

# AGDUPT

ADdressing skills mismatching in the green sector through Digital Upskilling of veT

## D3.1 Bridging VET provision and the green business sector

### A Handbook

Centro Superior de Formación Europa-Sur, SA

CESUR

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# List of abbreviations

Acronym	Description
WP	Work Package
VET	Vocational Education and Training
WB	Western Balkans
UE	Union Europe
EGD	European Green Deal
ICT	Information and Communication Technologies



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# Executive summary

In a world where concern for sustainability and environmental preservation is constantly on the rise, the green business sector has become an essential component in building a more equitable and environmentally friendly future. This sector encompasses diverse industries and economic activities that strive to minimise their environmental impact and promote sustainable business practices, ranging from renewable energy to waste management and sustainable agriculture. In this transition towards a greener economy, green entrepreneurship plays a key role.

However, despite its importance, the green business sector faces significant challenges related to the training and skills needed to operate effectively and sustainably. Rapidly evolving technology, changing environmental regulations and the demands of increasingly environmentally conscious consumers require a diverse range of skills and knowledge from green business professionals.

The handbook "D3.1 Bridging VET provision and the green business sector" comprehensively addresses these challenges and proposes concrete solutions.

The handbook highlights the importance of vocational education and training (VET) in preparing workers for the labour market, especially in the context of climate change and ecological transition. It points out that VET must adapt dynamically to the changing needs of the green sector, which covers a wide range of activities, from renewable energy and energy efficiency to waste management and environmental restoration.

The paper underlines the need for dual training, combining education in institutions and training in companies, to improve alignment with specific sectors and skills. It also stresses the importance of adapting and broadening skills, constantly monitoring supply and demand, and boosting re-qualification and employability, especially in emerging sectors such as digital and green.

Furthermore, the handbook highlights the need to offer free and recognised training in digital skills, given the growing weight of digitalisation in all sectors, including green. It also underlines that VET must be aligned in a coherent way with policy guidelines for a just transition towards environmentally sustainable economies and societies.



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The document also provides a comprehensive vision of the green sector, defining it as an economic model that seeks sustainable and equitable development, minimising environmental impact and promoting social justice. This sector offers significant opportunities for investment and job creation, and its growth is critical to the future of our economy and our planet.

In summary, the handbook "D3.1 Bridging VET provision and the green business sector" provides a comprehensive guide for those interested in vocational education and training (VET) and its adaptation to the changing needs of the green sector. It highlights the importance of VET in preparing workers for the labour market and underlines the need for flexible and forward-looking VET to address the challenges and opportunities of green entrepreneurship in building a more sustainable and equitable future in an environmentally conscious world.



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# Context

Summary of the Project: The EU's enlargement agenda for the Western Balkans (WB) region identifies various areas that require attention, with the labour market situation being a major concern. While the region's economic recovery shows promising progress, a critical challenge persists in the form of a significant mismatch between the skills and competencies offered and the demands of businesses. To address this issue, the ADDUPT project was initiated with a specific focus on strengthening the link between Vocational Education and Training (VET) provision in the Western Balkans and the emerging green sector in their labour markets.

The ADDUPT project has set forth several objectives aimed at strengthening the region's VET system and fostering a fruitful relationship with the dynamic green sector. Firstly, it seeks to develop a mechanism for diagnosing business needs in the green sector, thereby ensuring a timely and comprehensive alignment between VET provision and the evolving demands of environmentally conscious industries. The project also aims to provide an in-depth analysis of the green sector in the participating countries, namely Albania, Bosnia and Herzegovina, and Montenegro.

The project also emphasizes support for VET trainers and staff in the Western Balkans, aiming to establish flexible and interactive links between VET and the labour market. By building the capacity of WB-VET institutions to incorporate green labour market needs into their training provisions, the project seeks to enhance the employability potential of WB-VET learners and equip them with the skills required to thrive in the evolving green sector.

To achieve these goals, the ADDUPT project prioritizes the continuous professional development of VET teachers and trainers in the Western Balkans. This emphasis on training and upskilling aims to bolster the quality of the VET sector, ensuring it remains adaptive and responsive to the ever-changing demands of the labour market. While addressing the needs of the emerging green sector, the project also aims to foster a symbiotic relationship between VET institutions and businesses, aligning VET provision to the specific needs of the green sector.

Overall, the ADDUPT project represents a concerted effort to improve the quality of VET education and training in the Western Balkans, while addressing the specific needs of the emerging green sector. By bridging the skills gap and facilitating productive cooperation between VET and the labour market, this project strives to contribute to the sustainable growth and development of the Western Balkan region.



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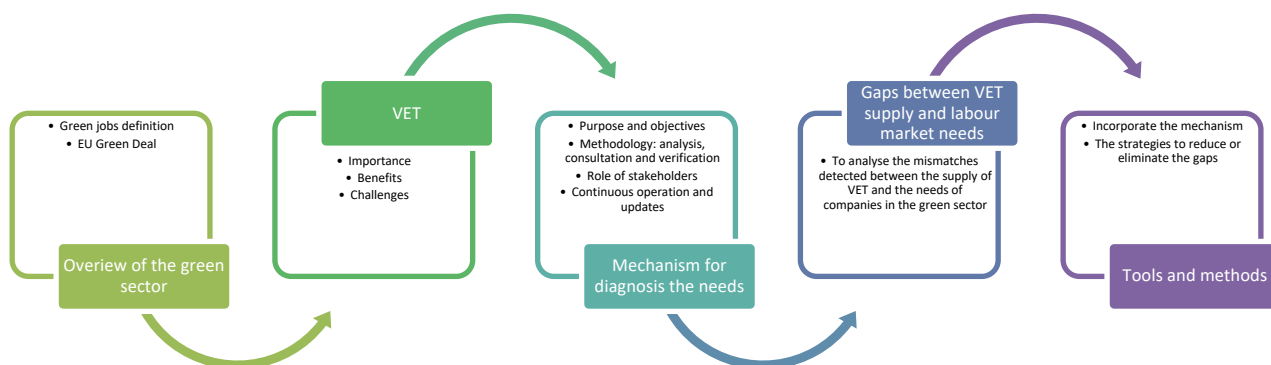
# Introduction

Vocational education and training (VET) play a key role in preparing workers for the labour market. In a context of climate change and ecological transition, it is more important than ever for VET to adapt to the changing needs of the green sector.

The green sector covers a wide range of activities, from renewable energy and energy efficiency to waste management and environmental restoration. This sector is growing rapidly and is expected to generate millions of new jobs in the coming years.

However, there are significant challenges in adapting VET to the changing needs of the green sector. First, VET programmes need to be updated to reflect the latest technological and scientific trends. Secondly, educators must be prepared to provide training in the skills and knowledge needed to work in the green sector. Thirdly, employers must be willing to hire workers with VET training.

*The handbook "Bridging VET Provision and the Green Business Sector"* aims to serve as a comprehensive **guide for VET stakeholders to adapt curricula to the changing needs of the green sector**. This document incorporates data and insights from multiple deliverables to provide a 360-degree perspective on this topic.



The primary audience for this handbook is policy makers, educators and business leaders committed to VET and the development of the green sector. Policy makers can use the handbook to develop VET policies and programmes that respond to the needs of the green sector. Educators can use the handbook to update their VET programmes and ensure that they are preparing workers for green sector opportunities. Business leaders can use the handbook to understand the VET needs of their workers and to invest in training their employees.



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# Chapter 1 Overview of the Green Sector

The green sector, also known as the green economy, refers to economic activities that seek to improve human well-being and social equity while significantly reducing environmental risks and ecological scarcities. In its simplest form, it can be said to be a low-carbon, resource-efficient and socially inclusive economy.

In terms of size, the green sector is growing rapidly around the world, and particularly in Europe. The European Green Deal, an initiative of the European Commission, aims to transform the EU into a modern, resource-efficient, and competitive economy, with the goal of having no net greenhouse gas emissions by 2050. One third of the €1.8 trillion investment of the Next Generation EU recovery plan and the EU's seven-year budget will finance the European Green Deal<sup>1</sup>.

As for the importance of the green sector, it is crucial to address the challenges of climate change and environmental degradation. The European Green Deal is not a luxury, but a lifeline out of the COVID-19 crisis. Moreover, the green sector has the potential to create jobs and generate new business opportunities.

Successful implementation of the European Green Deal faces significant challenges, such as the need for massive investment in sustainable infrastructure and technologies, the coordination of investments at regional and national levels, and the critical question of how to finance this transition to a greener economy. Adapting the workforce to the demands of the green sector is essential but involves costly and complex processes of training and retraining in sustainability-related skills. Moreover, ensuring social equity in this transformation and avoiding the exclusion of vulnerable communities are crucial challenges. Collaboration between governments, businesses, educational institutions, and civil society, supported by effective public policies and fiscal incentives, will be essential to overcome these obstacles. The handbook "Bridging VET Provision and the Green Business Sector" seeks to address these challenges by providing guidance on adapting vocational education and training to the European Green Deal, promoting inclusiveness and sustainability in this transformative process.

In terms of growth prospects, the green sector has great potential. However, economic growth in emerging market and developing economies in the Europe and Central Asia region has been revised upward to 2.4 % by 2023, according to the World Bank's economic update on the region. Despite challenges such as high inflation and volatility in global commodity markets, growth in the green sector is expected to continue in the coming years.

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<sup>1</sup> [The European Green Deal - European Commission \(europa.eu\)](https://european-council.europa.eu/media/en/press-operations/infographic-117336.pdf)



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In short, the green sector is large and growing in importance, and is expected to continue to grow in the future. However, for this growth to be sustainable and beneficial to all, a continued commitment to green policies and investment in sustainable technologies and practices is necessary.

## Green Sector & Green Jobs (Definition)

The **green sector**, also known as the green economy, refers to the practice of sustainable development through the support of public and private investment. This sector focuses on improving human well-being and social equity, while significantly reducing environmental risks and ecological scarcities.

The main characteristics of the green sector include:

- ▷ **Improved social welfare:** it seeks to increase the welfare of all in terms of human, social, physical, and cultural capital, prioritizing access to knowledge, education, environmentally friendly technologies and production processes, and sustainable infrastructures.
- ▷ **Efficient use of natural resources** focuses on preserving the quality of the environment through the efficient use of resources, including the preservation of biodiversity, air quality, soil, water, and the reduction of greenhouse gas emissions.
- ▷ **Reducing the environmental footprint and poverty:** the green economy seeks to reduce the environmental footprint and poverty, caring for natural resources and promoting social equity.
- ▷ **Inclusion of the circular economy and other sustainable practices:** the green economy encompasses the circular economy, responsible purchasing, green infrastructure, sustainable agriculture, carbon recycling, sustainable business culture, renewable energy, and the collaborative economy.
- ▷ **Green job creation:** the transition to the green economy offers significant opportunities for investment and job creation in new and sustainable economic sectors.

In a nutshell, the green sector is an economic model that seeks sustainable and equitable development, minimizing environmental impact and promoting social justice. This sector offers important opportunities for investment and job creation, and its growth is fundamental for the future of our economy and our planet.



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## Green Jobs definition

A **green job** refers to employment opportunities that contribute directly or indirectly to reducing the environmental impact of companies and the economy in general to sustainable levels. These jobs aim to maintain or restore the quality of the environment, whether in traditional sectors such as manufacturing and construction, or in emerging sectors such as renewable energy and energy efficiency. These job opportunities are associated with industries and activities that seek to reduce negative environmental impacts and promote sustainable practices. Green jobs have the following characteristics:

- ▷ **They contribute to Environmental Conservation:** This includes jobs that help protect ecosystems and biodiversity, reduce energy and material consumption, decontaminate, and minimise waste generation and greenhouse gas emissions.
- ▷ **They are Sustainable:** Green jobs seek a balance between economic benefits and environmental protection. This means that they are not only good for the planet but are also viable in the long term from an economic perspective.
- ▷ **They involve Decent Jobs:** Green jobs must offer fair working conditions, including adequate wages, workplace safety and labour rights. They must also provide opportunities for training and professional development.
- ▷ **Include Diverse Sectors:** Green jobs are found in multiple sectors, from sustainable agriculture and forest management to renewable energy, energy efficiency, waste management and sustainable transport.
- ▷ **They Require New Skills:** Green jobs often require specific skills related to sustainable practices and environmental technologies. This may include specialised technical knowledge as well as an understanding of sustainability principles.

In short, green jobs are key to moving towards a more sustainable economy and are essential to address the challenges of climate change and environmental degradation. These jobs not only have a positive impact on the environment, but also offer opportunities for economic growth and social development.

**Employment opportunities in the green sector** are diverse and expanding due to the growing awareness of sustainability and the need to move towards a greener economy. Some of the most prominent opportunities include:

- ▷ **Waste management and recycling:** this sector includes jobs related to waste collection, treatment, and recycling, as well as management of recycling plants and innovation in circular economy processes.



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- ▷ **Renewable energies:** There is a growing demand for professionals in the manufacture, installation, management, and maintenance of renewable energy installations, such as solar, wind, hydroelectric, among others.
- ▷ **Energy efficiency:** This field includes the energy rehabilitation of buildings and the design of more efficient systems and processes to reduce energy consumption.
- ▷ **Sustainable mobility:** Jobs related to the development and maintenance of electric vehicles, efficient transport systems and alternative fuels.
- ▷ **Water management:** Professionals specialised in wastewater treatment and purification, as well as in the sustainable management of water resources.
- ▷ **Organic agriculture and livestock:** Jobs in the production, distribution, and marketing of organic agricultural and livestock products.
- ▷ **Environmental education and communication:** Professionals dedicated to raising awareness and training in environmental issues, as well as in green marketing and communication.
- ▷ **Environmental consultancy and services:** Experts in advising companies and governments on how to improve their environmental impact and comply with current legislation.
- ▷ **Research and development:** Scientists and technicians working on the innovation of sustainable products and services.
- ▷ **Sustainable tourism:** Professionals who develop and manage tourism activities that respect the environment and promote local culture.

