition of Renewable Energy Communities (REC)<sup>2</sup>

The Horizon 2020 project "COME Res" aims to increase the use of renewable energy in the electricity sector through Renewable Energy Communities (REC). European countries have different legal forms

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<sup>1</sup> Agjencia Kombëtare e Burimeve Natyrore (AKBN) 2019

<sup>2</sup> Paragraph extracted from "Comparative assessment of enabling frameworks for RECs and support scheme designs" (August 2022), a document prepared by COME RES, a Horizon 2020 project funded by the European Commission.

for REC: in Italy, they must be non-profit entities; in Latvia, they can have various legal forms, including cooperatives and capital companies. In Poland, specific legislation for REC is still lacking.

Participation in REC is open and voluntary in Belgium (Flanders), Italy, the Netherlands, Portugal, and Spain. Most countries limit membership to individuals, SMEs, and local entities. In Italy, for private companies, energy activity must not be their main activity. In Germany, at least 75% of voting rights must be held by people residing within 50 km of the plant.

Regarding proximity, some countries establish geographic criteria for membership. For example, in Italy, all members must be connected to the same high/medium voltage substation. In Portugal, proximity is defined based on the distance from the generation source. Some countries have specified effective control, while others rely on the rules of the RED II.

Autonomy is included as a governance principle, but often without further specifics. In Germany, a member or shareholder cannot hold more than 10% of the voting rights. The main purpose of REC is to provide economic, social, or environmental benefits to the members and the community they operate in.

The sectoral coverage varies: the legal definition of REC often covers the energy sector, renewable heating/cooling, and gas. Some countries explicitly mention energy efficiency and electric mobility as well.

These key elements show the differences and similarities in the definition and structure of REC in the European countries considered.

## Public or Private Energy Communities

Energy communities can be either public or private, each with distinctive characteristics. Public communities are owned and managed by public entities, such as local governments or municipal authorities. Their planning and management are entrusted to the public authority, with the aim of providing sustainable energy services to the local community and promoting energy efficiency. On the other hand, private communities are owned and managed by private entities, such as cooperatives, citizen associations, or companies. In these communities, private members or promoters hold ownership and management, with objectives that may include promoting renewable energy sources and creating economic opportunities.

The **organizational structure** of public communities often follows a hierarchical model, with key decisions made by public institutions, influenced by government policies and regulations. In contrast, private communities tend to have a more flexible and decentralized structure, actively involving members in decisions and operations.

**Accessibility and participation** also differ between the two types of communities. Public communities aim to ensure access to energy for all community members, including vulnerable segments, through social tariffs or energy inclusion policies. Private communities may require a form of membership and may have financial or participation requirements that limit access to certain groups or individuals.

Another key aspect concerns **profit orientation**. While public communities do not have profit generation as their primary objective, focusing instead on collective well-being, private communities may incorporate profit elements into their structure. This means they may seek to generate profits through energy sales or investments in energy infrastructure.

## Dimensional characteristics

The ideal dimensions for an energy community, whether public or private, vary depending on the specific context. There is no universal size, but some factors such as available energy resources and the community's objectives influence the choice. Public energy communities can be larger, involving an entire local community or region, while private communities can be smaller, organized at the neighborhood or cooperative level.

## Tools of governance and regulatory situation

To ensure effective management, inclusive participation, and transparent decision-making, energy communities can utilize various governance tools. Some of these include participatory organizational structures, multi-stakeholder governance, clear rules and procedures, public participation and citizen engagement, monitoring and evaluation, and cooperation and partnerships with other communities or institutions.

In Italy, energy communities are regulated by Legislative Decree 28/2020, which implements the European Directive on Renewable Energy (RED II) and the Directive on Energy Efficiency (EED). The Italian legislation establishes requirements for the creation and operation of private energy communities, including aspects such as definition, renewable energy production, self-consumption and energy exchange, infrastructure and energy networks, the role of the system operator, and data monitoring and reporting.

On the other hand, Albania and Montenegro have not yet adopted specific regulations for energy communities. However, it is presumed that in the future, they may follow the principles of Italian legislation, adopting the community directive and adapting it to their national context.

# AGROVOLTAICS

## PILOT ACTIONS



### DESCRIPTION OF THE ACTION

This action aims to incentivize the development of agrovoltaics in local energy communities, primarily in rural areas, to promote local economic growth, create jobs in the renewable energy sector, and reduce reliance on traditional energy sources.

### NEEDS AND REASONS FOR THE ACTION DEVELOPMENT

Agrovoltaics is an innovative approach that combines agriculture with solar energy production. This practice involves installing photovoltaic solar panels above agricultural land, allowing for plant cultivation or animal grazing in the shade of the photovoltaic structures. This system offers several advantages for energy communities, contributing to the transition towards sustainable energy production and optimizing resource utilization.

The use of agrovoltaics in energy communities provides significant benefits. It promotes efficient land use, diversifies income sources for farmers, produces clean and renewable energy, enhances energy resilience, and conserves soil. However, addressing the challenges associated with this practice requires adequate planning and collaboration among stakeholders. Agrovoltaics represents a significant step towards a sustainable energy future where agriculture and solar energy can synergistically coexist.

### ACTIVITIES TO BE IMPLEMENTED

To incentivize the use of agrovoltaics in energy communities, targeted legislative and planning activities are necessary. Possible key points to consider include:

- Policies and regulations that support agrovoltaic development. These may include financial incentives such as grants or tax benefits for farmers installing

agrovoltaic systems. Additionally, modifications to existing laws and regulations may be needed to facilitate the installation of agrovoltaics on agricultural lands.

- Spatial planning through the identification of suitable (or preferred) areas for agrovoltaic installations, considering factors such as sunlight exposure, terrain topography, access to the electrical grid, and local agricultural needs.
- Financial support and access to credit: Relevant entities can offer subsidized financing programs, low-interest loans, and technical assistance.
- Research and development: Promote research and collaboration among farmers, energy experts, and scientists to develop innovative solutions, increase solar panel efficiency, optimize irrigation systems, and develop shade-tolerant crop varieties.
- Education and training: Raise awareness through campaigns, education, and training for farmers, local communities, and decision-makers about the benefits and opportunities of agrovoltaics, as well as best practices for integrating agricultural and energy production activities.
- Collaboration and partnerships: Foster collaboration among farmers, energy operators, government entities, academic institutions, and non-governmental organizations through the creation of networks and knowledge-sharing platforms.

# HYDROGEN PILOT ACTIONS



## DESCRIPTION OF THE ACTION

This action aims to incentivize the development of green hydrogen in energy communities, as a key energy vector for the transition to a sustainable and low-carbon energy system.

## NEEDS AND REASONS FOR THE ACTION DEVELOPMENT

One of the main advantages of hydrogen is its versatility. It can be produced from renewable sources such as solar, wind, or hydropower through water electrolysis and can be stored and used in various ways. It can be used for electricity production through fuel cells, to power hydrogen vehicles, and as a fuel for heating.

In energy communities, hydrogen can play a key role in the transition to sustainable energy production and consumption. Communities can use hydrogen as a form of renewable energy storage, producing it during periods of surplus solar or wind energy, storing it, and using it during times when renewable energy production is lower than demand. This allows balancing the energy supply and demand within the community, ensuring a stable and continuous supply of clean energy.

Hydrogen can be used to power hydrogen vehicles within communities, contributing to reducing the environmental impact of road transport. Energy communities can promote the use of hydrogen vehicles through hydrogen refueling infrastructure and incentives for purchasing such vehicles. Another application of hydrogen in energy communities can be heat production in high-efficiency boilers to provide heating and hot water, particularly beneficial for communities that lack access to natural gas networks or want to reduce fossil fuel use for heating.

