

Skills Development Agenda

For youth and women in
the Blue and Green Economy

Project co-financed by



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It builds pathways of dignity and life projects with youth, women, migrants, children, creating and activating supportive and enabling environments for such pathways with operators and actors from civil society and institutions.

MYSEA Project

MYSEA - Mediterranean Youth, NEETs and women advancing Skills, Employment and Awareness in the blue and green economy is a 3.6 million euros project co-funded by the European Union (90% contribution) under the ENI CBC MED programme, implemented by CIES (Centro Informazione e Educazione allo Sviluppo Onlus) as lead partner, in cooperation with the University of Palermo and the international partners Lebanese Development Network (LDN) in Lebanon, the Jordan University of Science and Technology (JUST) in Jordan, the Greek training organisation Eurotraining and the Tunisian Union of Social Solidarity (UTSS) in Tunisia.

MYSEA aims to enhance the employability of youth and women in the blue and green economy sectors, particularly in the agrifood and waste management sectors, where the demand for new professional profiles capable of managing innovative, sustainable, and eco-responsible technologies is on the rise. The European Union cares deeply about the issues of Social inclusion and Sustainability: in the South Mediterranean, one in four young people is unemployed and not engaged in training, and this framework worsens when referring to the situation of women, who are increasingly underrepresented in the workforce.

For this reason, MYSEA connects businesses in the blue and green economy, especially companies in the agrifood and waste management sectors, with the world of education and training, benefiting the youth and women of the Mediterranean who are seeking employment. The project takes on the task of providing training for new professional profiles that align with the market demands.

The project started with a in-depth analysis of the employment situation of young people and women in the 5 Mediterranean countries through a survey that collected 2365 questionnaires and interviews, which made it possible to know the current condition of NEETs, to map the stakeholders and to discover the characteristics of the economic actors in the agrifood sector and the waste management industry and to outline the situation of the education and training institutions in each country.

Based on the analysis of international research conducted in each country, and considering the information gathered on the needs of youth and women on one side, and companies and the educational system on the other, high-quality training paths have been developed to address the skills mismatch between the skills demanded by the job market in the agrifood and waste management sectors and the skills that young individuals need to acquire. This is achieved through careful coaching, mentoring, and on-the-job training.

Training, therefore, serves as a tool to help youth and women acquire sector-specific, cross-cutting, digital, and entrepreneurial skills, enabling them to become part of corporate entities with profiles aligned to the real sectoral needs.

CIES wants to play a leading role in this philosophy, which in the national and international projects it manages, promoting social, economic and cultural inclusion, with education, training, orientation and job placement paths.



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Skills Development Agenda

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0. Introduction

Under the 2014-2020 ENI CBC Mediterranean Sea Basin programme, MYSEA Project "*Mediterranean Youth, NEETs and women advancing Skills, Employment and Awareness in the blue and green economy*" published in April 2023 a call for tender for the selection of an independent third party capable of implementing a "Skills Development Agenda". Prospecto Srl presented its own intervention methodology and working group, coordinated by Dr. Fabio Croci with the scientific and content support of Prof. Fabio Bracci and Dr. Rachele Michelacci.

This report therefore constitutes a policy proposal document that takes into account the activities and results emerging from the previous WP3, WP4 and WP5 of the project, integrating the data obtained during the course of the activities and the implemented training best practices with additional national and European sources, as well as the results emerging during a number of round tables carried out in the period July-September 2023 in cooperation with specially selected stakeholders. The aim of the document is to provide **innovative proposals to institutions and policy-makers and thus stimulate the creation of regulations and public policies that are more efficient in facilitating the matching of training offer and labour market demand**. In this regard, it is important to remember the objectives of the project itself:

As a medium-term objective, MYSEA Project intends to stimulate stakeholders and civil society actors, policy makers, companies and training institutions to reduce the "skills gap" between the skills required by the labour market and those offered by training centres, by providing answers in terms of innovative training curricula for the agri-food and waste management sectors, by adopting methodologies, training plans and strategies useful for this purpose and emerging from the vocational training experience of MYSEA Project.

The first paragraph constitutes a thematic analysis of the European and Mediterranean context with regard to training policies and the evolving dynamics of the sector with respect to the main contemporary skills issues.

In the second section, these critical issues are examined in more detail with respect to the Italian context, and in particular at regional level and with specific focus on the agri-food and waste management sectors.

Once the European and Italian reference framework has been clarified, the third paragraph analyses and comments on the findings of MYSEA Project, also in the wake of further elements that emerged in the framework of specially selected stakeholder discussions.

In the fourth paragraph, the findings from the previous paragraphs are re-elaborated according to what are identified as the main 'drivers of change' for public policies in vocational education and training, and which form the premise for the fifth and final paragraph where recommendations across sectors are presented.

The document concludes with a final annex, which presents a summary of the main results emerged, and can thus also serve as a quick and easy reference for policy makers and stakeholders to whom the project is addressed.

Finally, it is important to highlight that this document is closely related to the parallel report *Decent Work Policy for Youth*, which was developed from the same project material in order to investigate specific issues and challenges regarding the employability of young people in the agri-food and waste management sectors. Together, the two documents aim to offer an updated and comprehensive view of training and employability topics in the Italian context, proposing specific recommendations and points of attention for stakeholders and policy makers.