The **transition to a green economy**<sup>2</sup> is expected to generate millions of new jobs in Europe and the Western Balkans. According to the International Labour Organisation (ILO), some 24 million jobs will be created worldwide in the green economy sector by 2030. Of these, about 15 million will be created in Europe, and about 5 million in the Western Balkans<sup>3</sup>.

The green economy sector covers a wide range of activities, from renewable energy and energy efficiency to waste management and environmental restoration. In Europe and the Western Balkans, the sectors expected to experience the strongest growth are:

- ▷ **Renewable energy:** renewable energy production is expected to increase by 50% in Europe by 2030. This will create job opportunities in the installation and maintenance of

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<sup>2</sup> ILO Frequently Asked Questions on just transition [https://www.ilo.org/global/topics/green-jobs/WCMS\\_824102/lang-en/index.htm](https://www.ilo.org/global/topics/green-jobs/WCMS_824102/lang-en/index.htm).

<sup>3</sup> Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. An Economic and Investment Plan for the Western Balkans <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?from=N&uri=CELEX%3A52020DC0641>



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renewable energy installations, as well as in research and development of new technologies.

- ▷ **Energy efficiency:** Demand for energy efficiency is expected to increase by 25% in Europe by 2030. This will create job opportunities in the construction and renovation of energy-efficient buildings, as well as in the provision of consultancy and auditing services.
- ▷ **Waste management:** Waste generation is expected to decrease by 10% in Europe by 2030. This will create job opportunities in waste collection, treatment and reuse.
- ▷ **Environmental restoration:** around €100 billion is expected to be invested in environmental restoration in Europe by 2030. This will create job opportunities in reforestation, cleaning up rivers and seas, and protecting biodiversity.

The transition to a green economy will also create job opportunities in related sectors such as construction, engineering, technology and services. For example, more skilled workers will be needed to install and maintain green infrastructure such as wind farms and solar panels.

However, there are also some challenges that need to be addressed to ensure that the transition to a green economy generates quality jobs. Firstly, it is important that **workers have the necessary skills and knowledge** to work in this sector. Secondly, it is important that companies are willing to **invest in the training of their workers**. Thirdly, it is important that **public policies support the development of the green sector**.

In Europe and the Western Balkans, measures are being taken to address these challenges. For example, the European Commission has launched the Circular Economy Action Plan, which aims to create 1 million new jobs in the circular economy by 2030.

In conclusion, the transition to a green economy is expected to generate millions of new jobs in Europe and the Western Balkans. However, it is important to address the challenges that exist to ensure that these jobs are of high quality.

## Policy Initiatives: EU Green Deal

The **European Green Deal (EGD)** is an initiative that seeks to invest in environmentally friendly technologies, support industry to innovate, deploy cleaner and cheaper public and private transport systems, decarbonize the energy sector, and ensure that buildings are more energy efficient.

The EGD is a set of policy initiatives proposed by the European Commission with the main objective of making the European Union (EU) climate neutral by 2050. To achieve this goal, the Commission is working on a plan to increase the EU's greenhouse gas emissions reduction by 2030 to at least 50% and towards 55% compared to 1990 levels. The Green Deal addresses various areas such as **clean energy, circular economy, building renovation, biodiversity, agriculture and innovation**.



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This Deal is seen as a roadmap for transforming the EU economy into a sustainable economy, improving the health and quality of life of citizens and contributing to the protection of the environment. In addition, this deal seeks to ensure a just and inclusive transition for all, providing tools and resources to fulfil the commitments made in the Paris Agreement.

Furthermore, it is of great importance to address the challenges of climate change and environmental degradation. It also has great potential to boost economic growth and job creation in sustainable sectors. The implementation of the European Green Deal is an important step towards transforming the EU economy into a green and sustainable economy.

The EU Green Deal primarily focuses on the European Union (EU) member states. However, the EU has expressed its intention to engage with neighbouring regions and countries, **including the Western Balkans**, to address common environmental challenges and promote sustainable development.

The European Green Deal focuses on several key aspects:

- ▷ **Clean energy:** The aim is to decarbonise the energy system, as currently around 75% of greenhouse gas emissions are produced by energy.
- ▷ **Sustainable industry:** This sector produces 25% of the EU's emissions. Its transformation is slow, so it is one of the measures that should be worked on as a priority.
- ▷ **Investment and financing:** The European Commission presented in 2020 the European Green Deal Investment Plan, which aims to encourage investment to comply with the Green Deal. Three dimensions are established within the Investment Plan: financing, with an investment of one trillion euros; and capacity building, provided by the European Union.

The successful implementation of the European Green Pact is not without its significant challenges, and this also holds true for the Western Balkan countries, where the **"Green Agenda for the Western Balkans"** has been agreed upon.

This agenda closely mirrors the objectives of the European Green Pact, addressing critical issues such as decarbonisation, circular economy, (de)pollution, sustainable food systems, and biodiversity conservation. Notably, the Western Balkan countries have demonstrated substantial progress over the years and are, in general, on par with EEA member countries. Some of them have even met up to 100% of the requirements in terms of timeliness and data quality, showcasing their commitment to aligning with sustainable and green practices in line with European standards.

Nevertheless, they too face challenges in financing and coordinating the transition to a greener economy while ensuring social equity and inclusion, making collaboration with governments, businesses, educational institutions, and civil society imperative. The manual "Bridging VET Provision and the Green Business Sector" aims to play a crucial role in aiding these countries in



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adapting their education and vocational training systems to meet the demands of the Green Agenda for the Western Balkans, contributing to both sustainability and social progress in the region.

## ADDUPT specific: the main outcomes from D2.2 Green Sector Analysis Trends and Changing Needs

The document "D2.2. Analysis of the Green Sector. Trends and needs" are a comprehensive analysis carried out in the framework of the ADDUPT Project, which aims to address the challenges facing the vocational education and training (VET) sector in Albania, Bosnia and Herzegovina and Montenegro. The report focuses on current trends and the changing labour market needs in the green sector in these countries.

First, **the survey results** indicate that there is a **varying degree of research activities among the VET centres in the three countries**. Albania shows a moderate level of research, while Bosnia and Herzegovina has a lower level of engagement, with a majority of respondents not conducting research. Montenegro also lags behind in research efforts, with only a minority of respondents engaged in research activities.

To improve the alignment of VET curricula with the needs and trends of the green sector, it is essential that all three countries increase their research efforts. By conducting regular and comprehensive research, VET schools can stay abreast of the demands of the green sector and ensure that their curricula are able to prepare students for an evolving labour market.

The report also highlights the importance of measuring the success of VET programs in terms of employability in the green sector. However, no specific details are provided on the conclusions drawn from the survey responses in this regard.

In summary, the report suggests that **greater commitment to research and adaptation of VET curricula is needed** to meet the needs of the green sector in Albania, Bosnia and Herzegovina and Montenegro.

Second, **the level of research in vocational education and training (VET) institutions** in Albania, Bosnia and Herzegovina and Montenegro is growing, especially in the green sector. All three countries are experiencing remarkable growth in this sector, focusing on renewable energy, energy efficiency and waste management. However, there are challenges such as wage expectations, lack of training programs, brain drain and low awareness of green jobs.

To address these challenges, work is underway to improve VET centres, cooperatively design curricula with the needs of the green sector in mind and provide professional development and



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internship opportunities. These factors are key to bridging the skills gap and promoting sustainable growth.

In addition, efforts are being made to adapt education and training to the needs of the labour market and to collaborate effectively with businesses. In this way, Albania, Bosnia and Herzegovina and Montenegro can create many opportunities to generate green jobs, economic growth and environmental sustainability.

In conclusion, the comprehensive research underlines the need for a holistic approach to address challenges and foster opportunities in the green sector and VET centres in the Western Balkans.

Third, **the main challenges faced by vocational education and training (VET) institutions** in Albania, Bosnia and Herzegovina and Montenegro are related to matching their programs to the needs of the green sector and preparing students for the labour market in this field.

Prioritising the challenges of the green sector in the Western Balkans regions is essential to achieve sustainable growth and strengthen the workforce in this key area. The survey results in Albania, Bosnia and Herzegovina, and Montenegro provide valuable insight into the challenges identified and their relative importance. The prioritised challenges in each country identified in D2.2 are summarised below:

### **Albania**

- Lack of training and education programmes.
- Brain drain.
- Low awareness of green jobs.
- Limited number of qualified candidates.
- Salary expectations.

### **Bosnia and Herzegovina**

- Brain drain.
- Limited number of qualified candidates.
- Lack of training and education programmes.
- Salary expectations.

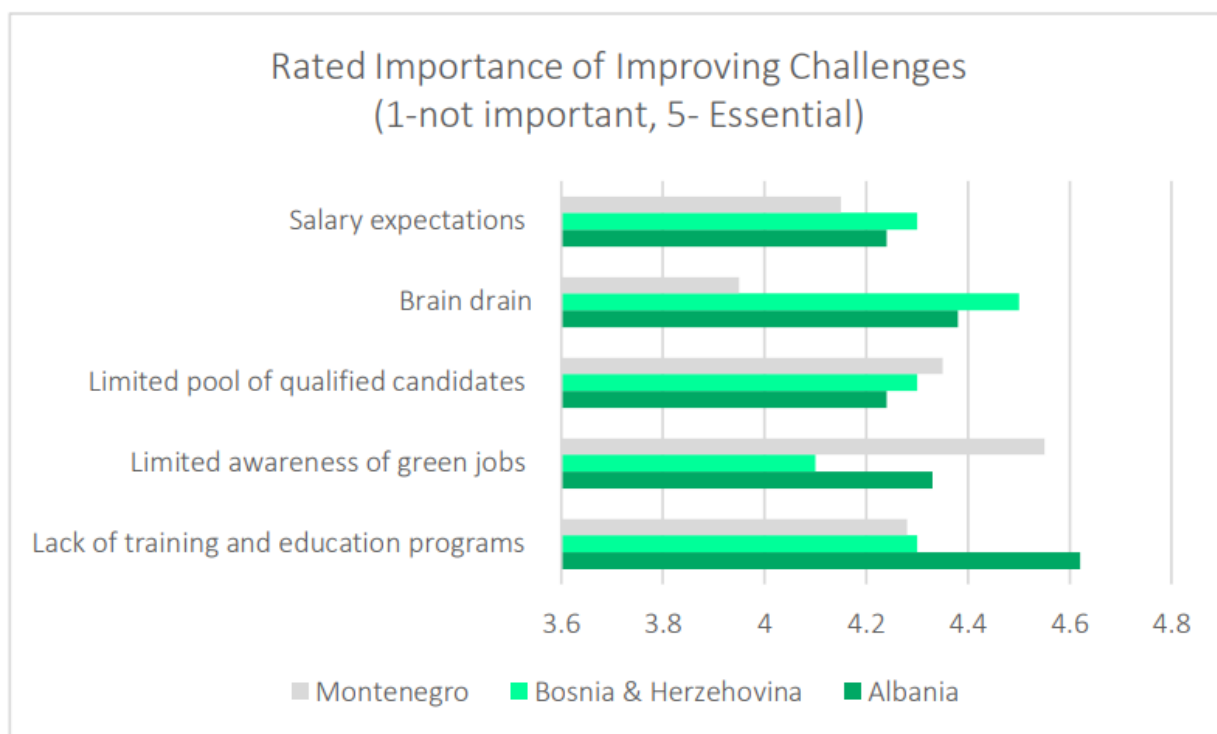
### **Montenegro**

- Green jobs.
- Education and training programmes.
- Availability of qualified candidates.
- Salary expectations.
- Brain drain.



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It is encouraging to see that all three countries recognise the importance of addressing a range of challenges in the green sector. The lack of training and education programmes is a common concern, indicating the need to invest in training and education in this field to prepare the workforce for green jobs.

Brain drains and the limited number of qualified candidates are also shared concerns, highlighting the importance of retaining local talent and attracting more skilled professionals to the green sector.

Awareness of green jobs and salary expectations are also areas that need attention, as the promotion of jobs in the green sector and the proper management of salary expectations are key to sustainable growth.

Overall, these results emphasise the need to comprehensively address these challenges to strengthen the green sector in the region and promote sustainable economic development. Collaboration between government, business and educational institutions is essential to effectively address these challenges and ensure a greener and more sustainable future in the Western Balkans.

Fourth and finally, it must be underlined how vocational training (VET) centres in Albania, Bosnia and Herzegovina and Montenegro are **adapting to changes in the labour market**, especially in the green sector, through various strategies and approaches.



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In Albania, the government has recognized the need to improve VET institutions to foster the growth of the renewable energy sector. Steps are being taken to address skills mismatches and train a skilled workforce for the green sector. These steps include private sector engagement, cooperation with VET institutions, and the development of renewable energy training programs.

In Bosnia and Herzegovina, despite the fact that the green sector is experiencing significant growth and demand, challenges related to job creation and the labour market persist. VET schools play a crucial role in preparing students for the green sector, but improvements are needed to better tailor curricula to the needs of the sector. Some of the proposed strategies include increasing collaboration between VET institutes and employers, implementing work-based learning programs, and increasing curriculum flexibility.

The report does not provide specific details on Montenegro, but it is likely that VET centres in this country are also adopting similar approaches to adapt to changes in the labour market, given the regional trend towards sustainability and the growth of the green sector.

Overall, these countries are working to close the skills gap and facilitate productive cooperation between VET and the labour market, with a particular focus on the green sector. This includes the development of mechanisms to diagnose business needs in the green sector, thus ensuring a timely and comprehensive alignment between VET supply and the changing demands of environmentally conscious industries.



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# Chapter 2 Vocational Education and Training (VET)

Vocational education and training (VET) is a type of education that prepares students for specific jobs in various fields or sectors. It focuses on providing practical skills and technical knowledge related to a specific area of work. VET can be an alternative to traditional university education and can offer a more direct route to a professional career.