## ACTIVITIES TO BE IMPLEMENTED

Local communities and non-profit associations can undertake several actions to incentivize the use of hydrogen in energy communities, some of which may require legislative and planning activities:

- Development of local energy plans that include hydrogen as an energy vector, identifying specific opportunities and challenges related to hydrogen in the community and setting usage goals and strategies to achieve them.
- Development of hydrogen infrastructure: Establishing vehicle refueling stations, installing production systems, building distribution networks, and implementing hydrogen storage systems.
- Promotion of hydrogen vehicle use through incentives for purchasing hydrogen vehicles or facilitating the installation of hydrogen refueling stations.
- Encouragement of collaboration between local stakeholders, such as companies, universities, government entities, and non-governmental organizations, to promote hydrogen use.
- Awareness and educational activities to inform citizens about the potential and benefits of hydrogen as an energy vector, through public events, distribution of informational materials, and organizing workshops or expert meetings.
- Support for research and innovation through partnerships with universities or research centers. This may involve providing spaces for pilot projects, facilitating access to hydrogen research funding, and collaborating with local actors to test and implement innovative hydrogen-related technologies.

Non-profit associations can also play an important role in incentivizing hydrogen use in energy communities. Examples of actions they can undertake include:

- Raising awareness and disseminating information about the potential of hydrogen as an energy vector in energy communities through public events, seminars, or webinars, creating and distributing informational materials accessible through their communication channels, such as websites, newsletters, or social media.
- Collaboration with local communities, businesses, and community residents to develop pilot projects related to hydrogen.
- Advocacy campaigns to promote policies in favor of hydrogen use in energy communities.
- Technical support and consultancy for local communities interested in using hydrogen as an energy vector.
- Research and sharing of best practices on hydrogen use in energy communities, conducting studies and analyses to assess the impact of hydrogen on carbon emissions, local economy, and energy independence.

# MAPPING OF THE CURRENT SITUATION



## DESCRIPTION OF THE ACTION

This action aims to map the current situation related to the existing energy communities in the area and the producibility potential of different renewable energy sources with reference to the intervention areas.

## NEEDS AND REASONS FOR THE ACTION DEVELOPMENT

Mapping the territory for the establishment of energy communities aims to facilitate a transition towards more sustainable energy production and consumption while optimizing available resources and involving local communities in the decision-making process.

The objectives and, consequently, the benefits of mapping the territory are numerous, including identifying available renewable energy resources, optimizing the location of generation plants, enabling sustainable local energy planning, optimizing resource utilization, involving and actively engaging the local community in decision-making processes, and efficient management of energy infrastructure.

## ACTIVITIES TO BE IMPLEMENTED

Mapping a territory for the establishment of energy communities involves several needs that may vary depending on the specific requirements and objectives of the project. Here are some common needs generally considered important in this context:

- Identification and mapping of available renewable energy resources in the territory. This may include assessing solar, wind, hydropower, or other renewable potential in the

area. Mapping energy resources helps determine the feasibility and sizing of energy generation facilities for the communities.

- Analysis of existing infrastructure in the territory. This could involve mapping the distribution and transmission networks for electricity, as well as gas supply and distribution infrastructure. This analysis helps identify any obstacles or limitations that may affect the establishment of energy communities.
- Evaluation of the energy needs of the local community to be served. This may require collecting data on energy consumption, energy usage patterns, and specific territorial needs. Mapping energy needs helps properly size generation facilities and ensures they are adequate to meet local demand.
- Identification of suitable areas for installing energy generation facilities, such as areas with high solar exposure or favorable winds for wind energy. This analysis should also include environmental, landscape, and land-use considerations and constraints.
- Involvement of local stakeholders, local authorities, community organizations, businesses, and residents. Understanding social dynamics, expectations, and concerns of local inhabitants is essential for ensuring participatory planning and proper project management.
- Analysis of connections to the national or local electricity grid. Mapping may include identifying available connection points and any necessary infrastructure to facilitate injection or distribution of energy produced by the community.

# TRAINING PILOT ACTIONS



## **DESCRIPTION OF THE ACTION**

This action aims to create expertise that can be involved in the local development of energy communities.

## **NEEDS AND REASONS FOR THE ACTION DEVELOPMENT**

The local development of energy communities requires a variety of skills and expertise. Local professionals are essential to adapt energy strategies to the needs and specificities of the local context. Their presence enhances the effectiveness and sustainability of energy communities, promoting participation, autonomy, and the well-being of the involved communities. A more effective action in development can be provided through knowledge of specific dynamics, needs, and challenges of the local context, increased opportunities for community involvement and participation through effective communication channels, public meetings, and engagement of stakeholders. Local professionals can also identify and enhance local energy resources, be familiar with local energy policies, regulations, and incentives, establish and manage relationships with local institutions, such as local administrations and public services, play a key role in monitoring and evaluating the results of energy communities, and help develop solid business models and financial plans for energy communities, considering funding sources, investment costs, and local economic impacts.

## **ACTIVITIES TO BE IMPLEMENTED**

The training of new expertise can be directed towards the creation of various roles:

- Renewable energy experts who

can provide technical knowledge on different energy generation technologies and their applications in the local context.

- Engineers specialized in sustainable energy systems, who can support in the design, installation, and management of energy generation plants, as well as in the assessment of technical feasibility of projects.
- Urban planners and territorial planners to develop sustainable urban development plans, including zoning areas for the establishment of energy facilities and planning energy distribution systems within communities.
- Energy efficiency experts to provide advice on practices and technologies to improve energy efficiency in buildings, transportation, and infrastructure.
- Energy economists experienced in the financial evaluation of energy community projects, including cost-benefit analysis, estimation of financial returns, and assessment of local economic impact.
- Energy management experts who can develop strategies for integrating and optimizing different renewable energy sources, as well as managing and utilizing energy storage systems.
- Energy and policy lawyers who provide advice on the regulatory framework of energy communities, including rights of access to the electricity grid, incentive policies, and environmental regulations.
- Community engagement experts to promote active and inclusive community participation in the decision-making process and implementation of energy communities.

# **Structural Gaps and Actions for Managing the Industrial Crisis in SMEs**

*Authors*

Vincenzo Rocco Santandrea, Alessandro Lombardi

## Summary

The last few years have been characterised by severe economic and social crisis. On the one hand, there was the price increase of energy and of raw material with the related growing difficulties in supplying them. On the other hand, the rise of international problems on the European continent has increased the difficulties of companies on international markets and on their value chains. Another consequence of the business crisis may also derive from the transition to green economy. All these factors are producing an adverse impact on several economic and productive sectors with social and territorial effects of relevant importance.

Therefore, the report considers two issues:

- ✓ the critical territorial conditions deriving from international crisis situations in the eligible territories;
- ✓ definition of a possible joint model to support companies in crisis through integrated actions in favour of local stakeholders.

The report includes three relevant Intervention Actions to be considered for future implement project proposals ~~for reasonable actions to be implemented through the next calls:~~

1. *Joint institutional and management model to support SMEs crisis and territories involved;*
2. *Implementation of a set of actions to support territorial areas affected by an industrial crisis;*
3. *Stepping up skills and outplacement of workers of companies in crisis through services of training cross border actions.*

## 3) Context Analysis

### 1. *Structural gap in Apulia and Molise*

#### APULIA

##### 1.1 *Territorial system of firms*

Apulia had a good economy and employment recovery in the post covid period, with values on average slightly above the national figure. Local Units in Apulia represent 5.8% of the national ones, 5% of employees and 3.5% of added value. There are relevant differences between industry and services in terms of Gross Domestic Product (GDP) growth rates.

Apulia displays gaps of around 25-30 percentage points between industry and services compared to the national figure for labour productivity.

The trade balance in goods and services amounts to around 590 million euros with Albania and 18 million euros with Montenegro in 2022. The trade values are rising sharply compared to both 2020 and 2021.

The regional territory shows a diversification among municipalities in terms of economic structure and production capacity. Taking the national and regional median values of labour productivity, the 257 Municipalities in Apulia can be broken down into four groups:

- Highly productive - productivity above the national median (30 Municipalities);

- Medium productive - productivity between the two medians (90 Municipalities);
- Low productive - productivity values below the regional median but above half the regional median (65 Municipalities);
- Marginal - values less than half the regional median (64 Municipalities).