1. Education policies in the European and Mediterranean context

European public policies on training and employment are characterised by a significant and well-established evolution that we can symbolically trace back to December 1993 with the presentation of the White Paper on 'Growth, Competitiveness, Employment'¹ to the European Commission. The document was in fact the start of a journey towards the development of a European perspective on training, innovation and employment, where the initial assumption was that economic growth alone could not (any longer?) be considered as a guarantee of European global competitiveness, nor a guarantee of a fair and efficient labour market. Among the immediate consequences, the White Paper encouraged the adoption of structural reforms from a European perspective, both regarding the labour market and the education and vocational training systems.

Thirty years after the presentation of the White Paper, despite the significant progress made at the European level, some of the long-pursued reforms remain uncompleted, just as additional and new critical issues have emerged that have called for the European institutions to identify further objectives and devise new strategies, also in accordance with significantly changed socio-economic contexts. The most significant document today embodying the various European objectives is undoubtedly the European Pillar of Social Rights², which, with respect to employment and labour issues, provides in particular:

- At least 78 % of the population aged 20-64 should have a job by 2030.
- Reduce the rate of young people aged 15 to 29 who are neither in employment nor in education or training (NEET) from 12.6 % (2019) to 9 %, in particular by improving their employment perspectives.
- At least 60 % of all adults should participate in training activities each year.
- At least 80 % of people aged 16-74 should possess basic digital competences, a prerequisite for inclusion and participation in the labour market and society in a digitally transformed Europe.

These objectives are based on those set out in the Skills Agenda for Europe³, the Council Recommendation on Vocational Education and Training⁴ and the Council Resolution on the European Educational Area⁵.

In the Skills Agenda, approved in 2020 and followed in the same year by the Skills Pact⁶, the European Commission fixed specific targets to be achieved by 2025 through the direct involvement of the main European economic and production sectors. These include the **Agri-food sector**⁷, which in February 2021 formally addressed some crucial and urgent issues:

*"There is an urgent need to address the skills needs of the agri-food ecosystem in order to successfully implement and benefit from **green and digital transitions**. [...] Updating and retraining workers along the agri-food supply chain will reinforce the resilience of this vital ecosystem. [...] A crucial challenge for the agri-food ecosystem is to increase its **attractiveness** and master its ability to motivate people, especially **young people**, to be part of this ecosystem, especially in the **rural areas**, where the **SME** are the*

1. European Commission: *Growth, competitiveness, employment. The challenges and ways forward into the 21st century: White paper*. Bruxelles, 1994.

2. The European Pillar of Social Rights action plan was published on 4th March 2021, COM(2021) 102 final: <https://op.europa.eu/webpub/empl/european-pillar-of-social-rights/en/>

3. COM(2020) 274 final of 1st July 2020

4. Recommendation (C 417/01) of the Council of 24th November 2020

5. Resolution 2021/C 66/01 of the Council of 22nd February 2021

6. <https://ec.europa.eu/social/main.jsp?catId=1517&langId=en>

7. No similar initiative is available for the more limited waste management sector.

*pillar of the economic and industrial fabric. Ensuring access to broadband, the availability of **high-quality education** and training in digital skills can play a key role in guiding rural areas, and the entire ecosystem, towards a successful **digital transition**. Higher education must respond to the professional needs of the ecosystem, adapting academic programmes to provide the younger generation with the **appropriate competencies**. Students should also be shown the opportunities offered by the sector through partnerships between **educational institutions and companies**, to **better connect theory with practice**. Attracting young talents to the sector can play an essential role in re-skilling and updating the existing workforce. Europe cannot overcome the global challenges that the ecosystem has to face without ensuring the acquisition of new skills, especially in the agricultural sector, in which the **ageing of farmers is a problem**. Professional and peer-to-peer training, as well as the exchange and diffusion of good practices through the creation of a professional network at European level, have been identified as the most suitable ways to enhance the attractiveness of the ecosystem and the number of food engineers, food scientists and workers with the right STEM, environmental and digital skills. The most important conclusion for the ecosystem was the need to provide the right means and support to SMEs along the food chain to encourage these actors to invest in skills. Adequate support at European and national level is also essential for the entire ecosystem to face the current skills shortage, reinforce its resilience and achieve the objectives of the Green Deal.”⁸*

In the context of the Skills Pact, it was particularly pointed out that in the agri-food sector, specific skills shortages need to be addressed. There is an increasing need for highly skilled workers in different sub-sectors, but there is often a gap between the curricula of universities and vocational schools and the skill requirements of real industry⁹.

The objectives of the Skills Agenda were further reinforced by the Council Recommendation on vocational education and training, which set the target of achieving at least **82% employed VET graduates by 2025** and that **60% of new VET graduates benefit from work-based learning** during their VET.