VET can be delivered in vocational colleges, through workplace apprenticeship programs, or in some cases, in secondary schools. VET programs can vary in length from short courses to two-year programs. Upon completion of a VET program, students usually receive a certificate or diploma that demonstrates their competence in a specific field or job.

VET is essential to prepare workers for a variety of technical and practical careers. Some examples of fields that may require VET include health, information technology, mechanics, gastronomy, aesthetics, the green sector, renewable energy, among others.

In addition, VET is an important tool for keeping workers up to date with the latest trends and technologies in their fields. For example, in the green sector, VET can help prepare workers for careers in renewable energy, waste management, sustainable agriculture and green finance. However, it is important that VET programs are aligned with the needs of the sector for which they are preparing students. This may require adjustments to the curriculum and greater collaboration with companies in the sector.

In conclusion, VET is a form of education that provides students with the technical skills and knowledge needed for a career in a specific field. It is an essential tool for preparing workers for a variety of careers and for keeping workers up to date with the latest trends and technologies in their fields.

## Importance of VET

Vocational education and training (VET) is an educational system aimed at acquiring specific competencies and skills to perform a profession. VET combines theoretical and practical education, allowing students to apply what they have learned in real work situations. This type of training is essential for the development of countries because it:



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- ▷ **Responds to the Needs of the Labour Market:** VET is designed according to the demands of the labour market, which facilitates the labour market insertion of students and contributes to reducing the unemployment rate.
- ▷ **Promotes Innovation and Competitiveness:** By providing a skilled and specialized workforce, VET boosts innovation and improves the competitiveness of companies and the economy in general.
- ▷ **Promotes Sustainable Development:** VET can focus on strategic sectors for sustainable development, such as renewable energy, energy efficiency and waste management, preparing professionals capable of meeting today's environmental challenges.
- ▷ **Facilitates Labour Mobility:** VET offers recognized certifications and degrees that can facilitate labour mobility both within a country and internationally.
- ▷ **Enables Professional Updating:** VET is not only aimed at young people in initial training, but also at active workers who need to update their skills due to technological or market changes.
- ▷ **Contributes to Social Cohesion and workforce resilience:** By offering training opportunities to different social groups, including those with fewer resources, VET not only contributes to social cohesion and equal opportunities, but also equips people to navigate economic fluctuations, technological advances and industry changes. In this way, VET fosters a resilient workforce that is able to adapt and thrive in a constantly changing word environment.

In short, Vocational Education and Training is a fundamental pillar for the economic and social development of countries, as it prepares individuals for the labour market, fosters innovation and competitiveness, and supports sustainable development and social cohesion.

## Benefits of VET

Vocational Education and Training has several noteworthy aspects that make it a valuable and relevant educational option in today's world. Here are some of the most important aspects:

- ▷ **Practical, job-oriented approach:** Vocational training focuses on providing practical skills and knowledge that are directly applicable in the world of work. This includes training in specific technical skills, as well as the opportunity to gain practical experience in a real working environment.



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- **Dual Vocational Education and Training (Dual VET) in Germany**<sup>4</sup> is widely recognised as a successful model for combating youth unemployment and providing students with practical skills and solid job opportunities. Here is an overview of how this system works and some resources that can provide you with more detailed information:
  - Combines education and work: Dual VET combines classroom training with practical learning in the workplace. Students spend half of their time in school and the other half working in a company.
  - Partnerships with companies: Companies work closely with schools and students to provide on-the-job training. This ensures that students acquire industry-relevant skills.
  - Wages for apprentices: Apprentices in the Dual VET system receive a salary, which motivates them and allows them to support themselves financially while studying.
  - Certifications: At the end of their training, students obtain an industry-recognised certification, which improves their employment prospects.
  - Diversity of industries: This system is applied in a wide range of industries, from engineering to healthcare, providing attractive options for students.
- ▷ **Flexibility**: The vocational training offer is more flexible and is classified into 5 levels, allowing students to tailor their education to their specific needs and interests.
  - **In the United Kingdom (UK), the flexible learning system** provides students with the opportunity to customize their higher education experience by selecting specific modules that align with their interests and needs<sup>5</sup>. This approach to higher education offers several advantages:
    - Tailored Learning: The flexibility of the system enables students to tailor their education to their individual preferences. They can choose modules that match their career goals or personal interests, creating a more personalized learning journey.

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<sup>4</sup> The German Dual Vocational Education and Training System: The German Federal Institute for Vocational Education and Training (BIBB) provides detailed information in English on the Dual VET system in Germany: <https://www.bibb.de/>  
 How Does the German Vocational Training System Work: This German Government resource provides an overview of Dual VET in Germany (<https://www.make-it-in-germany.com/en/study-training/training-in-germany/vocational/dual-system>)

Dual Vocational Education and Training in Germany: The Goethe Institute provides an article exploring Dual VET in Germany and its success in reducing youth unemployment (<https://www.goethe.de/ins/de/en/kur.html>).

The Dual Apprenticeship System in Germany: The German Chamber of Commerce (DIHK) provides information on Dual VET and its impact on the German economy (<https://www.dihk.de/en>).

<sup>5</sup> <https://study-uk.britishcouncil.org/plan-studies/choosing-course/modules-courses>

<https://www.advance-he.ac.uk/teaching-and-learning/flexible-learning>

<https://oro.open.ac.uk/74915/1/2021%20Open-by-Degrees- -Personalization-at-Degree-and-Module-Level.pdf>



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- Diverse Course Offerings: Universities and Colleges in the UK often offer a wide range of modules across various disciplines. This diversity allows students to explore subjects beyond their core program and gain a more comprehensive education.
  - Adaptability: The flexible learning system allows students to adapt to changing circumstances. They can adjust their course load, take breaks when necessary, or explore interdisciplinary studies, accommodating their unique academic journey.
  - Skill Enhancement: Students can focus on acquiring specific skills or knowledge areas that are in high demand in their chosen field. This can enhance their employability and make them more competitive in the job market.
  - Reduced Financial Burden: By selecting only the modules they need, students can potentially reduce the overall cost of their education. This can be particularly advantageous for those who want to minimize student loan debt.
  - Life-Work Balance: Flexible learning recognizes the importance of balancing education with other commitments, such as work or family. It allows students to manage their time more effectively.
  - Continuous Learning: Lifelong learning is encouraged through this system. Graduates can return to higher education to acquire new skills or update their knowledge throughout their careers.
- ▷ **Development of competencies**: Vocational training is based on a competency-based education approach, which focuses on the development of specific skills and abilities that are relevant to performance in a particular professional field. This includes training in attitudes and values such as decision-making and professional ethics.
- **Technical schools in Sweden<sup>6</sup> in Sweden** have been at the forefront of offering comprehensive training programs in renewable energy. These programs are designed to equip students with both technical competencies and leadership skills, preparing them for successful careers in the ever-expanding renewable energy sector. Here's an overview of how these programs typically work:

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<sup>6</sup> Studyportals <https://www.shortcoursesportal.com/study-options/268861534/energy-engineering-sweden.html>  
 Hot Courses Abroad <https://www.hotcoursesabroad.com/study/training-degrees/sweden/postgraduate/renewable-energy-resources-courses/loc/189/slevel/3/cgory/qb.9-4/sin/ct/programs.html>  
 Study at KTH <https://www.kth.se/en/studies/master/renewable-energy/msc-renewable-energy-eit-innoenergy-1.509702>



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- Technical Skills: Hands-on training in areas like solar, wind, hydropower, and biomass energy, enabling students to design and maintain renewable energy systems.
  - Theoretical Knowledge: A solid understanding of renewable energy science, energy conversion, and sustainability principles.
  - Sustainability Focus: Emphasis on environmental considerations and assessing the eco-friendliness of energy systems.
  - Leadership Training: Preparation for managerial roles in the renewable energy industry through leadership, project management, and entrepreneurship coursework.
  - Industry-Recognized Certifications: Collaboration with industry partners to offer certifications that enhance job prospects.
  - Practical Experience: Internships and real-world applications to prepare students for the workforce and build industry connections.
  - Research and Innovation: Involvement in research projects, fostering innovation within the programs.
  - Global Perspective: Exposure to international renewable energy developments and practices.
- ▷ **Continuing education**: Professional education recognizes the importance of continuing education and professional development. This means that training is not a one-time event, but a continuous process that adapts and evolves with changes in technology and labour market demands.
- Organizations such as **Coursera**<sup>7</sup> and **edX**<sup>8</sup> offer a wide range of online courses in sustainability and green technology, serving as valuable resources for skill development in these crucial areas. Key highlights include:
    - Diverse Course Selection: They provide a comprehensive array of courses covering sustainability, green technology, renewable energy, and related subjects.
    - Flexibility: Learners can access materials at their own pace, accommodating professionals and students.
    - Certifications and Degrees<sup>9</sup>: Both platforms offer certificates and, in some cases, full degrees from reputable universities, enhancing career prospects.

<sup>7</sup> <https://www.coursera.org/courses?query=sustainability>

<sup>8</sup> <https://www.edx.org/learn/sustainable-energy/massachusetts-institute-of-technology-sustainable-energy>

<sup>9</sup> <https://www.edx.org/certificates/professional-certificate>



- High-Quality Content: Courses are often developed in collaboration with top institutions, ensuring up-to-date and credible content.
  - Interactive Learning: Many courses include quizzes, assignments, and forums for engaging and immersive learning experiences.
  - Global Learning Community: Students worldwide participate, facilitating networking and cross-cultural interactions.
  - Cost-Effective Options: While some courses are free, paid options for certificates or degrees make quality education accessible.
  - Specialized Tracks: Specializations allow learners to delve deeper into specific areas of sustainability and green tech.
  - Practical Skills: Emphasis on practical, real-world skills applicable to sustainability challenges and green solutions.
  - Regular Updates: Content is kept current with the latest developments and trends in these fields.
  - Supportive Environment: Learners receive guidance from instructors and peers, fostering collaborative learning.
- ▷ **Technology integration**: Vocational training also focuses on the integration of technology into teaching and learning. This includes training in the use of Information and Communication Technologies (ICT) and the incorporation of these tools into professional practice.
- In **Singapore**, the construction industry places a strong emphasis on training programs that integrate sustainable building technologies. These programs aim to equip professionals and workers with the knowledge and skills necessary for implementing eco-friendly practices. Key aspects of these training programs include:
    - Focus on Sustainable Technologies<sup>10</sup>: Training programs prioritize sustainable building technologies, covering environmentally friendly materials, energy-efficient systems, and sustainable construction methods. Participants stay updated on the latest advancements in green building.
    - Eco-Friendly Materials<sup>11</sup>: Training includes the selection and use of eco-friendly construction materials, emphasizing the benefits of reduced environmental impact and improved energy efficiency.

<sup>10</sup> <https://billionbricks.org/updates/singapores-skyline-a-testament-to-sustainable-architecture>  
<https://www.singaporetech.edu.sg/undergraduate-programmes/sustainable-built-environment>

<sup>11</sup> [https://www1.bca.gov.sg/docs/default-source/docs-corp-news-and-publications/publications/for-industry/sustainable-construction/sc\\_materials\\_book.pdf](https://www1.bca.gov.sg/docs/default-source/docs-corp-news-and-publications/publications/for-industry/sustainable-construction/sc_materials_book.pdf)



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- Energy Efficiency: Participants learn to design and construct energy-efficient buildings, incorporating renewable energy sources like solar panels.
  - Waste Reduction<sup>12</sup>: Strategies for minimizing construction waste and promoting recycling are integral to the training, promoting sustainability on construction sites.
  - Certifications<sup>13</sup>: Many programs prepare participants for industry-recognized certifications such as LEED or BCA Green Mark, demonstrating a commitment to sustainability.
  - Innovation and Research: Innovation is encouraged through research and development elements within the training programs, offering opportunities to explore new sustainable technologies.
  - Regulatory Compliance<sup>14</sup>: Participants are well-versed in local and international sustainability regulations and building codes to ensure compliance.
  - Hands-On Experience: Some programs include practical experience or site visits to sustainable construction projects, providing real-world exposure and practical knowledge.
  - Continuing Education: These programs offer opportunities for ongoing education to keep professionals up-to-date with evolving sustainable construction practices.
- ▷ **Comprehensive training**: Professional training seeks a comprehensive training of the student, not only in terms of technical knowledge, but also in terms of personal development and ethical values. This implies a focus on the development of the student's personality and his or her capacity to contribute to society through his or her profession.
- **Business schools** around the world are integrating business ethics and sustainability courses into their MBA programs to foster a more comprehensive training of future business leaders. Here are a few examples of how this integration is taking place:
    - INSEAD (France/Singapore): INSEAD's MBA program includes a course called "Business Ethics and Social Responsibility," which delves into ethical decision-making, corporate social responsibility, and sustainability.

<sup>12</sup> <https://cdlsustainability.com/cdl-six-capitals/natural-capital/waste-management/>  
[https://www.lta.gov.sg/content/dam/ltagov/industry\\_innovations/industry\\_matters/safety\\_health\\_environment/pdf/Construction\\_Waste\\_Guidebook.pdf](https://www.lta.gov.sg/content/dam/ltagov/industry_innovations/industry_matters/safety_health_environment/pdf/Construction_Waste_Guidebook.pdf)

<sup>13</sup> <https://www1.bca.gov.sg/buildsg/sustainability/green-mark-certification-scheme>

<sup>14</sup> <https://www1.bca.gov.sg/buildsg/productivity/training-and-development>



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- London Business School (UK): London Business School integrates sustainability topics into its curriculum through electives like "Sustainable Value Chains" and "Social Innovation."
- IESE Business School (Spain): IESE offers the "Business and Society" course, which examines how businesses can contribute positively to society while maintaining profitability.
- Rotterdam School of Management, Erasmus University (Netherlands): They have a strong focus on sustainability, offering courses such as "Sustainable Finance and Investing" and "Sustainable Business Strategies."
- Ivey Business School (Canada): Ivey's MBA program includes "Sustainable Strategy," a course that explores sustainability challenges and opportunities for businesses.
- Asian Institute of Management (Philippines): They offer a "Business Ethics and Corporate Social Responsibility" course that emphasizes responsible leadership in the context of Asian business environments.
- Copenhagen Business School (Denmark): CBS integrates sustainability into its MBA through courses like "Sustainable Business Models" and "Sustainability Marketing."
- In the Western Balkans<sup>15</sup>, academic institutions offer MBA programs and may incorporate courses on business ethics and sustainability. While the region may not be as well known for its business schools as some others, there has been recent growth in business education. Examples of institutions in this region potentially offering MBA programs with a focus on business ethics and sustainability include:
  - *University of Belgrade - Faculty of Economics (Serbia)*
  - *University of Ljubljana - Faculty of Economics (Slovenia)*
  - *University of Zagreb - Faculty of Economics and Business (Croatia)*
  - *American University in Bulgaria (Bulgaria)*
  - *International University of Sarajevo (Bosnia and Herzegovina)*

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<sup>15</sup> It is important to note that the availability of specific courses may vary by institution and programme in each Western Balkan country. I recommend visiting the websites of these institutions or contacting them directly for up-to-date information on their MBA programmes and the inclusion of courses related to business ethics and sustainability. In addition, there may be other institutions in the region that also offer programmes relevant to your interests.