*Figure 1 - Territorial distribution of the four groups of Municipalities*

*Source: IPRES (2023) on ISTAT data*

## **1.2 Territorial GAP Index**

A Structural Gap Index (SGI) has been calculated for the 44 Local Labour Systems (LLS) of Puglia to measure the territorial structural gap. The index can measure the sensitivity of the SLL to exogenous shocks and to those situations characterized by critical economic and employment conditions. The index provides a synthetic measure of the structural differences of the LLS, with respect to a series of economic and employment-related variables.

Nine indicators were used for the Index:

1. *Employment rate 2021;*
2. *Unemployment rate 2021;*
3. *Employment rate change 2016-2019;*
4. *Employment rate change 2019-2021,*
5. *Change in the unemployment rate 2016-2019;*
6. *Change in the unemployment rate 2019-2021;*
7. *Labour productivity 2020;*
8. *Local units of fifty or more employees;*
9. *Change in the stock of active enterprises per 1,000 inhabitants 2020-2022.*

For each of these variables a standardisation was carried out with a value between 0 (highest criticality) and 1 (lowest criticality).

The SGI index was calculated as the simple average of the 9 indicators. Based on the value assumed by the SGI, it was possible to classify the 44 Local Employment Systems into 5 groups in relation to the degree of SGI: High, Medium High, Medium Low, Low.

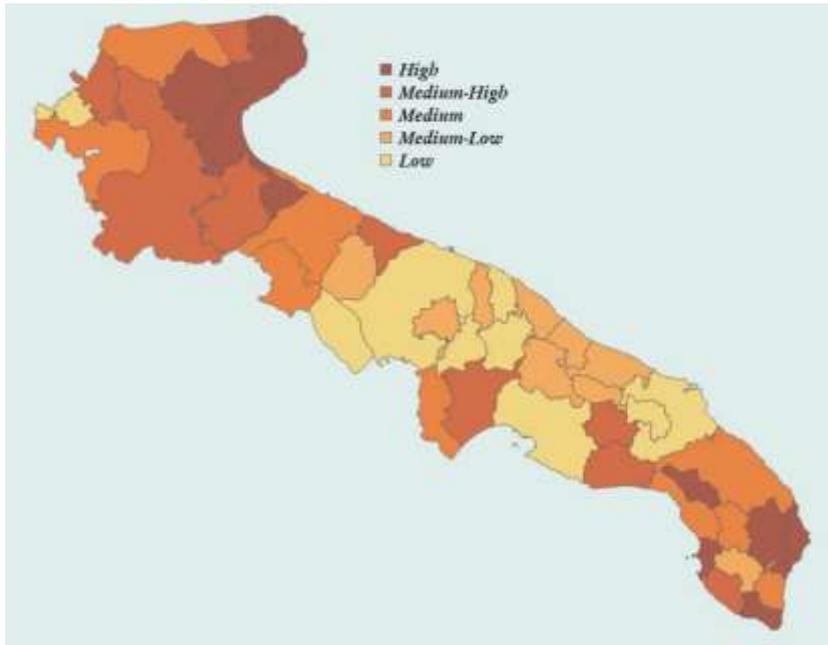


Figure 2 – SLI by Structural Gap Index

Source: IPRES (2023) on ISTAT data

## MOLISE

### 1.1 Territorial firm's system

Molise shows growth rates far below the national average in 2021, but higher in 2019 and in line with 2020.

Local Units represent 0,5% of the national ones, 0,4% of employees, and 0,3% of added value. There are significant differences between industry and services in terms of GDP growth rates. Compared to the national figure for labour productivity, Molise shows gaps of from 21% (Industries) to 37% (services); 26,6% (total).

The trade balance in goods and services amounts to around 4,3 million euros with Albania and less than € 15.000 euros with Montenegro in 2022. The values of the trade are rising for Albania but not for Montenegro compared to both 2021 and 2020.

The regional territory portrays a diversification among municipalities in terms of economic structure and production capacity. Taking the national and regional median values of labour productivity, the 136 Municipalities can be broken into four groups:

- Highly productive - productivity above the national median (2 Municipalities);
- Medium productive - productivity between the two medians (41 Municipalities);
- Low productive - productivity values below the regional median but above half the regional median (37 Municipalities);
- Marginal - values less than half the regional median (34 Municipalities).

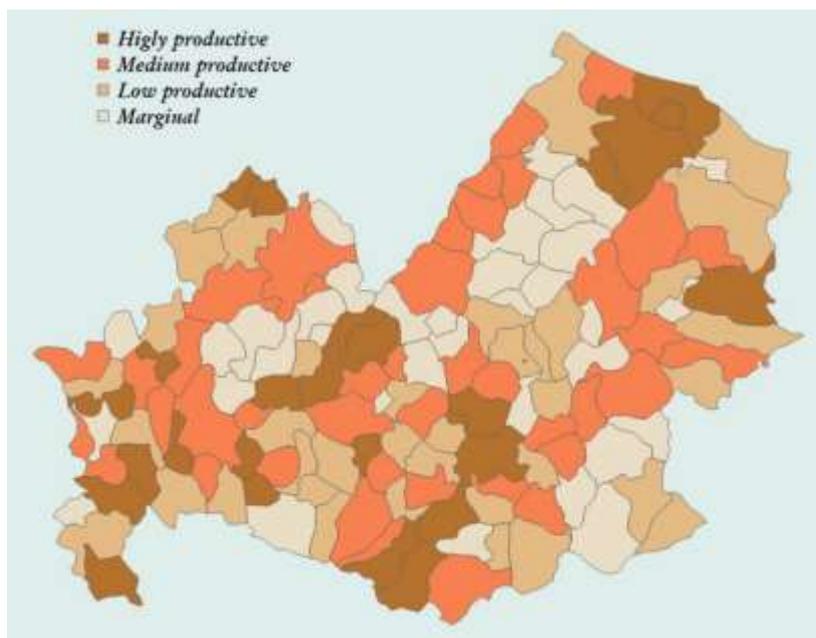


Figure 3 - Territorial distribution of the four groups of Municipalities

Source: IPRES (2023) on ISTAT data

## 1.2 Territorial GAP Index

A Structural Gap Index (SGI) has been calculated for the five Local Labor Systems (LLS's) of Molise to measure the territorial structural gap.

Based on the value assumed by the SGI, it was possible to classify the five LLS's in relation to the degree of SGI: High, Medium High, Medium and Low.

The five LLSs form three clusters as shown in the table: the value 1 is associated with the LLS's with greater resilience and reactivity, while the value 0 is associated with the LLS's that has more critical conditions.

Table 1- LLS clusters in Molise base on structural GPI

SLL	GPI index	Cluster
Bojano	0,000	High
Termoli	0,127	Medium-High
Campobasso	0,733	Low
Isernia	0,740	Low
Agnone	1,000	Low