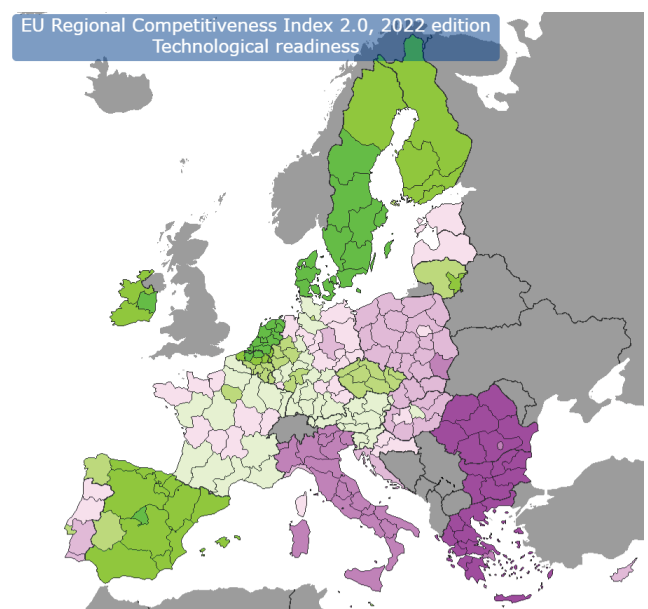
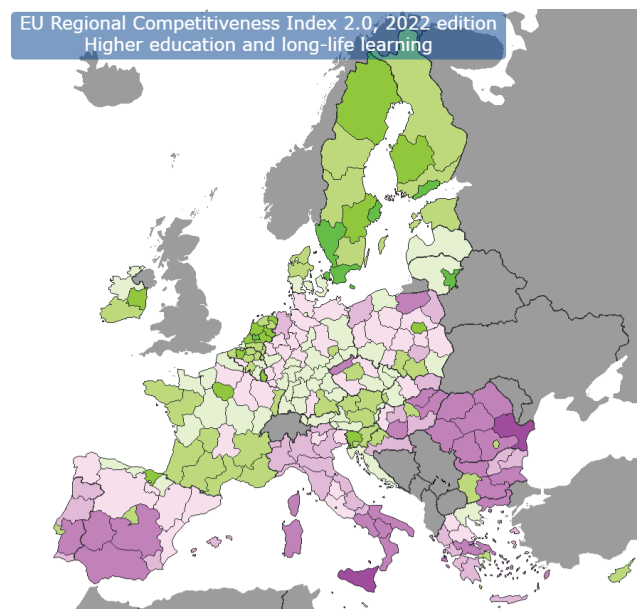
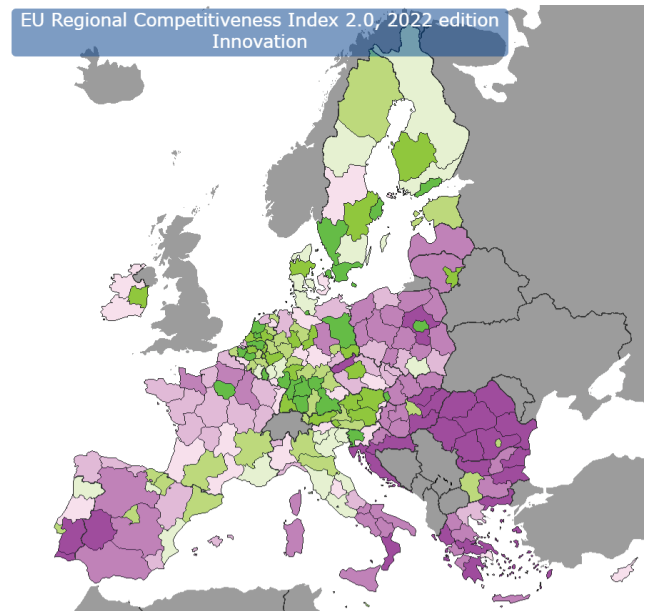
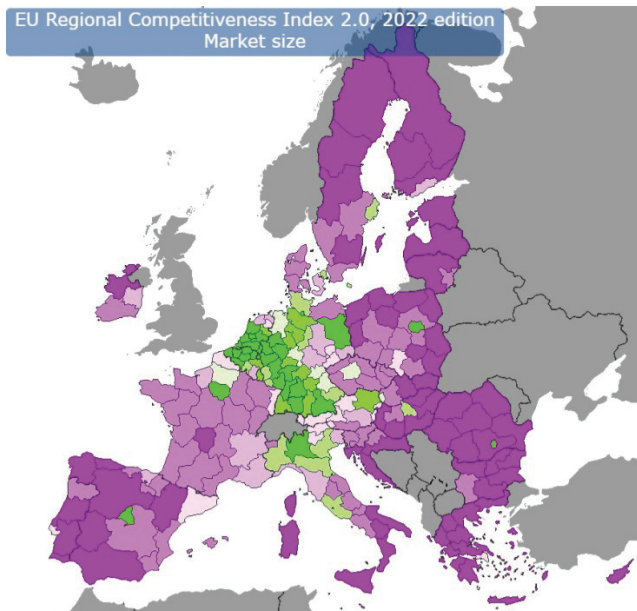
The context of European policies on skills development must necessarily be interpreted in the context of the competitiveness of territorial systems, in which the European institutions have long invested also in order to progressively reduce the structurally existing gaps. Italy, in this respect, continues a long tradition of a wide gap between the regions of the South and those of the North, with respect to which it will suffice to cite for the purposes of this paper the European regional competitiveness indicators updated to 2022¹⁰. Compare the graphical representations for the economic environment (market size) and the higher education and continuing education segment below. In the first two graphical representations, the northern Italian regions are clearly in a strong position in terms of economy and innovative capacity, in complete contrast to the southern regions. However, when exploring indicators relating to the efficiency of vocational and university training systems and to 'technological readiness'¹¹, it is the entire Italian system that lags dramatically behind other European countries.