- ▷ **Industry Relevance:** VET programs are often designed in collaboration with industry stakeholders, ensuring that the curriculum remains relevant to the current needs of the Green Sector.
  - The **Norwegian University of Applied Sciences** is collaborating with the offshore industry to offer training programmes in offshore wind energy, designed specifically for the needs of this growing industry. Key aspects of this partnership include an industry-driven curriculum, practical training, interdisciplinary approach, research and innovation, global relevance, and a sustainability focus. This collaboration addresses the growing demand for skilled professionals in the expanding offshore wind sector while promoting responsible and sustainable energy production.
  - The **Norwegian University of Science and Technology (NTNU)** offers a PhD project focusing on innovative powertrain design for large floating wind turbines. This project aims to develop tools and methods to design a compact, optimised and lightweight powertrain for floating wind turbines. This type of advanced training is crucial for the successful development and implementation of offshore wind energy technologies.
- ▷ **Employability:** By fostering job-ready individuals, VET contributes to reducing the unemployment rate and meeting the labour demand in the Green Sector.
  - In **Canada**, Technical training programmes in the mining and natural resources industry have high employment rates due to the demand for specific skills in that sector. According to data provided by Statistics Canada, direct employment in Canada's minerals sector increased by 4% (+15,000 jobs)<sup>16</sup>.
- ▷ **Interdisciplinarity:** VET promotes an interdisciplinary and multidisciplinary approach to teaching, which allows students to have a broader and more complete vision of their field of study.
  - In **Spain**, there are several vocational training options that focus on the green sector and take a multidisciplinary approach. These programmes combine technical knowledge with legal, management and sustainability aspects, preparing students for a variety of roles in the green economy.
    - Training in Sustainability and Environment: This type of training focuses on professions related to environmental management and monitoring, water treatment and purification, waste management and treatment,

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<sup>16</sup> Government of Canada <https://natural-resources.canada.ca/science-data/science-research/earth-sciences/earth-sciences-resources/earth-sciences-federal-programs/minerals-sector-employment/16739>



renewable energy, forest management and environmental business services<sup>17</sup>.

- Training in Circular Economy and Sustainable Development: This type of training focuses on scientific-technical and economic-legal aspects, which are essential for the implementation of the principles of circular economy in companies and institutions<sup>18</sup>.
- Training in Management of Smart and Sustainable Cities: The Autonomous University of Barcelona offers a degree in this field that combines knowledge of engineering and information and communication technologies with aspects of planning and management of urban environments<sup>19</sup>.
- Training in Urban and Peri-urban Green Infrastructure: This programme of studies focuses on the management, conservation and maintenance of green heritage, and is aimed at professionals and graduates who wish to improve their training in this area<sup>20</sup>.
- Training in Circular Economy and Sustainable Development: This type of training focuses on scientific-technical and economic-legal aspects, essential for the implementation of the principles of circular economy in companies and institutions.

In short, vocational training offers a practical, work-oriented education that adapts to the changing needs of the labour market and promotes the integral development of the student.

## Benefits of VET for society

Vocational Education and Training (VET) brings numerous benefits to society, both individually and collectively. Here are some of the most important ones:

- ▷ **It promotes equal opportunities**: VET is essential to foster an egalitarian society. The more people are prepared academically, the more equitable the labour market they can access.

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<sup>17</sup> <https://www.infoempleo.com/guias-informes/empleo-sostenible/mercado-laboral/empleo-verde-espana.html>

<sup>18</sup> <https://emprendedores.es/formacion/las-pedagogias-verdes-imprescindibles-en-el-mundo-de-la-empresa/>

<sup>19</sup> <https://elpais.com/educacion/2023-05-16/se-buscan-titulados-en-energias-verdes-y-sostenibilidad-en-una-decada-se-crearan-400000-empleos-y-no-hay-gente-formada.html>

<sup>20</sup> <https://ecoacsa.com/en/master-hgesgi/>



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- ▷ **High labour market insertion rate:** Vocational training has a high labour market insertion rate.
  - In Spain, in 2019 (most current data):
    - Employment rate of people studying intermediate vocational training: 64%
    - Employment rate of people studying higher vocational training: 71.8%
    - Overall average employment rate: 50.4%.
  - According to Eurostat data, the employment rate of recent graduates from middle vocational education in the European Union was 79.7% in 2022<sup>21</sup>.
- ▷ **Development of personal and social skills:** In addition to technical knowledge, vocational training fosters the development of personal and social skills, such as the ability to work in a team, resilience, communication, initiative and leadership.
- ▷ **Promotion of social inclusion:** VET is mainly recognized as a valuable instrument to promote social inclusion, integrating or reintegrating socially excluded groups or those at risk of exclusion.
- ▷ **Increased productivity and innovation in companies:** The training offered by a company increases worker satisfaction and increases productivity.
- ▷ **Contribution to economic growth:** VET improves people's job prospects and, therefore, contributes to the reduction of unemployment rates and economic growth.
- ▷ **Personal benefits:** VET can contribute to longer-lasting, healthier and more fulfilling careers and personal satisfaction. It has been shown that the salaries of those who opt for vocational training are identical to those earned by those qualified in general education.
- ▷ **Promoting innovation and competitiveness:** Lifelong learning leads to greater innovation, improves the competitiveness of companies and favours economic recovery.

VET is an essential tool for the development of society, as it promotes equal opportunities, social inclusion, economic growth and innovation, while offering personal and employment benefits to those who pursue it.

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<sup>21</sup>[https://ec.europa.eu/eurostat/statistics-explained/index.php?oldid=568227&title=Employment\\_rates\\_of\\_recent\\_graduates](https://ec.europa.eu/eurostat/statistics-explained/index.php?oldid=568227&title=Employment_rates_of_recent_graduates)



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## Benefits of VET for industry

Vocational Education and Training (VET) brings numerous benefits to industry<sup>22</sup>, as it provides companies with highly skilled and specialized workers in different areas. Some of the most outstanding benefits of VET for industry include:

- ▷ **Adaptation to the latest market trends:** VET allows companies to adapt to the latest market trends, incorporating new technologies and management and organizational systems.
- ▷ **Increased competitiveness:** Training employees in technical and job-specific skills improves the competitiveness of companies by increasing the efficiency and quality of products and services.
- ▷ **Fostering innovation:** VET contributes to the development of skills and competencies that drive innovation in companies, which in turn can improve profitability and growth.
- ▷ **Improving productivity:** Training employees in technical and job-specific skills increases productivity by improving the efficiency of workers in their jobs and production processes.
- ▷ **Talent retention:** Employee training and development can help retain talent in the company, as workers who receive corporate training enjoy greater opportunities for career growth and job satisfaction.
- ▷ **Reduced workplace accidents:** Occupational health and safety training can reduce the number of workplace accidents, which in turn reduces the costs associated with these incidents.
- ▷ **Improved employee motivation and commitment:** Employee training and development can improve work motivation and employee commitment, which in turn can increase employee satisfaction and retention.

Vocational education and training (VET) is essential for industry as it enables companies to develop highly skilled and specialised professionals in different fields. This in turn increases competitiveness, fosters innovation, boosts productivity, ensures talent retention, enhances job security and stimulates employee motivation.

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<sup>22</sup> <https://www.camara.es/en>



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## Benefits of VET for learners and workers

Vocational Education and Training (VET) offers numerous benefits for both students and workers<sup>23</sup>. Here are some of the most important ones:

- ▷ **Acquisition of practical knowledge:** VET focuses on generating knowledge that is quickly applicable in the day-to-day life of companies or institutions. This is due to the fact that VET courses are usually quite specific and are created so that students can carry out professional internships in companies with specific demands.
- ▷ **Work update:** VET courses encourage individuals to keep themselves constantly prepared and updated, since technologies and techniques in certain areas advance rapidly.
- ▷ **Employment opportunities:** VET courses provide individuals with the possibility of acquiring work experience, since they require internships in order to graduate from them, which often translates into employment opportunities for their students.
- ▷ **Development of practical skills<sup>24</sup>:** Before entering the labour market, VET students carry out on-site internships, also called Workplace Training, related to their chosen degree.
- ▷ **High employability:** Specialization has been highlighted as a priority factor when it comes to finding employment. Companies demand personnel trained in very specific professional sectors and with highly qualified technical profiles.
- ▷ **International job opportunities:** Vocational training studies have an international character. The European Union highly values graduates in this type of training.
- ▷ **Improved competence of workers and increased competitiveness of companies:** Lifelong learning allows continuous updating of knowledge and skills. This also allows us to improve our professional skills.
- ▷ **Increased job security:** VET makes it possible to improve the professional skills of workers, which can lead to increased job security.
- ▷ **Job promotion:** VET can enable workers to take on more responsibilities, make more efficient decisions and solve problems, which can lead to job promotion.
- ▷ **Improved efficiency:** VET can improve the efficiency of workers in their jobs and in production processes.

These are just some of the benefits of VET. It is important to remember that each individual may experience different benefits depending on their individual circumstances and field of study or work.

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<sup>23</sup> [https://www.cedefop.europa.eu/files/9061\\_en.pdf](https://www.cedefop.europa.eu/files/9061_en.pdf)

<sup>24</sup> <https://op.europa.eu/webpub/empl/VET-skills-for-today-and-future/en/index.html>



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## Benefits of VET for VET institutions

Vocational Education and Training (VET) offers numerous benefits for schools. The following points highlight some of the most important:

- ▷ **Expansion of the training offer:** VET allows educational centres to expand their training offer, offering students a variety of courses that adapt to the demands of the labour market.
- ▷ **Reinforcement of the prestige of the educational centre:** The implementation of VET programs can help reinforce the prestige of an educational centre, since these programs are usually associated with high employability rates and practical and applied training.
- ▷ **Closer ties with the business world:** VET allows schools to establish closer relationships with local companies, which can facilitate internships for students and the updating of training content in line with the needs of the labour market.
- ▷ **Teacher updating:** VET teachers can benefit from the opportunity to learn about new developments and trends in the business sector, complement their academic knowledge and keep up to date. This is because they can access company facilities, machinery and technologies and even receive training from company professionals.
- ▷ **Increase in the number of people who can become qualified:** VET can attract more people interested in acquiring practical and applied training, which can increase the number of people who can become qualified through VET
- ▷ **Encouragement of knowledge transfer:** The close relationship between educational institutions and companies established through VET can encourage knowledge transfer, which can enrich the training offered to students.

Promoting lifelong learning and guidance: The Integrated VET Centres promote lifelong learning and guidance, offering talks in educational centres to promote the offer of VET, as well as a program to support students' entrepreneurship and a constantly updated job bank.



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Table 1 Adult participation in learning, 2019 to 2022<sup>25</sup>