Source: IPRES (2023) on ISTAT and Apulia Chamber of Commerce



Figure 4 – SLL by Structural Gap Index

Source: IPRES (2023) on ISTAT data

## 2. Structural gap in Montenegro and Albania

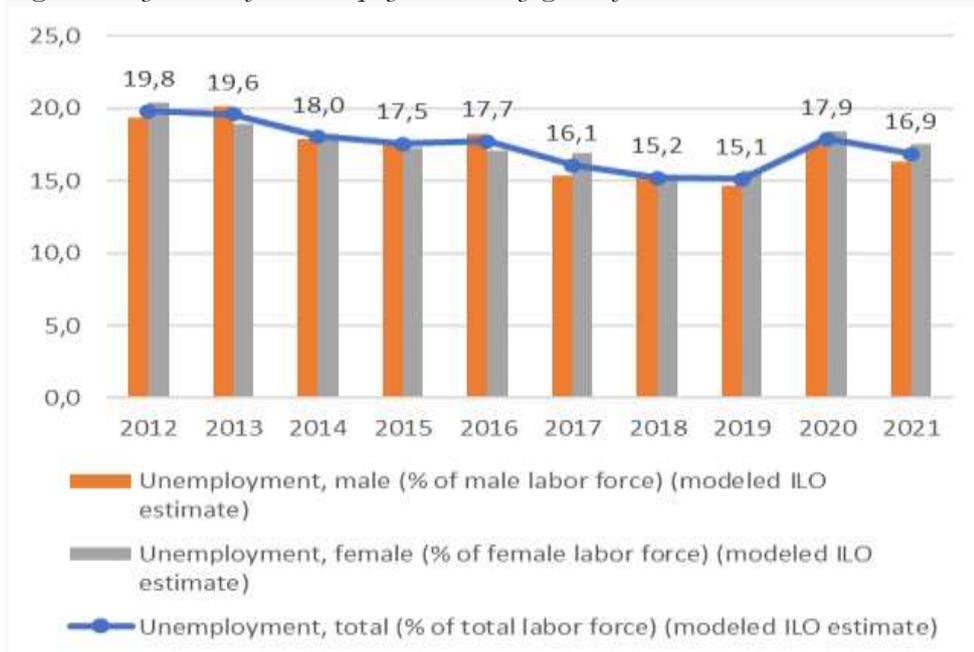
### MONTENEGRO

GDP at current prices is around 5 billion euros, growing by 13% in real terms compared to 2020. For 2022, the International Monetary Fund estimates growth rate of 6.4% and 3.2% in 2023. Per capita income at current prices is about 8,000 euros in 2021 (18.8% more than the previous year). The economy suffered a severe crisis after 2019 mainly due to the COVID-19 pandemic. However, a strong recovery is already underway which is bringing GDP back, according to IMF estimates, to the same growth rate as in the pre-pandemic period.

There are around 46.000 firms in 2022. Small firms represent about 99% of the total. They also constitute the most economically relevant business model, also in terms of added value.

During the period 2012-2021, the unemployment rate slightly decreased from 19.8% in 2012 to 15.1% in 2019.

Figure 3 - Dynamics of the unemployment rate by gender from 2012 to 2021

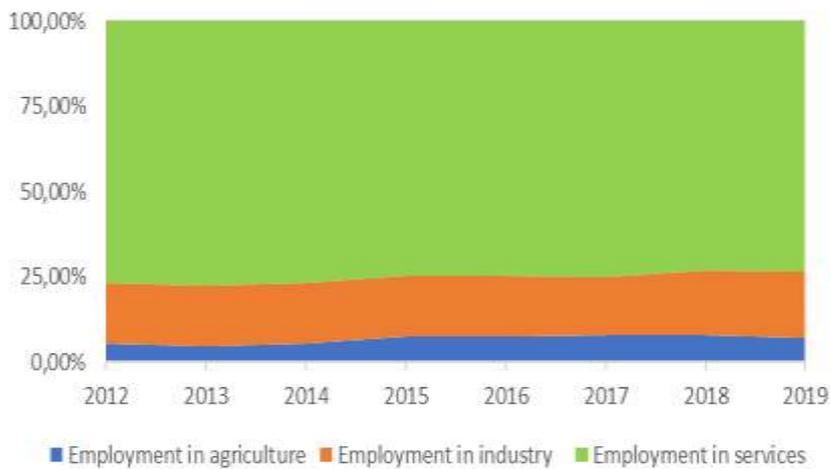


Source: IPRES (2023) on ILO's data

During the pandemic, as is displayed in the graph, the unemployment trend increased again reaching 17.9% in 2020 but getting back under the threshold of 17% in 2021. There is not a gender-based discrepancy in the unemployment rate.

When it comes to youth unemployment (15-24 years), it is considerably high for both genders, although a relevant decrease over the period considered: from 44.1% in 2012, this data stands around 30.3% in 2021.

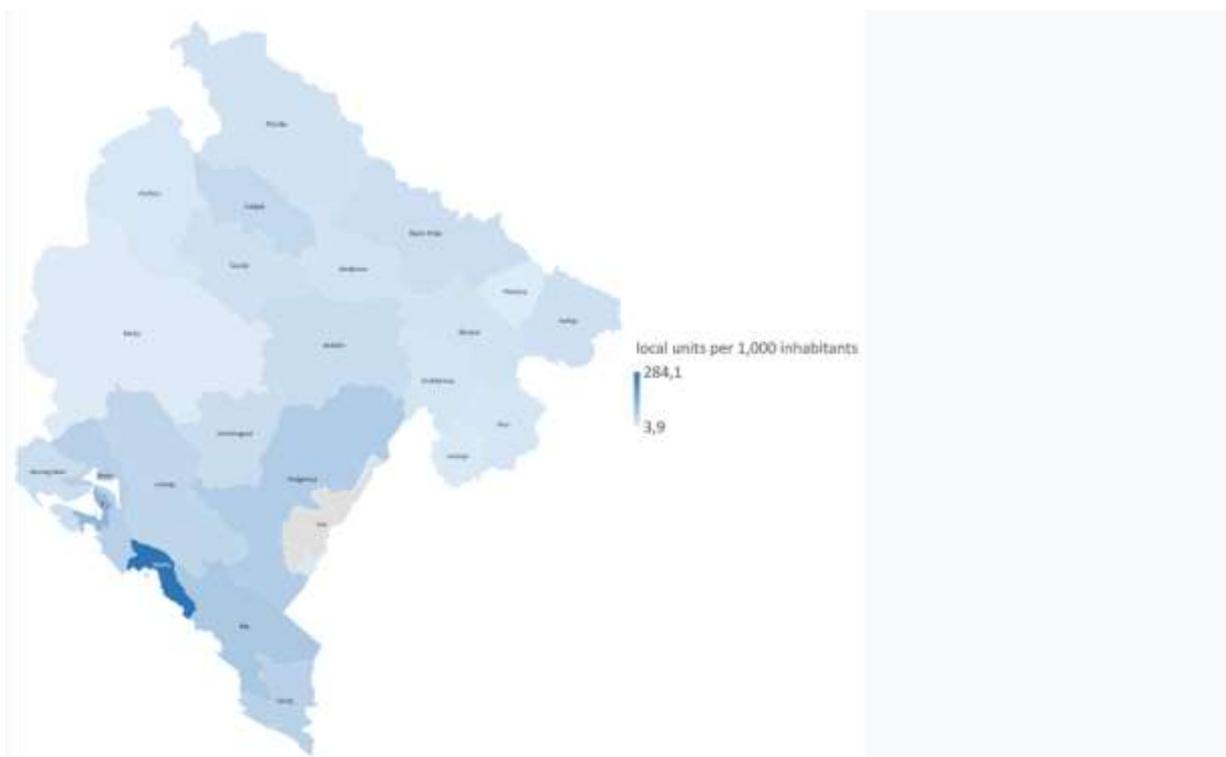
Figure 4 - Employment distribution by macro sectors from 2012 to 2019



Source: IPRES (2023) on ILO's data

The services sector is the macro sector which incorporates most of the workforce (74.1%), followed by industry (18.4%) and the agricultural sector (7.5%). The sector that encompasses the largest number of workers is the "Wholesale and retail trade, motor vehicle repair and engine recycling" with 43,897 workers, followed by the "public sector (Public administration and defence, compulsory social security)" with 22,975 workers, and from the "Hotel and catering activities" with 21,572 workers.

Figure 5 - Territorial distribution of local units per 1,000 inhabitants. 2021



Source: IPRES (2023) on MONSTAT data, 2022

On a territorial perspective, Montenegro is organized on 24 municipal territories. The population and firms are localised in a few municipalities: Podgorica hosts about a third of the population and has the largest number of enterprises in 2022 is the capital Podgorica, which includes about 35 percent in the 2021. The coastal city of Budva has about 4% of the population and hosts about 18 percent of the enterprises

Considering the number of enterprises per 1,000 inhabitants, as displayed in the picture, the municipality of Budva hosts 284.1 enterprises per 1,000 inhabitants, followed by the municipality of Tivat with 124.2 and by Bar with 83.6.

**ALBANIA**

The GDP from 2012 to 2022 shows significant growth rates in the period between 2012 and 2019; a fall in GDP, albeit not dramatic, occurs in 2020 due to the COVID-19 pandemic. A prompt recovery occurred in 2021 and a return to normality in 2022.