8. Excerpts from the *Pact for Skills Roundtable with Commissioners Schmit and Breton for the Agri-food Ecosystem. Report from the roundtable*. Source: <https://ec.europa.eu/social/BlobServlet?docId=23768&langId=en>

9. For updated information on the Pact for Skills in the agri-food sector, see the dedicated webpage: https://pact-for-skills.ec.europa.eu/about/industrial-ecosystems-and-partnerships/agri-food_en

10. European Commission. EU Regional Competitiveness Index 2.0. 2023. For data consultation see: https://ec.europa.eu/regional_policy/information-sources/maps/regional-competitiveness_en

11. Technology 'readiness' measures the extent to which companies use and adopt existing technologies.



In order to better interpret these indicators, it is important here to recall the European context in which national and regional policies are developed. Especially in view of the transnationality objectives, today each European member country can in fact affect different EU frameworks for vocational education and training:

ESCO¹² (European Skills, Competences, Qualifications and Occupations), the multilingual classification of qualifications, competences, skills and occupations in Europe. The ESCO Classification identifies and classifies skills, competences, qualifications and occupations relevant to the European labour market and the education and training systems within the EU. The Commission is currently investing significant resources to make it possible for each citizen to build their Europass CV on the basis of the skills listed in the ESCO database.

12. <https://esco.ec.europa.eu/it>

- **The Recommendation (C 417/01) of the Council of 24th November 2020 on vocational training¹³**, which also led to the outdateding of ECVET¹⁴ and an enhanced version of EQAVET. In fact, this recommendation defines the key principles to ensure that vocational education and training are agile, as they adapt quickly to the needs of the labour market and offer quality learning opportunities for young people and adults. It strongly emphasises the increased flexibility of vocational education and training, the reinforcement of work-based learning and apprenticeship opportunities, and the improvement of quality assurance.
- **EQAVET¹⁵** (European Quality Assurance Reference Framework), which is based on a quality assurance and improvement cycle (planning, implementation, evaluation and review) and on a selection of descriptors and indicators applicable to quality management both at VET system level and at the level of individual education and training providers.
- **The Osnabrück Declaration¹⁶** identifying vocational education and training as a key element for recovery and for a just transition towards a green and digital economy. It outlines four objectives to be achieved through national and EU measures:
 - to promote resilience and excellence through quality, inclusive and flexible vocational education and training
 - to create a new culture of lifelong learning that adapts to digitisation
 - to include sustainability and eco-sustainability in vocational education and training
 - to reinforce the international dimension of education and vocational training and a European area for education and training.
- **EQF¹⁷** (European Qualifications Framework) which allows the learning outcomes of citizens of European countries to be described according to predefined standards, in order to facilitate their recognition, regardless of where and how they were achieved. The EQF is a device based on transparently described learning outcomes in terms of 'knowledge, skills, autonomy and responsibility'. This results in a framework of eight levels, of which the last four coincide with the tertiary level (*higher education*).
- **The Bologna process¹⁸**, i.e. the international reform process of higher education systems intended to ensure the mutual recognition of qualifications and periods of study abroad at other universities and to implement a quality assurance system to enhance the quality and relevance of learning and teaching¹⁹. The university credit system ECTS (European Credit Transfer and Accumulation System) is also part of the Bologna Process.

Policy development is further supported by additional organisational structures that report directly to the European Commission:

13. <https://eur-lex.europa.eu/legal-content/IT/TXT/?uri=CELEX%3A32020H1202%2801%29>

14. It is important to point out that the Recommendation has recognised the substantial failure of the ECVET system, i.e. the failure of European states to implement a standardised system of training credits capable of guaranteeing automatic transnational recognition of diplomas and qualifications

15. <https://ec.europa.eu/social/main.jsp?catId=1536&langId=it>

16. <https://op.europa.eu/en/publication-detail/-/publication/f731da19-6d0b-11ec-9136-01aa75ed71a1/language-it>

17. <https://europa.eu/europass/it/strumenti-europass/il-quadro-europeo-delle-qualificazioni>