	Total				Men				Women			
	2019	2020	2021	2022	2019	2020	2021	2022	2019	2020	2021	2022
EU	10.8	9.1	10.8	11.9	9.8	8.3	10.0	10.8	11.9	10.0	11.6	12.9
Belgium	9.2	7.4	10.2	10.3	7.7	7.1	10.0	9.7	8.6	7.7	10.4	10.9
Bulgaria	2.0	1.6	1.8	1.7	1.8	1.4	1.7	1.6	2.1	1.7	1.9	1.8
Czechia	8.1	5.5	5.8	9.4	8.1	5.6	5.6	9.3	8.1	5.5	5.9	9.4
Denmark	25.3	20.0	22.3	27.9	20.7	16.4	18.1	23.6	30.0	23.6	26.6	32.2
Germany (*)	9.2	7.7	7.7	8.1	8.3	7.8	7.7	7.9	8.1	7.5	7.7	8.4
Estonia	19.6	16.6	18.4	21.1	16.3	12.6	14.4	16.7	22.9	20.6	22.5	25.5
Ireland	12.6	11.0	13.6	11.8	10.7	9.2	12.0	10.3	14.5	12.6	15.2	13.2
Greece	3.9	4.1	3.5	3.5	3.7	4.3	3.5	3.2	4.2	4.0	3.4	3.8
Spain	10.6	11.0	14.4	15.3	9.5	9.9	12.7	13.5	11.7	12.0	16.0	17.0
France	19.5	13.0	11.0	13.3	16.7	11.2	9.9	11.4	22.2	14.6	12.1	15.1
Croatia	3.5	3.2	5.1	4.4	3.2	2.9	3.7	3.9	3.7	3.8	8.4	5.0
Italy	8.1	7.2	9.9	9.6	7.7	7.0	9.8	9.4	8.6	7.4	10.0	9.9
Cyprus	5.9	4.7	9.7	10.5	5.6	4.9	9.9	10.4	6.2	4.5	9.5	10.5
Latvia	7.4	6.6	8.6	9.7	5.4	4.6	5.5	6.6	9.3	8.4	11.5	12.5
Lithuania	7.0	7.2	8.5	8.5	5.5	5.6	6.7	6.8	8.5	9.7	10.2	10.2
Luxembourg	19.1	16.3	17.9	18.1	19.7	15.3	17.4	16.9	19.5	17.3	19.3	19.3
Hungary	5.8	5.1	5.9	7.9	5.6	4.4	5.8	6.7	6.0	5.7	5.9	9.2
Malta	11.9	11.0	13.9	12.8	10.7	9.6	12.9	12.1	13.4	12.6	14.9	13.6
Netherlands	19.5	18.8	26.6	26.4	18.5	17.9	25.7	25.2	20.4	19.8	27.5	27.5
Austria	14.7	11.7	14.6	15.8	13.1	10.8	13.3	14.4	16.3	12.7	15.8	17.2
Poland	4.8	3.7	5.4	7.6	4.2	3.1	5.0	7.0	5.4	4.3	5.9	8.3
Portugal	10.5	10.0	12.9	13.8	10.3	9.6	12.0	13.2	10.7	10.4	13.7	14.2
Romania	1.3	1.0	4.9	5.4	1.4	1.0	5.2	5.6	1.2	1.0	4.7	5.2
Slovenia	11.2	8.4	18.9	21.6	9.7	7.4	17.4	20.1	12.8	9.5	20.6	23.2
Slovakia (*)	3.6	2.8	4.8	12.8	3.6	2.6	4.6	12.9	3.6	3.0	4.9	12.8
Finland	29.0	27.3	30.5	25.2	24.8	23.0	25.5	20.9	33.3	31.7	35.8	29.7
Sweden	34.3	28.6	34.7	39.2	26.1	21.9	28.3	29.4	42.9	35.5	41.4	43.2
Iceland (*)	22.2	20.3	23.9	27.1	18.8	16.8	19.3	22.2	25.7	24.1	28.8	32.5
Norway	19.3	16.4	19.5	21.1	17.7	15.0	18.0	19.2	21.0	17.9	21.2	23.1
Switzerland	32.3	27.6	22.8	22.0	33.2	28.5	22.6	21.8	31.3	26.7	22.9	22.2
Montenegro	2.5	2.7	-	-	2.1	2.6	-	-	3.0	2.8	-	-
North Macedonia	2.9	2.6	-	-	2.8	2.6	-	-	2.7	2.7	-	-
Serbia	4.3	3.7	4.8	5.2	3.8	3.3	4.2	4.4	4.8	4.0	5.4	5.9
Turkiye	5.7	5.8	-	-	5.7	6.0	-	-	5.7	5.5	-	-

Note: Refer to the internet metadata file ([http://ec.europa.eu/eurostat/cache/metadata/en/tmg\\_ifs\\_4w0\\_esms.htm](http://ec.europa.eu/eurostat/cache/metadata/en/tmg_ifs_4w0_esms.htm)).  
Break in series in 2021.

(\*) Break in series in 2020.

(\*) Break in series in 2022.

Source: Eurostat (online data code: tmg\_ifse\_01)

eurostat

In 2022, the proportion of persons aged 25 to 64 in the EU who participated in education or training during the previous four weeks was 11.9 %; a share that was 2.8 percentage points (pp.) higher than the corresponding share in 2020, see Table 1. It is considered that the increase in 2021 and 2022 could be related to the economic recovery after the COVID-19 pandemic, leading also to more training activities (which are often job-related, as shown by AES data) in 2021 than during the beginning of the pandemic where many training activities were cancelled. In 2022, the participation rate was higher than before the pandemic in 2019 by 1.1 pp. (see Table 1). However, it also needs to be noted that there is a break in series in 2021 due to the new methodology of the EU-LFS, and that several countries changed their national questions, in particular on participation in non-formal education, which can have an impact on the results.

Sweden, Denmark, the Netherlands and Finland stood out from other EU Member States as they reported considerably higher proportions of their respective adult populations participating in lifelong learning in the four weeks preceding the interview. All four countries had a share over 25.0 %. By contrast, Greece and Bulgaria reported adult learning rates of less than 4.0 %.

The proportion of the population who had participated in adult learning was higher among women (12.9 % in 2022) in the EU than among men (10.8 %). In 2022, women recorded higher participation rates than men in all EU Member States except for Romania and Slovakia. The largest difference between men and women, in pp., was in Sweden, where the participation rate for women was 13.8 pp. higher than for men.

<sup>25</sup> [Adult learning statistics - Statistics Explained \(europa.eu\)](https://www.eurostat.ec.europa.eu/en/themes/adult-learning)



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It is important to note that the implementation of VET programs in schools may require additional effort on the part of teachers to keep up to date and in tune with the demands of the business sector. However, the benefits derived from VET for schools, teachers and students make this effort a worthwhile investment.

## Challenges

Vocational Education and Training (VET) faces several challenges in relation to the green sector.

- ▷ The need to adapt to the **ecological transition** that will affect all sectors and professions in a transversal manner, with the emergence of new skills. This means that vocational training must be prepared to deal with the changes that have been introduced, implementing training programmes that meet the needs of companies.

*The ecological transition in the green sector requires a range of new skills to adapt to emerging changes and challenges. According to an analysis of the green sector, these competencies include:*

- **Knowledge of Renewable Energy:** It is essential to have a solid understanding of the various forms of renewable energy, such as solar and wind energy, and how they can be effectively implemented and managed.
- **Green Technology Skills:** Green technologies are constantly evolving, so it is crucial to be up to date with the latest innovations and know how to apply them in practice.
- **Waste Management:** Effective waste management is an integral part of the ecological transition, and skilled personnel are needed in this field.
- **Sustainable Agriculture:** Sustainable agriculture is an emerging green sector that requires specific knowledge and skills.
- **Green Finance:** Knowledge of green finance, which refers to investments in projects that have environmental benefits, is increasingly important.
- **Collaboration with Green Sector Companies:** Collaboration with green sector companies is crucial to design effective training programmes.
- **Research on Green Sector Needs and Trends:** Conducting research on green sector needs and trends is a vital step in improving the effectiveness of training programmes.
- **Adaptability:** The ability to adapt to the changing needs of the green sector is essential.
- **Digital skills:** Digitalisation is a key factor enabling smarter and more efficient energy production, transmission and distribution. Therefore, digital awareness and IT skills are becoming increasingly important.



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These competences are needed to prepare students and professionals for careers in the green sector and to ensure that companies and organisations are equipped to handle the green transition.

- ▷ Identification of the **green professions or jobs** with the brightest future, as the sector is starting to wake up. In addition, many jobs in other sectors will have to be defined by a combination of environmental skills, which means that the new skills that professionals will need to have will have to be defined.
  - Renewable Energy Engineer: Renewable energy engineers design, develop and maintain solar, wind, hydro and geothermal energy systems. As the demand for clean energy continues to grow, this profession is becoming increasingly crucial.
  - Energy Efficiency Specialist: These professionals work to optimise energy use in buildings, industries and transportation systems to reduce energy consumption and carbon emissions.
  - Organic Agronomist: Organic agronomists focus on sustainable agriculture and food production without the use of chemical pesticides and fertilisers. As the demand for organic food increases, this profession becomes more important.
  - Waste Management Expert: Proper waste management is essential to reduce pollution and promote sustainability. Experts in this area work in the collection, recycling and disposal of waste in an environmentally friendly manner.
  - Solar Energy Technician: These technicians install and maintain residential and commercial solar energy systems. With the increasing adoption of solar energy, this profession is in high demand.
  - Environmental Data Analyst: Environmental data analysts collect and analyse data related to the environment to help make informed decisions about sustainable policies and practices.
  - Sustainable Architect: Sustainable architects design buildings that are energy efficient and environmentally friendly. Their focus is on minimising the environmental impact of construction.
  - Business Sustainability Consultant: These consultants help businesses adopt sustainable practices, reduce their carbon footprint and comply with environmental regulations.
  - Natural Park Manager: Natural park managers work to conserve and protect natural areas and national parks, promoting ecotourism and environmental education.
  - Electric Mobility Engineer: As electric vehicles gain ground, electric mobility engineers are responsible for the design and development of charging infrastructures and sustainable transport systems.
- ▷ **Engagement with Industry**. Aligning present and future business needs with training. The education system and, in particular, Vocational Education and Training must be prepared



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to face the changes that have been incorporated, implementing training programmes that meet the needs of companies.

- ▷ **Strengthen academic and professional guidance.** The green transition is generating changes in the labour market and in the skills demanded by employers, so it is essential that people are trained to acquire them.
- ▷ **Curriculum Relevance.** Vocational Education and training must meet the challenge of improving the skills and qualifications of workers in the fields of sustainability, green entrepreneurship and digitalisation, in order to meet the challenges of the energy, circular and environmental transition. This includes the development of training actions that promote the green economy and improve the employability of workers.
- ▷ **Quality Assurance.** Ensuring the quality and standard of VET programs is crucial for producing a skilled workforce, yet can be challenging given the diverse range of VET providers.
- ▷ **Access and Equity.** Providing equal Access to VET for all individuals, regardless of their socioeconomic status, remains a challenge that needs addressing.
- ▷ **Funding sustainability.** Securing long-term financial support and investment in VET programs for the Green Sector can be challenging, as financial sustainability is essential for the continuous development and delivery of high-quality training.
- ▷ **Technology Integration.** Keeping up with the rapidly evolving technology and digital tools in vocational education and training (VET) programs, the Green Sector can ensure that its graduates are not only environmentally conscious but also proficient in the latest tools and technologies that are shaping the future of sustainability and environmental protection. This approach is essential for producing job-ready professionals who can contribute effectively to the green workforce. Here are some strategies to address this challenge:
  - Regular Curriculum Updates: VET programs should have a mechanism for regularly updating their curriculum to include the latest technologies and digital tools relevant to the Green Sector. This can involve collaboration with industry experts and organizations to identify emerging trends.
  - Digital Literacy: Integrating digital literacy into the curriculum is essential. Students should be familiar with various software, data analysis tools, and digital platforms commonly used in environmental monitoring, energy efficiency, and sustainability analysis.
  - Hands-on Training: Practical training and hands-on experience with technology are crucial. VET programs should invest in state-of-the-art labs and equipment to provide students with real-world experience in using technology.
  - Partnerships with Industry: Collaborating with green industry leaders can provide access to cutting-edge technology and tools. Internships, apprenticeships, or



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cooperative programs with these organizations can expose students to the latest developments.

- Online Learning Platforms: Utilize online learning platforms and resources to keep students updated on the latest trends. This can include webinars, e-learning modules, and access to digital resources.
- Professional Development for Instructors: Instructors themselves need to stay current with technological advancements. Regular training and professional development opportunities for educators can ensure they are well-equipped to teach the latest technologies effectively.
- Feedback Loops: Establish feedback loops with alumni and employers to understand the skill sets that are in high demand. This can help adjust the curriculum to match industry needs more accurately.
- Interdisciplinary Approach: Encourage an interdisciplinary approach where students learn to apply technology alongside their environmental knowledge. This can foster creativity and innovation.

## D2.3 Conclusions from the Expert Group Consultation Results in WB countries

The workshops held in the countries of the Western Balkans: Albania, Bosnia and Herzegovina and Montenegro, focused on analysing the mismatches between the supply of Vocational Education and Training (VET) and the needs of the labour market, especially in the emerging green sector.

In Albania, the workshop was organized by the Tirana Chamber of Commerce and Industry. In Bosnia and Herzegovina, the organizer was the Banja Luka Chamber of Commerce and Industry and CETEOR, and in Montenegro, the workshop was organized by Green Home.

The workshops brought together representatives from the labour market, green businesses, VET institutions and education authorities. Participants discussed the problems of skills mismatch between VET supply and labour market demand. Expert opinions were also gathered on the current situation in each country.

The conclusions of the workshops highlighted the need to develop **a mechanism for diagnosing business needs in the green sector, ensuring timely and comprehensive alignment between VET supply and the changing demands of environmentally conscious industries.** The importance of



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supporting VET trainers and staff in the Western Balkans was emphasized, with the aim of establishing flexible and interactive links between VET and the labour market.

In addition, the need to strengthen the capacity of Western Balkan VET schools to incorporate the needs of the green labour market into their training offerings was highlighted. This would improve the employability potential of Western Balkan VET students and equip them with the necessary skills to thrive in the evolving green sector.

Overall, the workshops represented a concerted effort to improve the quality of Vocational Education and Training in the Western Balkans, while addressing the specific needs of the emerging green sector. By reducing the skills gap and facilitating productive cooperation between VET and the labour market, this Project aims to contribute to the sustainable growth and development of the Western Balkans region.



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# Chapter 3 The Mechanism for Diagnosing Business Needs

## D2.4 Business Needs Diagnosis in the Green Sector: the tool used and main outcomes

The mechanism for improving the supply of vocational education and training (VET) in the green sector can be used in several ways, according to the EU-funded project ADDUPT (Addressing skills mismatching in the green sector through Digital Upskilling of veT).

- ▷ **Diagnosis of business needs:** The mechanism can be used to diagnose business needs in the green sector. This ensures a timely and comprehensive alignment between VET provision and the changing demands of environmentally conscious industries.
- ▷ **In-depth analysis of the green sector:** The mechanism can also be used to provide an in-depth analysis of the green sector in participating countries. This allows identifying the skills and competences needed in the green sector and adapting the VET offer accordingly.
- ▷ **Support to VET trainers and staff:** The mechanism can be used to support VET trainers and staff, with the aim of establishing flexible and interactive links between VET and the labour market. This can enhance the employability potential of VET learners and equip them with the necessary skills to thrive in the evolving green sector.
- ▷ **Continuing professional development of VET teachers and trainers:** The mechanism prioritises the continuing professional development of VET teachers and trainers. This can strengthen the quality of the VET sector, ensuring that it remains adaptable and responsive to the ever-changing demands of the labour market.
- ▷ **Fostering a symbiotic relationship between VET institutions and enterprises:** The mechanism can also be used to foster a symbiotic relationship between VET institutions and enterprises by tailoring VET provision to the specific needs of the green sector.