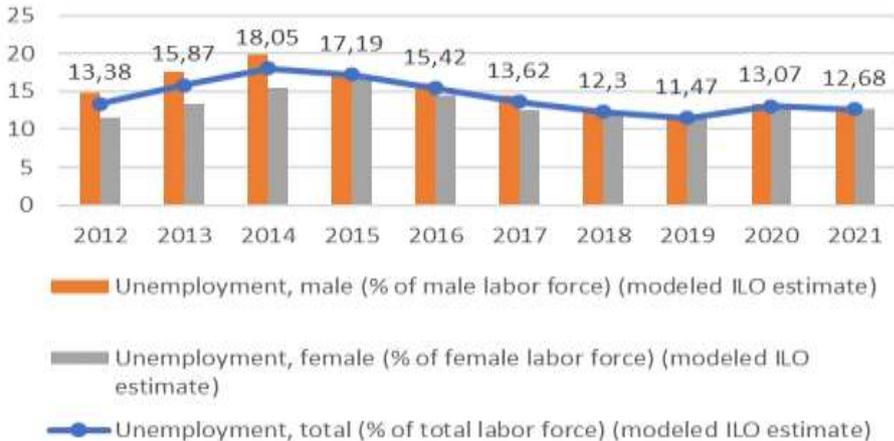
Based on World Bank forecasts, for the next two years, economic activity should decrease respectively with an estimated growth of 2.3% in 2023 and 2.5% in 2024.

The economic system is made up mostly of micro and small enterprises, which constitute a percentage of 98.6% in 2021, 93.2% are micro enterprises with fewer than 10 employees. Medium-sized companies represent 1.2%, while large companies with 250 employees represent only 0.2%.

In terms of added value, small and medium-sized enterprises recorded an average growth of 10.84% and 8.31% respectively between 2015-2021, a significant figure if one considers that the added value of large enterprises grew at a rate of less than 1%.

The Albanian unemployment rate has maintained a certain stability in the period 2012-2021, with a slight surge in 2014 standing at 18 percent. In 2021 this value is around 12.6 percent.

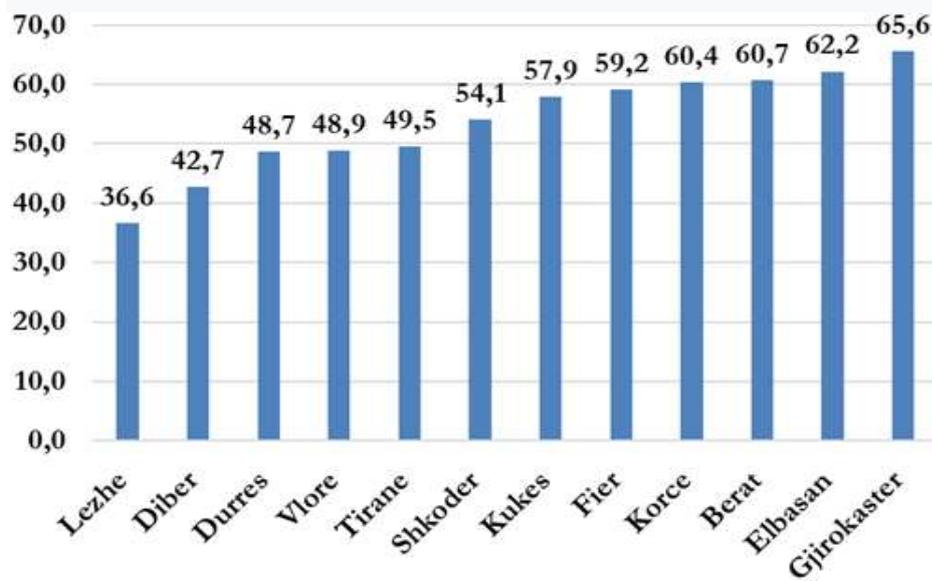
Figure 6 - Dynamics in Albania of the unemployment rate by gender 2012 - 2021



Source: IPRES (2023) on ILO's data

In 2012 the male unemployment rate was higher than the female unemployment rate, as can be seen in the figure; however, this gap has been filled since 2015 when the value for both stood at around 17%.

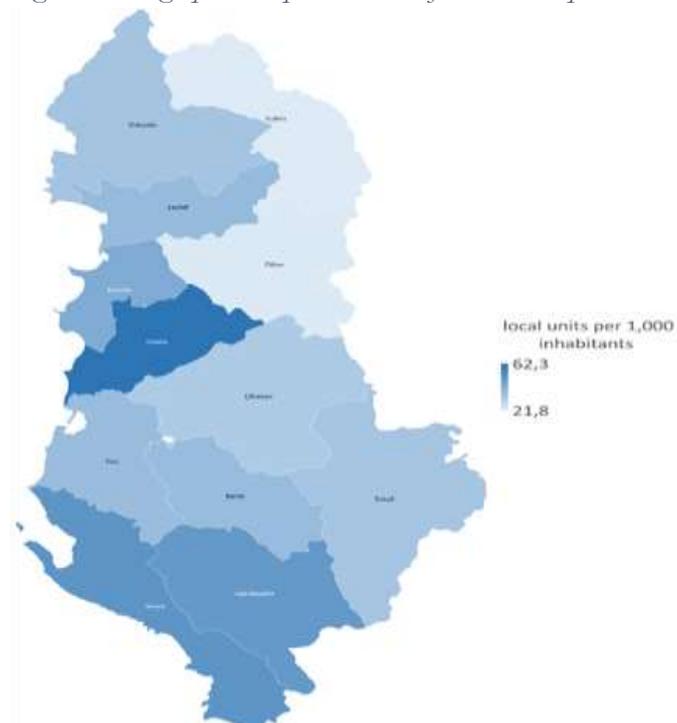
Figure 7 - Employment and unemployment rate at territorial level – 2021



Source: IPRES (2023) on INSTAT data, 2023

Agriculture is the leading sector as a share of employment (33.8%), followed by Trade, Transportation, Hotels and Restaurants, Business and Administrative Services (26.6%). The prefecture which keeps the highest employment rate is Gjirokaster (65.6%), followed by Elbasan (62.2%) and Berat (60.7%).

Figure 8- Geographical representation of local units per 1,000 inhabitants in Albania. 2021



Source: IPRES (2023) on INSTAT data, 2023

From an administrative point of view, Albania is divided into 12 prefectures. The administrative area that hosts the largest number of enterprises in 2020, based on INSTAT data, is the capital Tirana, which includes about 33 % of Albanian businesses, followed by Fier Prefecture, which hosts about 14 % of businesses.

Considering the number of enterprises per 1,000 inhabitants, as displayed in the picture, the municipality of Tirana hosts 62.3 enterprises per 1,000 inhabitants, followed by the municipality of Vlorë with 51,4% and by Gjirokaštër with 49.9%.

### ***3. Management and action model in favour of SMEs industrial crisis***

#### **APULIA and MOLISE**

##### *3.1 Institutional model organization.*

The industrial crisis of large enterprises and multinational groups are dealing by the National Government (Ministry of Enterprise and Made in Italy, former Ministry of Economic Development, Ministry of Labour and Social Policies and the Technical Assistance Agencies). In fact, these kinds of enterprises produce economic and employment impacts on a national scale with spill-over effects on several regions or on inter-regional supply chain dimensions. The Region is dealing mainly with the crisis of SMEs that have regional and territorial effects.