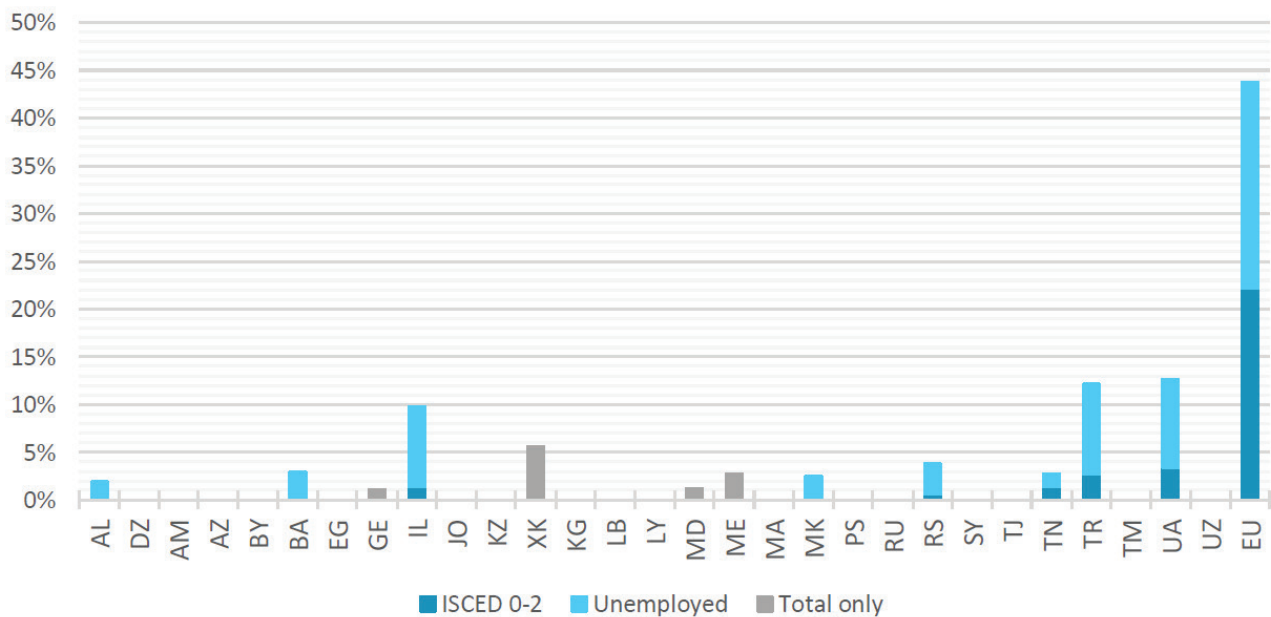
18. <https://education.ec.europa.eu/it/education-levels/higher-education/inclusive-and-connected-higher-education/bologna-process>

19. It should be noted that the primary goal set in 1999, and not yet achieved, was to realise the European Higher Education Area (EHEA) by 2010

- **Cedefop**²⁰ - European Centre for the Development of Vocational Training, which contributes to the defining and implementation of EU vocational training policies; it monitors labour market trends and helps the European Commission, EU countries, employers' organisations and trade unions to match training offers with labour market needs.
- **ETF**²¹ - European Training Foundation. The ETF provides support to improve vocational training systems in non-EU countries, especially in neighbouring regions such as countries preparing for EU membership. The ETF particularly promotes **Torino Process**²², a periodic review of vocational education and training policies and practices to support students and their participation in society and the labour market.

This foundation, in particular, offers particularly important tools for the purposes of this report, also in view of the fact that one of the main geographical areas under study is the Mediterranean basin. First of all, the *Torino Process* itself, now in its sixth cycle, has developed a very specific set of indicators concerning the policies effectively developed and implemented by each country. The 2018-2021 cycle recently closed with a report²³ on the comparative politics of several countries, including the non-EU countries of the **ENI CBC Med** cooperation area: Algeria, Egypt, Israel, Jordan, Palestine and Lebanon. From the point of view of vocational training, the countries analysed by ETF have participation rates that are basically insignificant compared to the average of European countries, with the exception of Israel, Turkey and Ukraine.

Figure 2.5 Adult participation in lifelong learning in the past 4 weeks, 2020 or latest available year (% aged 25–64)



Source: ETF. 2020.

20. <https://www.cedefop.europa.eu/it>

21. <https://www.etf.europa.eu/en>

22. <https://www.etf.europa.eu/en/what-we-do/torino-process-policy-analysis-and-progress-monitoring>

23. ETF, Policies for System Change and Lifelong Learning, 2022.

As stated in the report itself:

It is safe to conclude that in a substantial number of the countries which participated in the last round of the Torino Process, low educational attainment, limited relevance of education and training, and the associated low level of employment are central problems to deal with – both because of their persistence and because of their impact on the opportunities of people to participate in the economy.

With specific reference to the SEMED (Southern and Eastern Mediterranean) countries, in a parallel report²⁴ the ETF identifies significant critical issues that still afflict these geographic areas, further exacerbated by the Covid-19 crisis:

Underutilisation of human capital hampering growth and job creation	Social exclusion and gender gap, a substantial loss of human capital potential for socioeconomic prosperity	Insufficient preparedness to anticipate and address the future skills demands
<ul style="list-style-type: none">• High level of inactivity and unemployment for young people and women• Negative incidence of horizontal and vertical mismatch• Negative stock of net migration	<ul style="list-style-type: none">• Wide gender gap and large number of NEETs• Long spells of joblessness• Low level of participation in adult learning• High level of informality• Covid-19 crisis expected to exacerbate inequity	<ul style="list-style-type: none">• Limited involvement of the private sector in skills anticipation and development• Education and training systems not sufficiently flexible and responsive to labour market requests• Lack of data and monitoring and evaluation systems

Notwithstanding the fact that in recent years many of these countries have invested in structural reforms of their education systems:

The improved education level of the population (in particular of young women) has not translated into better labour market outcomes in all countries, with Israel as an exception. Skills gaps and mismatches are recognised as major challenges by policy makers, practitioners and social partners in the region. As in other parts of the world, these gaps are occurring in dynamic social and economic contexts emerging from restructuring processes, changing trade patterns, technological transformation and demographic change. Skills gaps and mismatches are also linked to a number of negative social aspects in the region, such as informality, long-term unemployment and inactivity.