In summary, the mechanism can be used to improve VET provision in the green sector through a diagnosis of business needs, an in-depth analysis of the sector, support for VET trainers and staff, continuous professional development of VET teachers and trainers, and fostering a symbiotic relationship between VET institutions and companies.



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## Purpose and Objectives

The mechanism aims to develop a diagnosis of business needs in the green sector, ensuring a timely and comprehensive alignment between the VET offer and the changing demands of environmentally conscious industries. This diagnosis is carried out through comprehensive research that includes both field and desk research.

The objectives of the mechanism are:

- ▷ To diagnose business needs in the green sector.
- ▷ To provide an in-depth analysis of the green sector in the participating countries.
- ▷ To support VET trainers and staff in the Western Balkans, with the aim of establishing flexible and interactive links between VET and the labour market.
- ▷ Improve the employability potential of Western Balkan VET learners and equip them with the necessary skills to thrive in the evolving green sector.
- ▷ Prioritise the continuous professional development of VET teachers and trainers in the Western Balkans.

In short, the mechanism seeks to improve the quality of vocational education and training in the Western Balkans, while addressing the specific needs of the emerging green sector. By bridging the skills gap and facilitating productive cooperation between VET and the labour market, this project strives to contribute to the sustainable growth and development of the Western Balkans region.

## Methodology: Analysis, Consultation and Verification

A common approach to diagnosing the needs of companies is the SWOT (Strengths, Weaknesses, Opportunities, Threats and Opportunities) analysis, which allows to assess the internal and external situation of the company and to set objectives and strategies to address the identified areas.

Training Needs Assessment (TNA) is a specific process that focuses on identifying the areas in which employees need to improve their skills, knowledge and competencies in order to perform their duties effectively. This process may include assessing employees' current skills and competencies, identifying knowledge gaps, and formulating training and development plans to address these needs.

Overall, diagnosing business needs is an essential process for ensuring an organisation's growth and competitiveness. By identifying and addressing areas for improvement and opportunities for growth, companies can adapt to changes in the business environment and ensure optimal performance in all areas of the organisation.



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To expand and clarify the above information, an example of a **SWOT analysis in a green building company**.



### Training Needs Assessment (TNA) in a Renewable Energy Company:

- ▷ Current Skills and Competencies: Assessing the current skills and competencies of employees in a renewable energy company may reveal strengths in areas like solar panel installation, wind turbine maintenance, and grid integration.
- ▷ Knowledge Gaps: Identifying knowledge gaps could involve recognizing areas where employees lack expertise, such as emerging technologies, energy storage solutions, or specific regulatory knowledge.
- ▷ Training and Development Plans: Based on the TNA, a company can develop tailored training and development plans. For instance, employees might receive training on the latest renewable energy technologies, safety protocols, or software tools for energy monitoring and management.

### Stakeholder Analysis in an Environmental Education Organization:

- ▷ Internal Stakeholders: Internal stakeholders may include educators, administrators, and support staff within the organization. Understanding their needs and perspectives is vital for efficient program planning and resource allocation.



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- ▷ External Stakeholders: External stakeholders can range from students and parents to government agencies, environmental NGOs, and local communities. Analyzing their interests and expectations is crucial for aligning educational initiatives with community and societal needs.

Managing Stakeholder Needs: Managing stakeholder needs involves finding common ground and ensuring that the organization's goals align with those of its stakeholders. This can include transparent communication, feedback mechanisms, and collaborative decision-making to foster positive relationships and support. These analyses are fundamental tools for strategic planning and decision-making in their respective contexts, helping organizations in the green construction, renewable energy, and environmental education sectors navigate challenges and leverage opportunities effectively.

## Role of Different Stakeholders

Stakeholders in the enterprise needs assessment mechanism are those individuals, groups or organisations that may be affected by, or can influence, the decisions and actions of the enterprise. These stakeholders can be internal or external to the company.

Internal stakeholders may include employees, managers and owners of the company. These groups can be identified by reviewing job descriptions and consulting with managers and supervisors to understand who within the organisation will be most affected by or influence a particular decision or project.

External stakeholders may include customers, suppliers, competitors, industry regulators, investors and shareholders, and the general public. These groups can be identified through research of a particular business sector and review of customer and consumer lists.

In the context of a business needs assessment, it is important to identify and analyse these stakeholders in order to understand their needs and expectations, and to make informed decisions and effectively manage potential conflicts or problems. For example, in a Social Responsibility diagnosis, the needs and expectations of stakeholders should be identified, and communication channels established with them to understand how these needs and expectations are being met.

In the environment of vocational training and business in the green sector, there are several **stakeholders** that play an important role. These groups include:

- ▷ *Green sector companies*: These companies are committed to sustainability and environmental protection. They seek to reduce their environmental impact and align their strategies with global and regional goals to mitigate climate change. At the European level, companies such as Danone, HP Inc, L'Oréal, Unilever, and UPM-



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Kymmene are committed to sustainability and environmental protection. There are several companies and projects in the ecological sector in the Western Balkans. Here are some examples:

- Skavica plant: This is a hydropower plant in the Western Balkans region. Although the region has great potential for solar and wind energy, more investments in hydropower have been announced.
- Voltalia: The French company has completed construction of the 140 MW Karavasta solar plant in Albania, which is the largest solar power plant in the Western Balkans. The project, which started construction in mid-2022, is backed by the European Bank for Reconstruction and Development (EBRD).
- Serbian Renewable Energy Association (RES Serbia): This newly created association focuses on technology-specific auction regulations for onshore wind and solar PV in Serbia. Currently, Serbia has 374 MW of onshore wind energy, but has the potential for much more.

These examples demonstrate the growing interest and investments in the green sector in the Western Balkans. The European Union is also supporting several clean energy projects in the region. However, it is important to keep in mind that the transition towards a greener and more sustainable economy in the Western Balkans still faces several challenges, including the need to modernise the energy infrastructure and strengthen institutions.

- ▷ *Training and education organisations:* These organisations offer training programmes in sustainability and environmental education. One example is LEAD Sustainability, which offers a training programme in Corporate Sustainability. There is also the Spanish Association for Environmental Education (AEEA), which promotes environmental education and sustainable development.
- ▷ *Public institutions:* Public institutions also play an important role in promoting environmental education and sustainability. For example, the Ministry of Ecological Transition in Spain works with several environmental education associations to promote environmental education in the country. In Europe and the Western Balkans, several public institutions play an important role in promoting environmental education and sustainability. For example, the European Commission, through a specific working group on sustainability in education, supports the implementation of the Recommendation on Education for Environmental Sustainability. And the Tempus Programme: This EU-funded programme supports the modernisation of education in the Western Balkans and the Mediterranean region. The Tempus programme promotes institutional cooperation with a focus on the reform and modernisation of higher education.



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- ▷ *Investors and consumers:* Investors in the green sector are those who invest in companies that take environmental, social and governance factors into account in their policies. These investors incorporate ethical and green values into their investment decisions and look for companies that are committed to sustainability and social responsibility. Investors can be individuals as well as financial institutions, specialised investment funds, and venture capital firms looking for opportunities in the green sector. Consumers in the green sector are those who buy and use green products and services. These consumers value sustainability and are willing to pay a higher price for products that are environmentally friendly and contribute to the conservation of natural resources. Consumers can be individuals, businesses, and organisations that seek to reduce their environmental impact through their purchasing decisions.
  
- ▷ *Employees and talent:* Employees and talent in the green sector are considered key stakeholders in companies operating in the green sector. These stakeholders may include company employees, partners, environmental experts, analysts and other professionals who perform tasks within the company and contribute to its capacity and activities. Employees and talent in the green sector can play a variety of roles, from internal production chain management and decision-making that results in environmental impacts, to external value chain management and decision-making that affects production, sourcing and product sales. In addition, companies operating in the green sector often seek to attract and retain employees who share their commitment to sustainability and environmental protection. These companies can implement various strategies to attract and retain this type of talent, such as promoting a culture of inclusion and acceptance, creating a work environment in which each person can achieve their goals, and fostering an atmosphere of understanding and acceptance. On the other hand, companies can also collaborate with third sector organisations to generate greater social impact and enhance their corporate reputation. This collaboration can generate results such as a joint venture, a specific production for the target market segment, corporate volunteering, among others. In short, employees and talent in the green sector are key players for companies operating in this sector, and their effective management can contribute significantly to the success and sustainability of these companies.
  
- ▷ *Business associations:* Business associations, bring together companies whose corporate purpose is related to the environment. In Europe and the Western Balkans, there are several business associations that bring together companies whose corporate purpose is related to the environment. Some examples are:



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- The European Environment Agency (EEA) is a regulatory agency of the European Union that provides independent information on the environment. Its work is fundamental to the development, adoption, implementation and evaluation of environmental policies for both citizens and policy makers. EEA deals with issues such as environmental monitoring, environmental diagnostics and environmental information, and aims to provide sound, independent data to support environmental decision-making.
- National Association of Environmental Professionals (NAEP): is an interdisciplinary organization dedicated to developing the highest standards of ethics and competence in the environmental profession. Its members are professionals from the public and private sectors who promote excellence in decision making, taking into account the environmental, social and economic impacts of such decisions.
- Institute of Environmental Management and Assessment (IEMA): The global professional body for more than 20,000 individuals and 300 organizations working, studying or interested in the environment and sustainability. IEMA connects businesses and individuals across industries, sectors and borders, and helps influence public policy on environmental and sustainability issues.
- Environmental Management Association (EMA): An organization that promotes those in industry who are making great strides in environmental sustainability, recognizing their work and achievements toward environmental change.

In short, these stakeholders play a crucial role in promoting sustainability and environmental education in the green sector and in vocational training, they are an essential part of the decision-making and management process. Identifying and understanding these stakeholders can help in decision making, effectively manage conflicts and issues, and operate more efficiently and sustainably.

## Continuous Operation and Updates

The mechanism of diagnosing the needs of a company is a crucial process that allows the identification of weaknesses, threats or possible strengths within the organisation. This diagnosis allows the company to define the current state of the organisation, resulting in evaluative decisions that serve to make time-sensitive decisions to restructure the organisation and meet projected goals.

There are different types of business diagnostics, including comprehensive diagnostics, specific diagnostics, functional diagnostics and cultural diagnostics. The integral diagnosis focuses on the applicability of business variables, such as knowing the opportunities, weaknesses, strengths and



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threats of the company. The specific diagnosis allows the supervision of specific processes, studying different aspects such as financial statements, marketing processes, production management of the company. The functional diagnosis establishes the incident factors in organisational communication that affect the organisation among workers in the various productive and social spheres. Finally, the cultural diagnosis recognises the organisational climate in terms of the principles and values shared by the members of the organisation.

In order to maintain a continuous functioning and updates of the diagnostic mechanism, it is important that employees continuously update their knowledge and skills to meet the new requirements of their job. In addition, the training needs assessment (TNA) provides the necessary information for the managers of an organisation to know the situation of their employees with respect to their position, so that they can make the right decisions to improve the working environment and optimise resources.

In the context of technology, the diagnosis is a process of thorough and personalised survey of the business needs and the technological infrastructure of the companies. Through it, an analysis of the company's installed capacities is carried out and it is essential to plan short-, medium- and long-term technological investment based on the requirements and objectives of the business.

In summary, the mechanism for diagnosing the company's needs is a continuous process that must be regularly updated to keep up with changes in the company and the market. This process involves identifying business needs, assessing existing capabilities and planning the actions required to meet those needs.



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# Chapter 4 Mismatch Analysis between VET offer and labour market needs

To analyse the mismatches detected between the supply of vocational training and the needs of companies in the Green Sector

In order to analyze the discrepancies detected between the supply of vocational training and the needs of companies in the green sector, it is important to consider several key factors.

Labour Gap	New Professional Profiles	Changes in Skills Requirements	Soft Skills and Adaptability	Role of Business
<ul style="list-style-type: none"> <li>The gap between the skills needed to thrive in the transition to a green economy and the way these skills are developed in existing education and training. The uptake of green innovations in education and the workplace is linked to the development of green skills, which requires efficient VET systems to determine new green qualifications and competences.</li> </ul>	<ul style="list-style-type: none"> <li>The green economy is generating new professional profiles related to the production of sustainable products or services. Examples are sustainable solutions and project analysts, occupational risk prevention technicians, sustainable logistics consultants, green designers and environmental engineers.</li> </ul>	<ul style="list-style-type: none"> <li>The transition to green economies is generating unprecedented changes in skill requirements. This includes the retraining of displaced workers, the creation of new skilled occupations and the integration of sustainable practices into existing occupations.</li> </ul>	<ul style="list-style-type: none"> <li>The importance of soft skills such as creativity, critical thinking and leadership in the green sector is emphasised. Adaptability and flexibility are crucial to adjust to continuous changes in the sustainable economy.</li> </ul>	<ul style="list-style-type: none"> <li>The critical role of business in training workers and reducing skills discrepancies through workplace learning and adult continuing education is highlighted.</li> </ul>

The outline provides an overview of how VET is adapting and modernising to meet the needs of the green economy. It shows how skills training, the creation of new occupational profiles and cross-sector collaboration are central to this transformation towards a more sustainable future.

To address these mismatches, steps are being taken to transform and modernize the VET system. This includes updating the Catalogue of VET degrees, adjusting the supply of VET to the quantitative needs of technicians and higher technicians in the labor market, and incorporating innovation,



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applied research, entrepreneurship, digitalization, and sustainability as core elements of VET. However, much remains to be done to fully align the VET offer with the needs of the green sector.