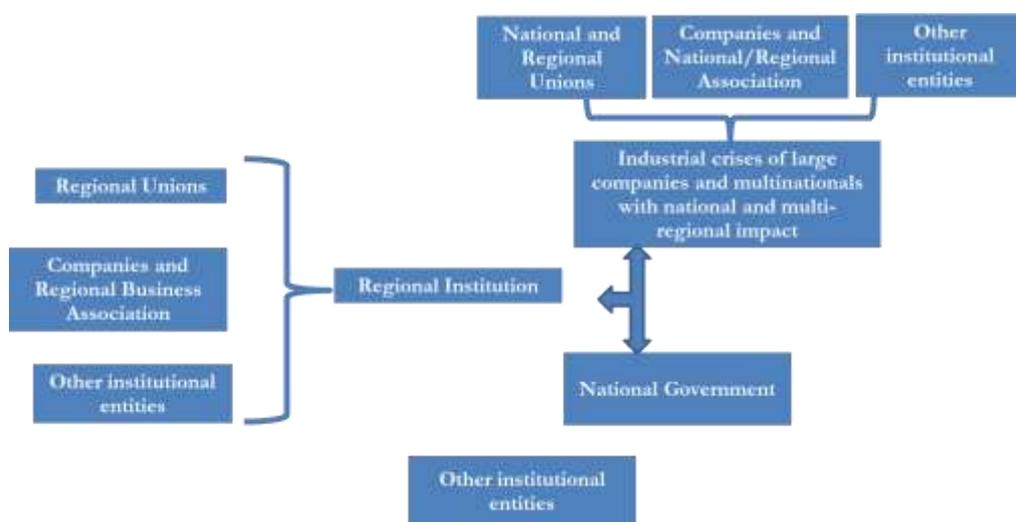
The Apulia Region has had a model of intervention for business crises at a territorial level for almost a decade, with a formal structure. The Molise Region does not have a formal structure for business crisis situations but has dealt with a complex industrial crisis area together with the national government.

Matching both experiences, a regional Industrial Crisis Management Model (ICM) can be defined.

The initiative for the setting up of an institutional round table can be taken by one the following subjects;

- Company and any employer organisation involved;
- Trade Union, confederal and/or category organisations present, the Company Trade Union Representative
- Territorial institutions;
- Region for crisis cases affecting mainly the regional territory and involving principally SMEs;
- Ministerial bodies for the industrial crisis of large companies and multinational groups with a significant national impact and production sites located in more than one region.

*Scheme 1 – Crisis Industrial Management: Institutions and Stakeholders*

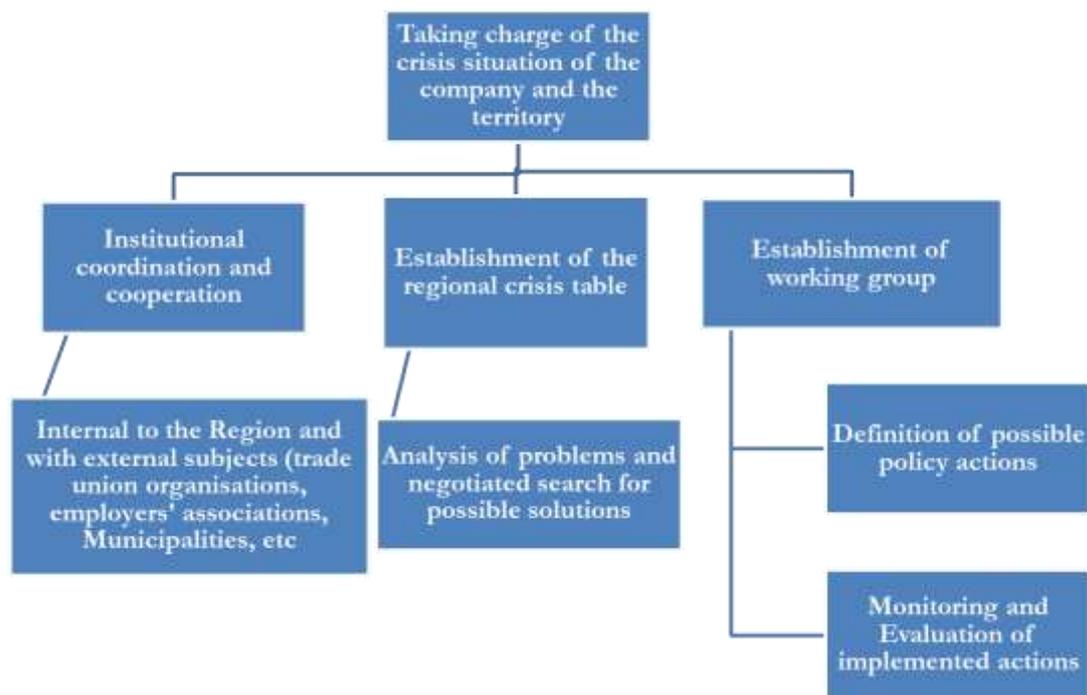


### 3.2 SMEs industrial crisis management

The Apulia Region has implemented a regional management model for industrial firm crises through:

- Committee for Monitoring the Economic Productive System (SEPAC), set up by Regional Law no. 7/2002 currently composed of the President and 12 experts in the fields of labour, financial, economic and employment law;
- Industrial Crisis Areas Section, an office of the Economic Development Department that guarantees constant relations with the regional structures that may be involved in the resolution of the crisis (Labour e Training Office, Firm Competitiveness Office, Managing Authority of the cohesion fund, the regional Agencies and national government office.

*Scheme 2 – Industrial Crisis Management: regional management model*



The management steps:

1. *Submission of the meeting demand to take in charge of industrial firm crisis;*
2. *Start of preliminary analysis by SEPAC:*
  - Analysis of the company
  - Analysis of the state of the crisis: further information is acquired through documents and/or requests to the company; identification of the causes of the crisis and of a possible resolution through the (national and regional) instruments available (see next page)
  - Analysis of the impact of the crisis on the territory: the direct and indirect impacts that the crisis may have on the territory in terms of employment and the general economy are assessed.

### *3. Activation of crisis table*

Convocation of the parties for negotiation activities between those affected by the crisis. Deepening of the preliminary investigation, definition of the actions that can be activated, monitoring of the progress of the proposals.

### *4. Institutional Coordination*

Internal: Coordination of the different of regional structures that can contribute to tackling the crisis and regional Agencies.

External: in cases of greater complexity and national importance, coordination with the Ministry of Labour, the Ministry of Industries and Made of Italy, and other Ministries according to the specificities of the business case.

Coordination with local institutions such as Municipalities, Provinces and other stakeholders.

**MONTENEGRO**

As shown in the table, the economic framework of Montenegro is structured around Small enterprises, which account for about 99% of registered business activities in Montenegro. While the sum of medium and large enterprises is close to 1%. Small enterprises also constitute the most economically significant business model in terms of added value.

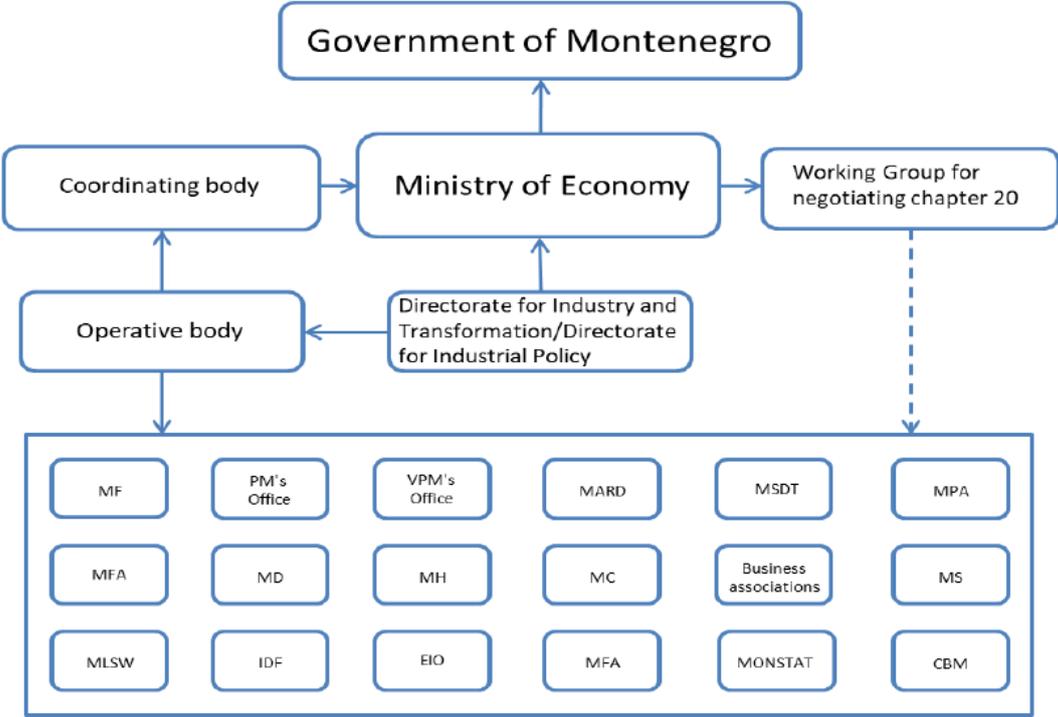
*Table 2 - Classification of active business entities by sectors of activity in Montenegro*