The **ENI CBC Med 2014-2020** programme had already efficaciously photographed the critical issues specific to NEETs and women:

*The socio-economic analysis and the related data have incontrovertibly shown that there are two categories that are the most disadvantaged and that were hit the most by the crisis: **women in all age groups and youths** (in the age group of 18-24 years), in particular the NEETS. Women's participation in the labour force witnesses low rates, especially in some countries of the area, and both these groups have difficulties in entering the labour market. It has been shown that unemployment in youth is likely to have lifelong effects on income and employment stability. Furthermore, there is also proof that the direct and indirect social costs of unemployment are high and include the phenomenon of brain drain which, in turn, has repercussions on economic performance and dynamism, and may affect economic recovery.²⁵*

24. ETF: *Human Capital Development in the Southern and Eastern Mediterranean: an Imperative for Vocational Education and Training*, 2021

25. *Cross Border Cooperation within the European Neighbourhood Instrument (Eni)*. Mediterranean Sea Basin Programme 2014-2020. Revised version November 2020

A critical issue that has been directly addressed by the Programme priority A.3.1 - “Provide young people, especially those belonging to the NEETS, and women, with marketable skills”, to which MYSEA Project itself refers. Likewise, the new Next Med programme, strongly influenced by the Covid-19 pandemic waves, reveals a continuing problematic situation in the Mediterranean cooperation area:

A growing number of NEETs (young people Not in Employment, Education and Training) across the programme area in recent years reflects not only a lack of jobs, but lack of or unequal access to quality education and mismatches between skills and labour market requirements, especially in the context of the green and digital transitions and economic transformation. [...] Lower educational attainment is a significant risk factor for disengagement from the labour market and equal access to inclusive quality education is vital for social mobility and the reduction of social disparities. Skill shortages and mismatches linked to new technologies, industrial transition and the transformation of work are apparent in certain territories, sectors and groups.²⁶

In such a context, the strategic proposals presented by the **Union for the Mediterranean** in a recent document²⁷ in which important recommendations are made from a transnational perspective, identifying the levers of vocational training and higher education (i.e. all EQF qualifications 4 to 8) as fundamental factors for the joint development of competences in the Mediterranean area, seem very interesting:

“It is suggested that this initiative is undertaken through the development of innovative post-secondary pathways equivalent to the European Qualifications Framework level (EQF) level 4-6 and/or EQF 7-8. Higher Education institutions are invited to look for new approaches to forge strong and sustainable linkages with the private sector and respond effectively to important occupational skill areas by developing the required technical skills of vocational pathways.”

On an operational level, the document includes a series of recommendations that constitute the logical consequence of what has been illustrated so far, and which we therefore deem it useful to present here in full, also in function of a comparative reading of what we will present at the end of the report as specific recommendations to the policy makers involved in MYSEA Project and related to the agri-food and waste management sectors.

26. SFC2021 INTERREG Programme - (Interreg VI-B) NEXT Mediterranean Sea Basin (NEXT MED) 2021-2027, Approved 2022.

27. UFM, *Towards a Union for the Mediterranean Strategy on developing new Vocational pathways in Higher Education*, 2023

■ One possible concrete partnership between HE and VET can be delineated by the launch of a regional initiative to promote the development of green skills in postsecondary pathways. It is proposed that this initiative can have the following concrete actions:

- Co-creation of curricula at EQF-levels 4-5 and EQF-6-7 targeting upper secondary graduates.
- Training of trainers through Erasmus Teachers Academy.
- Collaboration with technology institutes and engineering schools to co-create curricula in green skills.
- Partnership with industries adopting green processes in environment related industries such as renewable energy, waste management, water conservation, sustainable environment, etc. or other industries such as manufacturing, agriculture, textile, tourism, etc.
- Partnership with private and public national and regional research centers to apply innovative solutions for green industries within a pre-selected consortium.
- Development of labor market intermediary systems for the anticipation and monitoring of skills needs for the green jobs and the listing of occupations in high demand, including occupations related to green sectors.
- Set up of labor market information systems for the assessment on the employment trends in green economy and disseminating the information regionally.
- Promotion of collaborations and partnership with the platforms of Centers of Vocational Excellence to share best practices in providing high-quality vocational skills, supporting entrepreneurial activities, and fostering inclusion and innovation.
- Organization of regional conferences to promote best practices in greening SMCs economies through skills development.
- Organization of matching events to link up employers with qualified profiles with green skills.
- Promotion of gender equality in green jobs since newly emerging occupations are not gender stereotyped. Encourage women in Science, Technology, Engineering et Mathematics (STEM) to orient their postsecondary studies to green pathways.
- Encouragement of Public Private Partnerships (PPP) initiatives in Education through a green initiative such as BALANCE project and GREENOVET project highlighted (see last section of this report).