## D2.3 Expert Groups' Consultation Results

Workshops to improve vocational training in the Western Balkan countries, organized within the framework of the ADDUPT Project, focused on addressing the skills mismatch between the supply of Vocational Education and Training (VET) and the demands of the labor market, especially in the emerging green sector. Recommendations emerging from these workshops include:

- ▷ Develop a mechanism for diagnosing business needs in the green sector to ensure a timely and comprehensive alignment between VET provision and the evolving demands of environmentally conscious industries.
- ▷ To provide an in-depth analysis of the green sector in the participating countries, namely Albania, Bosnia and Herzegovina and Montenegro.
- ▷ To support VET trainers and staff in the Western Balkans, with the aim of establishing flexible and interactive links between VET and the labour market.
- ▷ Strengthen the capacity of VET institutions in the Western Balkans to incorporate the needs of the green labour market into their training offers.
- ▷ Prioritise the continuous professional development of VET teachers and trainers in the Western Balkans in order to strengthen the quality of the VET sector.
- ▷ Foster a symbiotic relationship between VET institutions and enterprises, aligning the training offer with the specific needs of the green sector.

These recommendations aim to improve the quality of VET in the Western Balkans, while addressing the specific needs of the emerging green sector. By reducing the skills gap and facilitating productive cooperation between VET and the labour market, this project aims to contribute to the sustainable growth and development of the Western Balkans region.

## D2.4 Business Needs' Diagnosis in the Green Sector

The document "D2.4 Business Needs 'Diagnosis in the green sector" addresses the mismatch between vocational education and training (VET) provision and business needs in the green sector in the Western Balkans, including Albania, Bosnia and Herzegovina, and Montenegro.

The analysis reveals that, although the green sector is growing in these countries, there is a significant mismatch between the skills and competences offered by VET and the demands of companies. This mismatch manifests itself in several aspects, such as technological developments,



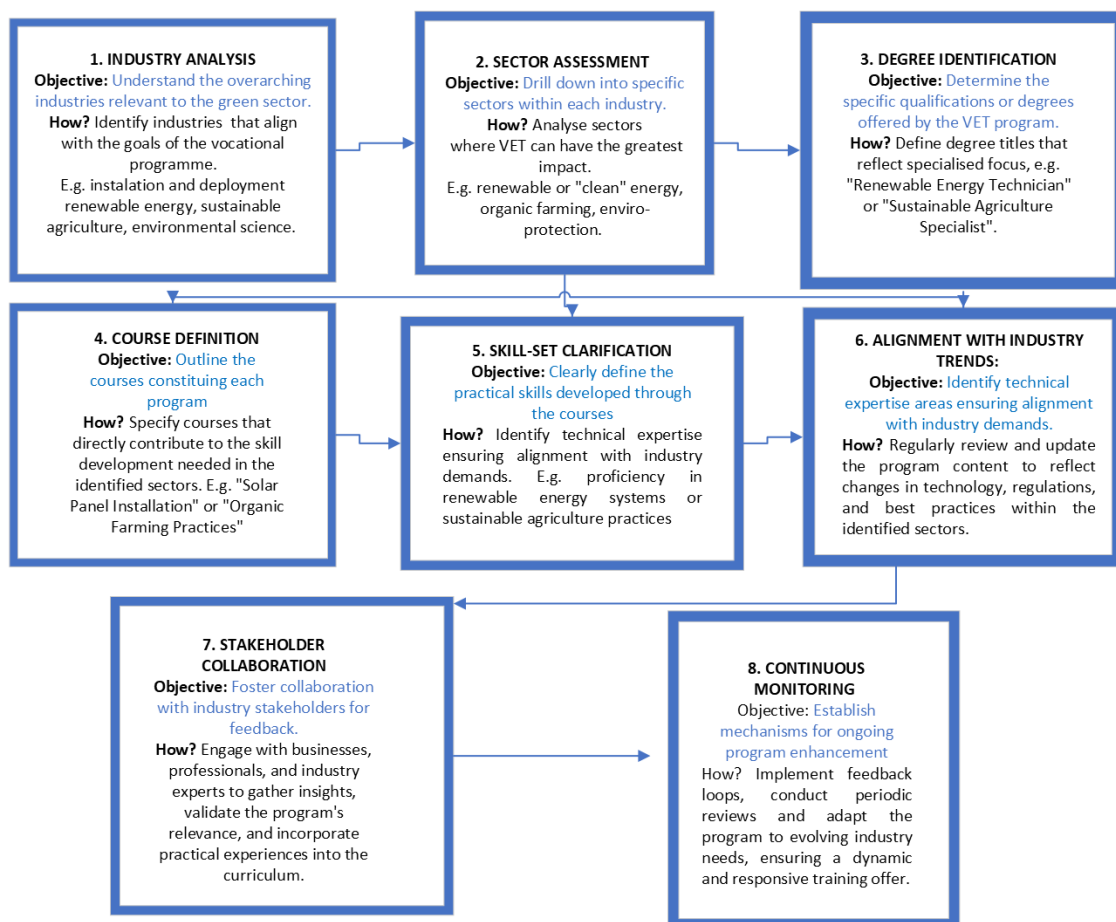
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the use of green finance, policies, key occupations, required qualifications, the status of VET institutions, teaching methods and partnerships.

The paper highlights the need to improve VET institutions to address these skills mismatches and nurture a skilled workforce for the green sector. This includes the development of renewable energy training schemes and cooperation with the private sector. The aim is to align VET provision with the changing labour market demands of the green sector.

The process of skills gap identification outlined for VET providers serves as a systematic guide to understanding industry needs and adapting to them. The following diagram illustrates the action flow from the initial industry analysis to the continuous improvement of the VET program, showcasing the objectives and steps involved at each stage.



In summary, the deliverable D2.4 concludes that a more responsive and adaptive VET system is essential for the sustainable growth and development of the Western Balkans region. By bridging the skills gap and facilitating productive cooperation between VET and the labour market, this project strives to contribute to the sustainable growth and development of the region.



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# Chapter 5 Bridging the gap

## Tools and methods to incorporate the Mechanism

To incorporate the Mechanism into a system or process, various tools and methods can be used to facilitate its integration and optimize its functioning. Some of these tools and methods include:

- ▷ **Expert Consultation Framework:** A framework that allows for collaboration and advice from experts in the relevant field to develop and refine the Mechanism. This involves establishing a structured framework for seeking expert guidance on specific topics related to the Mechanism. It seeks to involve a wide range of experts with relevant experience, such as policy makers, practitioners, researchers, and industry leaders. In addition, regular consultations are held to gather knowledge, identify best practices, and improve the design and implementation of the Mechanism.
  - *EIT Climate-KIC* (Knowledge and Innovation Community): headquartered in Europe, relies on a network of experts and collaborators in the field of climate change mitigation and sustainability. This organization has funded various projects aimed at addressing climate change and sustainability challenges. One example is the "Climate Launchpad" competition, where they support innovative cleantech start-ups and business ideas. Participants receive training, mentorship, and access to a network of experts to develop their sustainable solutions.
- ▷ **Best Practice Identification Tool:** A tool that assesses and measures the adoption of best practices in a specific context. A systematic methodology is developed to identify, assess and disseminate best practices in the implementation of the Mechanism. A database or repository of best practices, categorised by thematic areas and geographic regions, is created and knowledge sharing among stakeholders is encouraged.
  - *European Innovation Partnership on Smart Cities and Communities* (EIP-SCC): The EIP-SCC uses best practice identification tools to assess and promote smart solutions in European cities. Their approach includes gathering successful practices in areas such as sustainable mobility and energy efficiency. EIP-SCC promotes smart city solutions in Europe. One project under this initiative is "SmartEnCity," focused on transforming European cities into sustainable and resource-efficient urban areas. It involves various cities implementing energy-efficient measures and innovative technologies to reduce carbon emissions and enhance urban living.
- ▷ **Knowledge Repository:** An online repository that captures, organises and categorises knowledge-based information useful for storing and accessing information relevant to



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the Mechanism. This involves establishing a centralised repository or platform to store, organise and disseminate knowledge related to the Mechanism. Information is collected from a variety of sources, such as academic studies, policy papers, case studies and industry reports, and information is made easily accessible and retrievable to support decision-making and capacity development efforts.

- ▷ **European Environment Agency (EEA):** The EEA operates an extensive online database that captures information on the environment and sustainability in Europe. The EEA maintains the "European Environmental Data Centre (EEDC)," an online platform that provides access to environmental data and information. It serves as a knowledge repository by offering datasets, reports, and assessments related to environmental and sustainability issues in Europe. **Benchmarking Tool:** A technique to compare the Mechanism's performance with other systems or industry standards to identify areas for improvement. This involves the development of a benchmarking tool to compare the performance of different organisations or jurisdictions in implementing the Mechanism. Key performance indicators (KPIs) reflecting the effectiveness and impact of the Mechanism are identified, and comparative data and knowledge are provided to support continuous improvement and benchmarking efforts.
  - **European Energy Efficiency Platform:** This European platform utilizes benchmarking tools to compare energy efficiency performance among different countries and regions. It helps identify areas for improvement and promotes sustainable practices. One example is the "H2020 PROSPECT" project, which focuses on peer-to-peer learning among local and regional authorities. It helps participants develop and implement innovative financing schemes for energy and climate projects.
- ▷ **Interactive Workshops:** Collaborative working sessions involving multiple stakeholders to discuss and improve aspects of the Mechanism. This involves the organisation of interactive workshops and training sessions to engage stakeholders in learning about the Mechanism and its implementation. Discussions, sharing of experiences and collaboration on solutions to challenges that arise in the implementation of the Mechanism are facilitated. Knowledge sharing, capacity building and ownership among stakeholders are also promoted.
  - **Horizon 2020 Program:** Projects funded by Horizon 2020, such as the 'RE4' project (Reuse and Recycling of construction and demolition waste), organize interactive workshops with stakeholders to develop and enhance sustainable solutions in construction.
- ▷ **Performance Metrics:** Indicators that measure the effectiveness and efficiency of the Mechanism, which helps to assess its impact and make necessary adjustments. This includes establishing a clear and measurable set of performance metrics to assess the effectiveness and impact of the Mechanism. Progress against these metrics is tracked to



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identify areas for improvement and inform policy decisions. Data-driven insights are used to demonstrate the value and impact of the Mechanism.

- European Sustainable Development Goals (SDG) Index and Dashboard: The European Union uses a set of performance metrics to assess progress towards the United Nations Sustainable Development Goals (SDGs). This provides a clear view of Europe's performance in key sustainability areas.
- ▷ **Decision Support System:** A system that helps to make informed decisions on the implementation and operation of the Mechanism. This involves the development of a decision support system to provide stakeholders with real-time data, knowledge and recommendations on the implementation of the Mechanism. It integrates data from various sources, including performance metrics, best practices and benchmarking data, and uses data analytics and machine learning to provide customised recommendations for different contexts.
  - European Space Agency (ESA): ESA utilizes data-driven decision support systems based on satellite data to monitor and address environmental issues such as deforestation and air quality. It provides real-time information for informed decision-making. The "Sentinel-2" mission is an ongoing program that provides high-resolution optical imagery for various applications, including monitoring land use, agriculture, and forests. This data supports informed decision-making in environmental management.
- ▷ **Reporting and Visualization Tools:** These are applications designed to present Mechanism data and information in a clear and understandable way, with the objective of facilitating analysis and decision-making. The focus is on creating user-friendly reporting and visualisation tools to communicate the progress and impact of the Mechanism to stakeholders. This includes the development of dashboards, graphs and infographics that effectively present data and ideas. The aim is to promote clear and transparent communication on the Mechanism's performance.
  - European Environment Agency (EEA): The EEA uses reporting and visualization tools to communicate environmental data and trends across Europe. This helps stakeholders understand and act upon the presented information.
- ▷ **Feedback Mechanism:** This process focuses on gathering feedback from the users of the Mechanism to identify issues and opportunities for improvement. An open and accessible feedback mechanism is established to collect input and comments from stakeholders, which may include policy makers, practitioners, researchers and the general public. The feedback is used to improve the design, implementation and overall effectiveness of the Mechanism.
  - European Commission's 'Have Your Say' Platform: The European Commission regularly invites public feedback on various policies and initiatives related to



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sustainability. Citizens can participate in consultations on topics such as climate action, circular economy, and biodiversity to influence EU policies..

- ▷ **Capacity Building Program:** This programme focuses on training and education initiatives designed to prepare people to effectively use and maintain the Mechanism. It involves the development and implementation of a comprehensive capacity building programme aimed at equipping stakeholders with the knowledge, skills and tools necessary to effectively implement the Mechanism. The programme includes the provision of training courses, workshops and mentoring sessions to enhance expertise and foster knowledge sharing. In addition, training content is tailored to the specific needs and roles of different stakeholders.
  - European Energy Efficiency Platform: Offers training and education programs to enhance the capacity of stakeholders in energy efficiency across Europe, preparing them to implement more sustainable practices.

These tools and methods are essential to ensure that the Mechanism is effectively integrated into existing systems and to ensure that it remains relevant and up to date with the changing needs of the evolving and transforming business and environmental sector.

## Strategies to bridge the gap

To eliminate the mismatch between vocational training and the needs of companies in the green sector, several aspects must be considered:

- ▷ **Public-private collaboration:** The participation of companies in the definition of competence profiles and the establishment of training programmes is essential. This implies a close alliance, cooperation and trust between administrations, centres and teachers, companies and families.
- ▷ **Dual training:** European vocational training is increasingly adopting a dual nature. This means that training takes place both at the educational institution and within the company. This approach ensures a better alignment with specific sectors and qualifications, enhancing the practical skills of students.
- ▷ **Adaptation and broadening of skills:** It is important that vocational training allows for the acquisition, maintenance, adaptation or extension of professional skills and competences. This includes professional reconversion and the re-adaptation of the professional pathway to a different sector of activity.
- ▷ **Monitoring of supply and demand:** It is crucial to constantly monitor supply and demand as new sources of employment emerge, as well as the competences and skills in demand in the so-called "classical professions".