Company tipology	Number of employer	2020	%	2021	%	2022	%
<b>Micro-Small</b>	1-49	36.988	99.3	39.331	99.1	45.310	99.2
<b>Medium</b>	50-250	229	0.6	297	0.7	308	0,7
<b>Large</b>	250+	38	0.1	54	0.1	57	0,1

Source: IPRES (2023) on MONSTAT data

The Montenegrin industrial policies are managed by the central government, but a pivotal role is played by the Ministry of Economy and other stakeholders (See scheme 3).

*Scheme 3 - Coordination structure for the implementation of the industrial policy 2019-2023*



Source: Montenegrin Ministry of Economy, 2019.

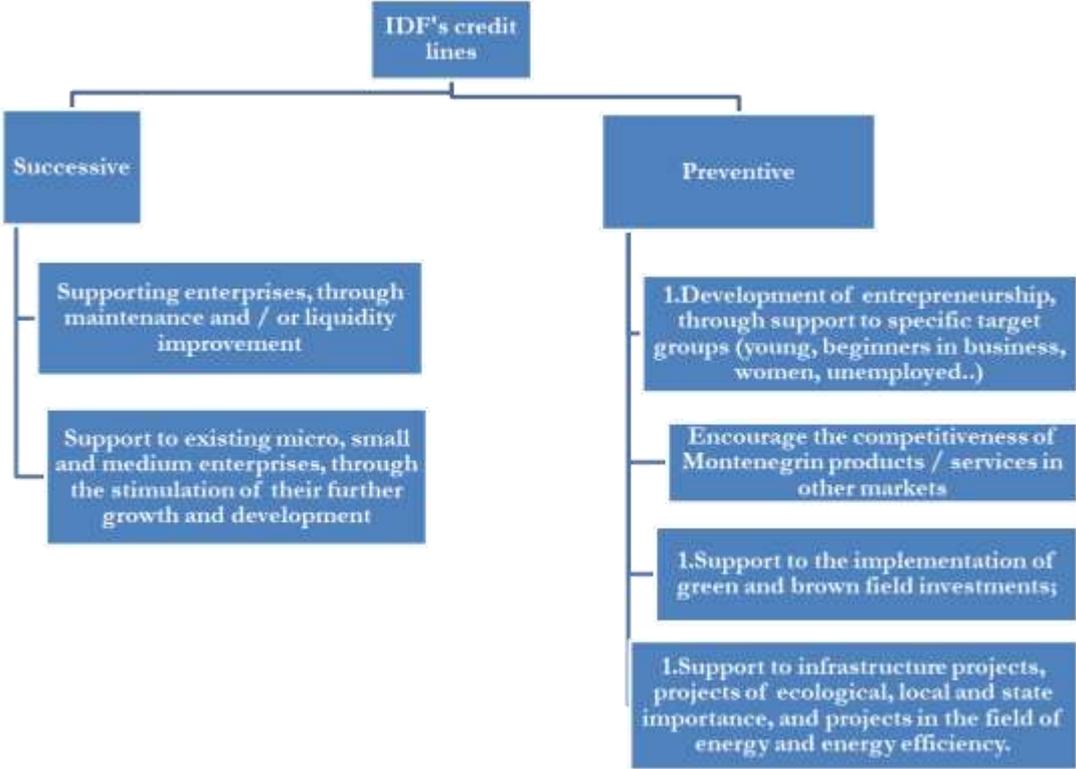
One of these Montenegrin institutes, which intervenes in the economic system to prevent business crises or to help enterprises in difficulties, is the Investment Fund for Development (IDF). This owned-state institute was established by law in 2009 to facilitate access to credit to

the corporate sector through the provision of financing, both directly and through financial intermediaries.

With the aim of achieving better and more efficient support for the development of the Montenegrin economy, the IDF sets out programs that stimulate investment activities. These credit lines can act in a preventive or successive way as described in the Scheme 4.

To mitigate the Covid-19 adverse impact on the economic system the Montenegrin government established several measures such as a moratorium on taxes and Subsidies for employment in the private sector (above all in the tourism sector). Moreover, IDF designed a new credit line intended to improve the liquidity of entrepreneurs, micro, small, medium-sized and large enterprises up to a maximum amount of 3 million euros per beneficiary.

*Scheme 4 - IDF's credit lines to support enterprises and competitiveness*



## ALBANIA

Albania has a structure of enterprises based mostly on small and medium-sized enterprises, which together constitute a percentage of 99.8% in 2021. The Albanian statistical register further classifies small and medium-sized enterprises into micro, small and medium-sized as shown in Table 3: micro-enterprises (93.2%), small (5.4%) and medium-sized (1.2%). Large enterprises, account for just 0.2%.

Table 3 - Classification of active firms by sectors of activity in Albania

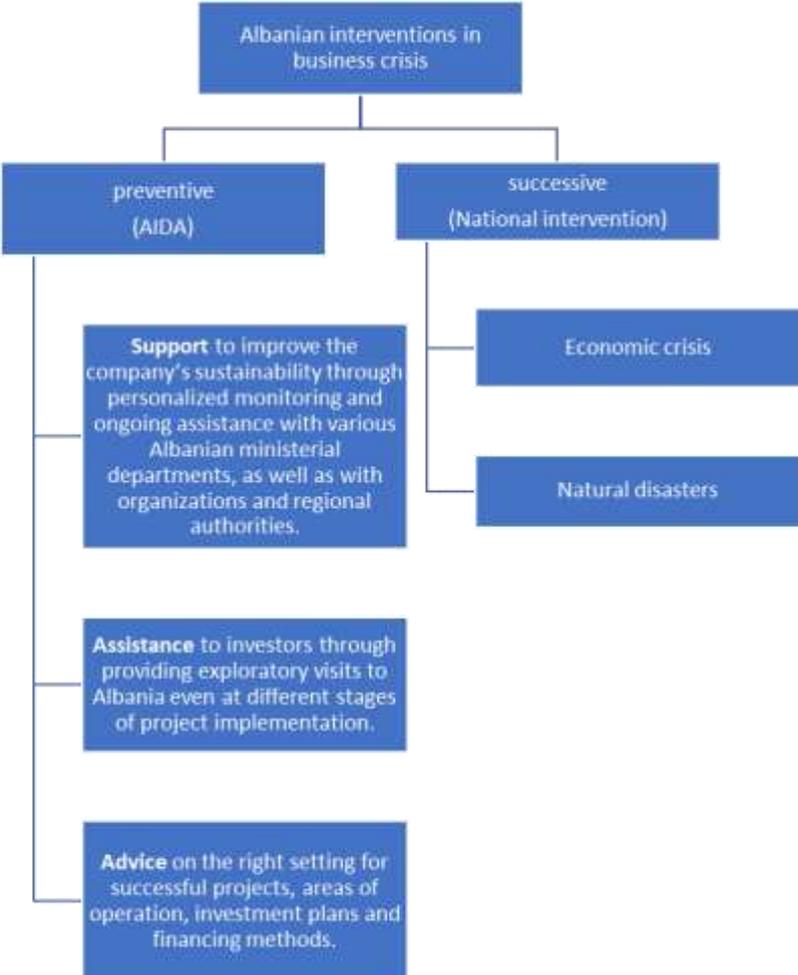
Company typology	Number of employer	2019	%	2020	%	2021	%
<b>Micro</b>	1-9	96.924	93,1	95.558	93,2	97.022	93,2
<b>Small</b>	10-49	5.736	5,5	5.674	5,5	5.608	5,4
<b>Medium</b>	50-249	1.251	1,2	1.173	1,1	1.227	1,2
<b>Large</b>	250+	179	0,2	169	0,2	174	0,2
<b>Total</b>		<b>104.090</b>	<b>100,0</b>	<b>102.574</b>	<b>100,0</b>	<b>104.031</b>	<b>100,0</b>

Source: IPRES (2023) on ILO data

The wide number of SMEs fosters free economic competition. To create a favourable business climate for entrepreneurship, the Albanian Ministry of Economy and Finance has set up a preventive business support system. This activity has been entrusted to the Albanian Investment Development Agency (AIDA). It is a preventive system regarding the long-term financial sustainability of the companies. Moreover, it is an activity that indirectly acts on preventing companies from bankruptcy and improves the competitiveness of SMEs. According to the OECD, Albania lacks an early warning system for companies facing financial difficulties.

However, in response to the COVID-19 pandemic, the Albanian government adopted various support measures and policy instruments. These measures consisted of wage subsidies for the most affected companies, a temporary moratorium on loan repayments and other measures to support the banking sector. The government also adopted several moratoria on tax payments for large companies, the tourism sector, call centres and small businesses.

*Scheme 5 – Institutional Management to support business crisis Institutions and Stakeholders*



#### 4) Possible intervention actions to be implemented

##### 1 - Joint institutional and management model to support SMEs crisis and territories involved.

###### **Short description**

The action concerns the test of a joint model of management and implementation of actions to support business crisis areas. The action is coherent with PA5 (*A better governance in the South Adriatic programme area - GOVERNANCE*) – S.O. 5.1

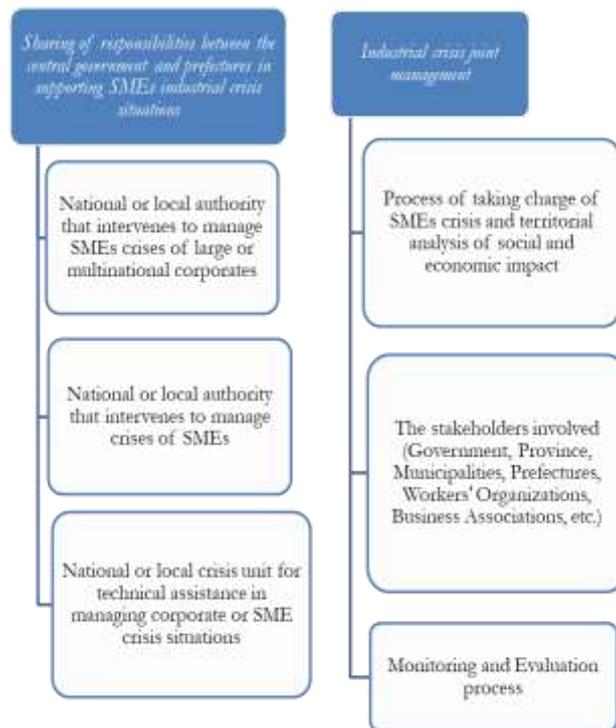
###### **Needs and develops**

Crisis of firm have territorial impact. To face these effects, it is necessary to develop a model involving institutional partners and national and local stakeholders. In addition to the institutional organisation model, a management model is needed for the involvement of partners and stakeholders in the action definition phase and in the implementation of agreed actions.

###### **Link to other projects of previous programme.**

*In the previous 2014-2020 programme, there was no "Governance" axis.*

###### **Implementation of a set of actions**



###### **Territorial relevance**

*Relevant at the regional level of Puglia and Molise in Italy; at the national level for Montenegro and at prefecture level for Albania*

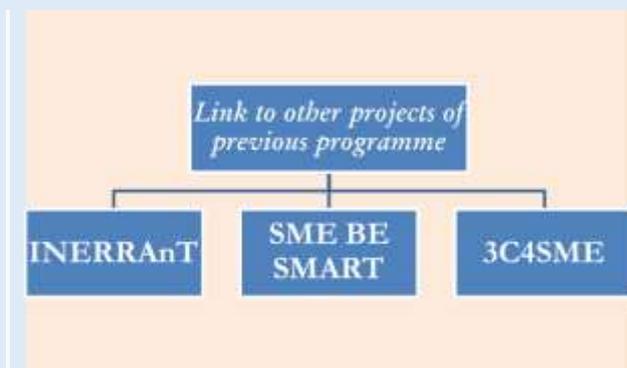
## 2. Implementation of a set of actions to support the territorial area of SMEs crisis

### **Short description**

The territorial impact of industrial crisis regards the deindustrialization process or delocalization of firms. The project aims to define sets of joint actions to recover companies in crisis or in severe production difficulties and recover abandoned industrial sites or sites at risk of disposal for reindustrialization purposes. Furthermore, the sets of actions aim to safeguard the know-how and skills at the local level, as well as favour the maintenance and improvement of employment.

### **Needs and developments**

The great transformations of the international economy and the Community strategic guidelines are producing significant impacts on productive sectors and segments of value chains at the territorial level. It is necessary to think up specific integrated tools to accompany the restructuring and reindustrialization processes of business crisis areas, which also have a diversified impact at the regional level.



The action is coherent with PA1 (*A smarter South Adriatic programme area, by promoting innovative and smart economic transformation - SMART*), S.O. 1.1; and PA 2. (*A greener South Adriatic programme area, by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk management - GREEN*).



### **Implementation of a set of actions**

- ✓ Process of reindustrialization of the crisis area supporting smart, greener and energy efficiency transition process;
- ✓ Acquisition of assets and plants of companies in economic problem, in bankruptcy or closed;
- ✓ Support aimed at the prevention, timely detection overcoming pre-crisis of SMEs, through the implementation of consultancy and tutoring services;
- ✓ Creation of business network and supply chains, focusing on smart process and environmental sustainability;
- ✓ Support for start-ups and self-employment in smart, energy efficiency and greener production process, mainly in the territories involved.

### **Territorial relevance**

Relevant at the regional and territorial level (such as provinces or Local Labour Systems – LLS) for Apulia; at the regional level for Molise; at the national level and main urban for Montenegro; at the national and prefecture level for Albania.

## 3. Up skills and outplacement of worker of companies in crisis through services of training cross border actions

### **Short description**

The transformations of the regional and local production systems have an impact on SMEs. These must face transformation processes. These processes, on the one hand, have the effect of reducing employment and, on the other one, the need for their requalification and reallocation to other healthy firms localised in the area. The cross-border actions can be defined and implemented for specific business crisis at the territorial level, which have similar profiles in terms of the structure of the selected SMEs. The action must be integrated with a monitoring and evaluation activity.

### **Needs and develops**

Workers involved in crisis need, on the one hand, professional updating, and on the other one, professional retraining oriented towards new sustainable, energy efficiency and smart production processes on the other. Furthermore, outplacement support services are needed since these workers often should be placed in other companies in the area that operate in sectors beyond their original ones. In this process, the construction of a "chain" of accessible and integrated services is relevant: from the analysis of skills to inclusion into the new target company.

The "chain" service infrastructures could be, for example, one of the following typologies.

The action is coherent with PA 4. (*A more social South Adriatic programme area - SOCIAL*), S.O. 4.1



### **Implementation of a set of actions**

- Specialist and service orientation consultancy aimed at analysing the professional profile and identification e validation of skills;
- skill gap analysis;
- Upskilling e Reskilling training;
- Job placement services;
- Scouting firm's services;
- Employment service subsidy

### **Territorial relevance**

Relevant at the regional and territorial level (such as provinces or Local Labour Systems – LLS) for Apulia; at the regional level for Molise; at the regional and main urban areas for Montenegro; at the national and prefecture level for Albania.