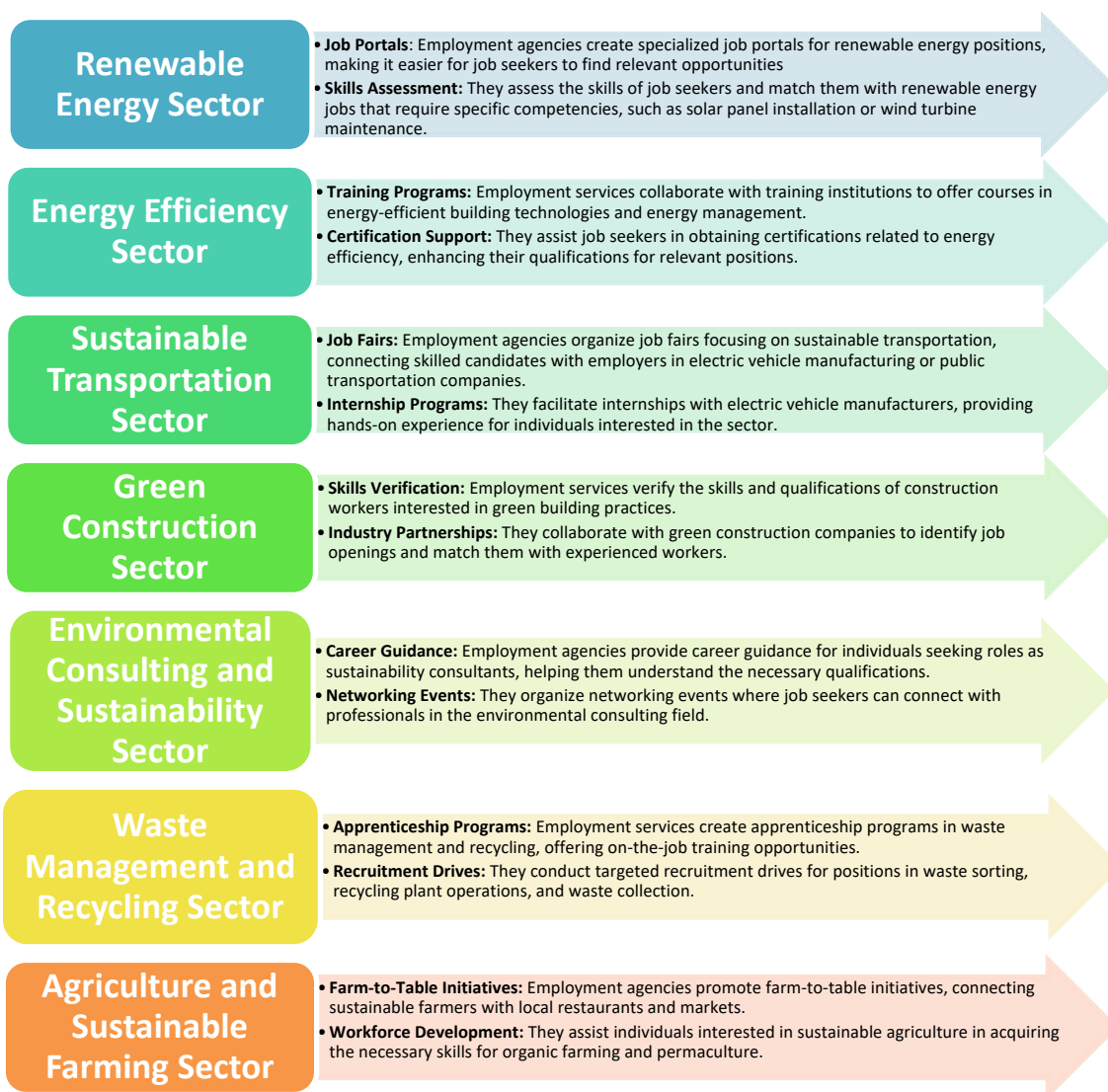


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- ▷ **Re-skilling and employability:** Re-skilling and employability need to be boosted, especially in emerging sectors such as digital and green. In this sense, re-qualification plans must be developed in response to the labour gap that is occurring between supply and demand.
- ▷ **Digital skills training:** Given the growing role of digitalisation in all sectors, including the green sector, it is essential to offer free and recognised training in digital skills.
- ▷ **Just transition:** Vocational training must be framed within policy guidelines for a just transition to environmentally sustainable economies and societies. This implies generating quality, well-paid jobs with good working conditions and respect for workers' rights.
- ▷ **Job matching in green sectors:** Employment services can strengthen job matching in green sectors, bridging the gaps between human capital and the pursuit of environmental sustainability.



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These examples illustrate how employment services can play a vital role in job matching within the green sector.

In summary, to close the mismatch between vocational training and business needs in the green sector, a holistic approach is needed, including public-private partnerships, dual training, skills adaptation and upgrading, demand and supply monitoring, re-qualification and employability, digital skills training, just transition and green sector job matching.

## D2.4 Business Needs' Diagnosis in the Green Sector

The deliverable "D2.4 Business Needs' Diagnosis in the green sector" of the ADDUPT project offers several recommendations to address the mismatch between vocational education and training (VET) provision and business needs in the green sector. Although the document is extensive and addresses several aspects, some of the key recommendations are summarised here:

- ▷ **Develop a mechanism for diagnosing business needs in the green sector:** This mechanism would allow for a timely and comprehensive alignment between VET provision and the changing demands of environmentally conscious industries. Provide an in-depth analysis of the organic sector: this analysis should cover the countries participating in the project, namely Albania, Bosnia and Herzegovina and Montenegro.
- ▷ **Supporting VET trainers and staff:** The aim is to establish flexible and interactive links between VET and the labour market by developing the capacity of VET institutions to incorporate the needs of the green labour market into their training offers.
- ▷ **Prioritise the continuing professional development of VET teachers and trainers:** This focus on training and further training aims to strengthen the quality of the VET sector, ensuring that it remains adaptable and responsive to the ever-changing demands of the labour market. Fostering a symbiotic relationship between VET institutions and companies: the idea is to tailor VET provision to the specific needs of the green sector.
- ▷ **Conduct desk and field research:** This research should provide a holistic understanding of the current state of the VET sector and the green sector labour market.

These recommendations are designed to improve the quality of vocational education and training in the Western Balkans, while addressing the specific needs of the emerging green sector.



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# Conclusions

## Emerging Trends

**Emerging trends in vocational training, the green sector and companies belonging to the green sector** in Europe are focused on adapting and creating new professional profiles to meet the growing demand for skills and competencies related to sustainability and environmental protection.

In the field of vocational training, there is a growing demand for training programs and university degrees that focus on sustainability and green technologies. However, current educational structures are often too rigid to quickly meet the growing demand for these skills. In countries such as Belgium and Germany, professional profiles, teaching programs and examination regulations for the training of apprentices in the green sector are being updated. In Spain, there is a boom in the implementation of solar panels and in the building sector, driven by European savings and efficiency regulations.

In the green sector, significant growth is expected in sustainability-related jobs. According to LinkedIn's Global Green Skills Report 2022, job openings in renewable energy and environment have doubled in the United States, with the former expected to outnumber the latter in the coming year. In Europe, steps are being taken to encourage green innovation and investment, which could create millions of high-quality, sustainable green jobs in small and medium-sized companies.

Companies in the green sector are adopting sustainable practices and investing in green technologies. These companies are creating new roles and adapting existing roles to meet the demands of the green economy. Examples of these roles include sustainability managers, architects and engineers specializing in sustainable construction, and environmental lawyers.

In summary, emerging trends in vocational training, the green sector and the companies belonging to the green sector in Europe reflect the growing importance of sustainability and environmental protection in the global economy. These trends suggest that there will be an increasing demand for sustainability-related skills and competencies in the future.

## Ecological Transition

Ecological transition is a process by which human societies manage their relationship with the physical environment, with the aim of achieving a more balanced and harmonious relationship with local and global ecosystems. This process involves a transformation of the social, economic and



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productive system, accompanied by technological innovation and a multiplicity of actions in different sectors.

The ecological transition is fundamental to combating climate change and protecting life on land and underwater. A key point in this revolution is the shift from fossil fuels to renewable and sustainable sources to effectively combat the climate changes that are putting the planet at risk.

In the European context, the European Green Deal aims to make Europe climate neutral by 2050, boost the economy through green technology, create sustainable industries and transport, and ensure environmental and social transformation. EU member states want to reduce greenhouse gas emissions by 55% by 2030 compared to 1990 levels and become climate neutral by 2050.

It also involves taking concrete steps to protect the environment, such as putting an end to oil drilling and directing investments toward green energy production plants. It also involves technological innovation to bring about a change in our society, considering compliance with sustainability criteria.

The ecological transition is closely related to vocational training and green sector companies. This transition involves redefining economic models and policies to ensure environmental sustainability while promoting economic growth and social welfare.

In the field of vocational training, there are various programs and training cycles that prepare professionals to work in sectors related to sustainability and ecology. For example, the Intermediate Level Training Cycle - Technician in the Use and Conservation of the Natural Environment prepares professionals to work in companies dedicated to reforestation, restoration and hydrological-forestry management, and control and monitoring of the natural environment. Other training cycles, such as the Higher Technician in Energy Efficiency and Solar Energy, prepare professionals to work in the energy sector, in audits and in companies certifying ecological products.

Companies in the green sector, meanwhile, play a crucial role in the ecological transition. These companies are adopting sustainable practices that not only mitigate environmental impact, but also drive economic growth, job creation and innovation. Small businesses, in particular, are important change agents for green growth, as they are reducing waste, investing in renewable energy, greening buildings, creating sustainable packaging, obtaining green certifications, and going digital.

In addition, the green transition is generating new job opportunities in various sectors, such as renewable energy, waste management, sustainable leisure and tourism, and energy saving and efficiency consulting. To take advantage of these opportunities, it is essential that the vocational training system is prepared to deal with the changes and train professionals with the necessary skills to work in these sectors.



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In conclusion, the ecological transition is generating a profound change in vocational training and in companies in the green sector, creating new job opportunities and demanding new competencies and skills. To address this change, it is essential that vocational training is adapted to the needs of the sector and that companies adopt sustainable practices that contribute to environmental sustainability.

## Policy Recommendations

It is essential to align Vocational Education and Training (VET) with the growing needs of the green sector to create a workforce that is skilled to meet the challenges of sustainability and environmental responsibility. Effective policy recommendations are critical to this alignment, providing a clear pathway for VET stakeholders to adapt to changes in the sector. These recommendations are crucial directives that can significantly influence how VET responds to the demands of the green sector.

A key document providing information on this topic is the "Council Recommendation of 24 November 2020 on vocational education and training (VET) for sustainable competitiveness, social equity and resilience"<sup>26</sup>. This document highlights important principles to ensure that VET is agile, adapts quickly to labor market needs, and provides quality learning opportunities for all individuals. It stresses the importance of more flexible VET systems, greater opportunities for work-based learning and apprenticeships, and better-quality assurance mechanisms.

- ▷ **Adaptation to Market Needs:** Ensure that VET is agile in adapting swiftly to labour market needs, providing quality learning opportunities for both young people and adults.
- ▷ **Green Transition Integration:** Incorporate green transition and environmental sustainability in VET curricula and programs, covering sector- and occupation-specific skills along with those across sectors. This includes measures aimed at 'greening' VET programs, imparting knowledge about climate change, green technologies, energy efficiency, circular economy, and environmental sustainability.
- ▷ **Cooperation with Industry:** Establish cooperation with industry stakeholders to identify and incorporate the skills needed for the green transition in VET curricula and programs.
- ▷ **Awareness Increase:** Elevate the awareness of policymakers, VET trainers, and students, along with employers in the sector on green skills education.
- ▷ **Equal Opportunities:** Ensure equal opportunities and inclusiveness in education and training to cater to individuals from diverse socioeconomic backgrounds.

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<sup>26</sup> [Council Recommendation of 24 November 2020 on vocational education and training \(VET\) for sustainable competitiveness, social fairness and resilience | CEDEFOP \(europa.eu\)](#)



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- ▷ **National Quality Assurance Systems:** Further develop national quality assurance systems to ensure the standard and relevance of VET programs.
- ▷ **Professional Development:** Systematic approaches to, and opportunities for, the initial and continuous professional development of school leaders, teachers, and trainers to support the green transition and sustainability.
- ▷ **Modern Infrastructure:** Modernize the infrastructure of VET provision to make VET institutions sustainable and green.

Responses at the industry or sector level, through bodies such as sector councils or chambers of commerce, have already achieved considerable results in several countries (wcms\_164629.pdf (ilo.org)). In addition, it is essential that companies and training centers work together and are in constant coordination.

The Global Green Employment platform is an example of a tool that facilitates the connection between business and educational agents and any citizen who decides to dedicate themselves to the field of sustainability.

The Global Green Employment (GGE) platform is a digital initiative launched by Iberdrola, designed to be a meeting point between those who wish to focus their future career in the green employment sector and companies and institutions committed to sustainability and energy transition. The platform aims to be a reference for those looking to work in the green sector, offering training options and advertising vacancies available in partner companies and institutions.

GGE provides companies and institutions with an international catalog of employment and training, and is closing agreements with universities, specialized schools, vocational training centers, companies, institutions and job vacancy portals. In addition, the platform offers a real-time image with a map detailing the exact location of vacancies and job requirements for each profile listed, as well as statistical data on green jobs by region.

In summary, aligning VET with the needs of the green sector is essential to create a workforce capable of meeting the challenges of sustainability and environmental responsibility. Effective policy recommendations, collaboration between different entities and rapid adaptation to the needs of the labor market are key elements to achieve this alignment.

## Action Plan for VET Institutes (Guidelines for the creation of Action Plans for VET Institutes - CESIE)

The next project output will elaborate on guidelines for the creation of an Action Plan tailored for VET institutions. These plans will delineate the strategic steps that VET institutions can undertake



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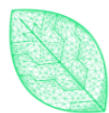
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to align their offerings with the Green Sector's evolving needs, ensuring that graduates are well-prepared to contribute to the sector's growth and sustainability.



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# AGDUPT

Addressing skills mismatching in the green sector through Digital Upskilling of vET



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