2. The Italian case: institutional competences and sector dynamics

In the aforementioned report *Decent Work Policy for Youth*, numerous indicators and facts were provided with respect to the numerous critical issues afflicting the Italian labour market, also and especially in comparison with other European countries. The outcome of this analysis leads to legitimate suspicions about the existence of potential criticalities in the Italian education and training system, especially with reference to the dynamics related to the analysis of training needs, to the vocational guidance system and to the matching of labour supply and demand.

Several indicators offer a clear representation of structural problems in the Italian educational landscape. As regards tertiary education (EQF 5, 6, 7 and 8), Italy continues to be among the worst-performing countries not only with respect to the 55-64 age group (with only 12.4 % of graduates), but especially in the 25-34 age group (29.2 %), placing second in both cases after Romania in the EU-27 context²⁸. It is also remarkable that for the youngest age group there is now a very significant gender gap: 35.5 per cent of females are graduates, compared to 23.1 per cent of males. In any case a chasm compared to the OECD average of 47.4%.

28. <https://data.oecd.org/eduatt/population-with-tertiary-education.htm>

Population with tertiary education 55-64 year-olds / 55-64 year-old men / 55-64 year-old women, % in same age group, 2022 or latest available



Population with tertiary education 25-34 year-olds / 25-34 year-old men / 25-34 year-old women, % in same age group, 2022 or latest available



The available data, especially when analysed from a longitudinal point of view, clearly indicate structural problems in our country that cannot be reduced to special contingencies or occasional crises. The Country Report²⁹ presented to the European Commission in 2022 states this clearly:

The way teachers are recruited, motivated and retained is not efficient. Full-time schooling remains low and educational infrastructure is not updated to meet current needs, including digital needs. [...] In Italy, although educational qualifications generally improve job prospects, the employment rate of recent university graduates is among the lowest in the EU. [...] The effectiveness of public employment services and adults' participation in training remain low. [...] The employment rate of recent vocational education and training graduates (53.9%) remains below the pre-crisis levels and is among the lowest in the EU in 2021 (EU average is 76.4%). [...] It is essential for Italy to improve the quality, inclusiveness and labour market relevance of education and training at all levels for it to reach the EU's headline targets for 2030 on skills and employment.

Therefore, the issue of State/regional competences in the field of education, training and work still persists. It is well-known that, in Italy, the State has exclusive legislative competence with regard to general educational regulations (determination of the essential levels of performance, school personnel, state financial resources, etc.). The Ministry of Education and Merit and the Ministry of Universities and Research are responsible for education administration at national level for their respective areas. The Ministry of Education and Merit is divided into decentralised offices ('Regional School Offices' - USR) that ensure the application of the general provisions and compliance with the essential levels of performance and standards in the individual regions. The Regions have shared legislative powers in certain areas of education (e.g. organisation of the integrated 0-3 system, school calendar, school network, right to study for higher education). The Regions have exclusive legislative power with regard to the vocational education and training system (VET). In the tertiary level, universities, institutions of higher artistic, musical and dancing education (Afam) and higher technical institutes (ITS Academy) have statutory, didactic and organisational autonomy. The second cycle of education starts at the age of 14 and offers two different curricula:

- the upper secondary school
- the regional vocational education and training (VET) system.

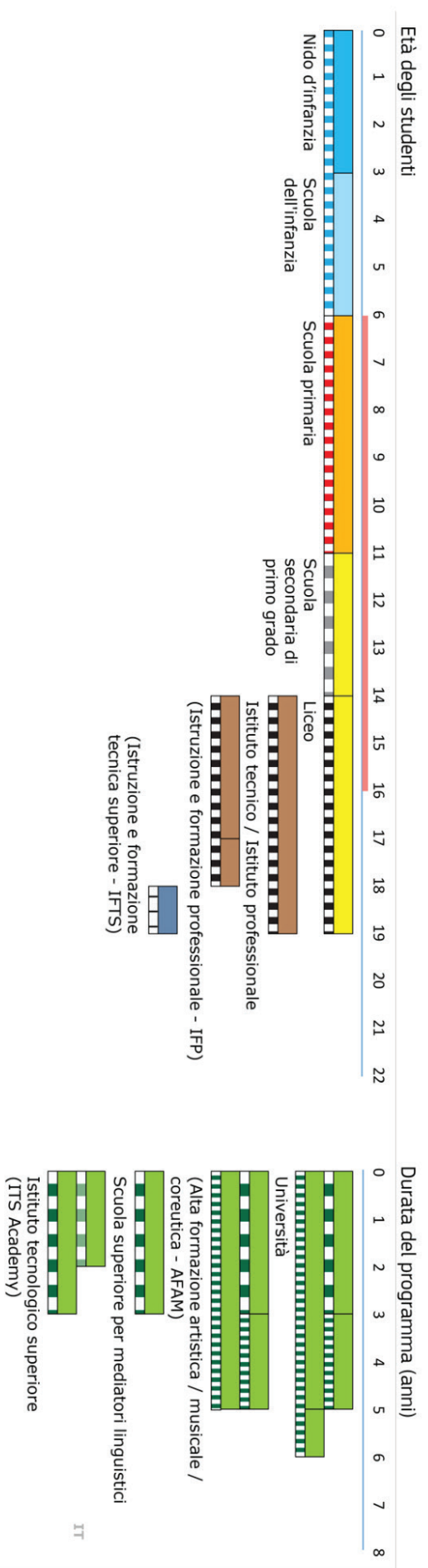
The first two years of the second cycle are part of compulsory education. The upper secondary school offers both general (high school) and vocational (technical and vocational institute) curricula. All courses have a duration of five years. The vocational education and training (VET) system is managed at regional level with three- and four-year courses organised by accredited training agencies or by upper secondary schools. At the end of the regional courses, students obtain a qualification that gives them access to second-level regional training courses or, under certain conditions, to courses at higher technological institutes (ITS Academy). The following institutions offer tertiary-level education:

- Universities and institutes accredited for equivalent qualifications.
- Institutions in the field of higher education in art, music and dance (Afam)
- Higher technological institutes (ITS Academy)

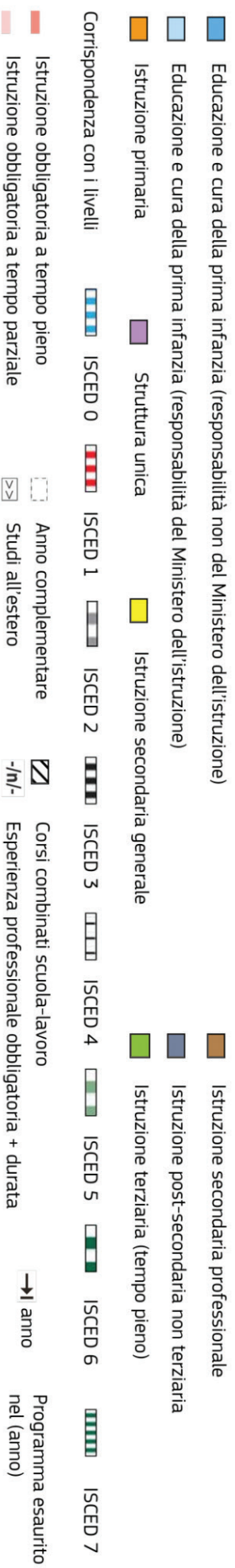
In order to be admitted to tertiary education, it is necessary to have a secondary school diploma. The Ministry of Universities and Research and the single institutions define the specific admission criteria. ITS can also be accessed through a four-year course in the regional vocational training system followed by a one-year specialised supplementary course. ITS have recently been reformed, also in accordance with the objectives set out in the National Recovery and Resilience Plan (NRRP).

29. European Commission. 2022 Country Report - Italy Accompanying the document Recommendation for a COUNCIL RECOMMENDATION on the 2022 National Reform Programme of Italy and delivering a Council opinion on the Stability Programme of Italy, 2022

Italia – 2022/2023



Nota: Nel 2022 la legge n. 99 ha riformato l'Istituto tecnico superiore (ITS). Il nome è stato cambiato in Istituto tecnologico superiore (ITS Academy). Oltre ai corsi ISCED 5 della durata di 2 anni, ora offrono programmi ISCED 6 della durata di 3 anni.



Fonte: Eurydice.

In this institutional framework, public spending on education in Italy will represent 4.1% of GDP in 2021, compared to an EU average of 4.9%³⁰. Paradoxically, the South has the highest incidence on GDP (5.9%) of expenditure on education compared to the North-West (2.8%), which invests relatively less in it.

Moreover, in 2022, the percentage of early school leavers in Italy between the ages of 18 and 24 is 11.5 per cent, a decrease compared to the 2021 estimate, but still significantly higher than the European target for 2030, which is fixed at 9 per cent by the new Strategic Framework for European Cooperation in Education and Training. Early school-leaving particularly characterises males (13.6%) more than females (9.1%)³¹. Moreover, the territorial gap remains high, with a gap of 5.7 percentage points between the Centre-North and the South, where the incidence reaches 15.1%. Among the Italian regions, the highest percentage of early school leavers without an upper secondary qualification is recorded in Sicily (18.8%) and Campania (16.1%).

The percentage of young people holding a tertiary qualification is also differentiated across the territory. In 2022, the gap between Centre-North and South is 8.9 and 8.3 percentage points in the age groups 30-34 and 25-34, respectively. Referring to the same age groups, in the Centre-North, the share of graduates is 30.5 % and 32.5 %, while it drops to 21.6 % and 23.9 % in the South with Apulia and Sicily recording the lowest values. This strong territorial gap remains for both genders.

The vocational education data emerge from a relatively complex institutional framework compared to the European landscape, given that, as already mentioned, Italy is characterised by a shared competence between State and Regions. After a long period during which the various regions adopted their own regional repertoires of vocational qualifications, the National System of Qualifications was definitively established in January 2018, through a decree issued by the Ministry of Labour and Social Policy and the Ministry of Education, University and Research. Under the new designation “Atlas of Work and Qualifications”, the repertory has carried out a rationalisation of the various regional qualifications³², thereby completing the Italian framework of vocational training together with the IFTS, ITS and VET³³ courses and standardising the various qualifications according to the EQF (and obviously with respect to the International Standard Classification of Education - ISCED).

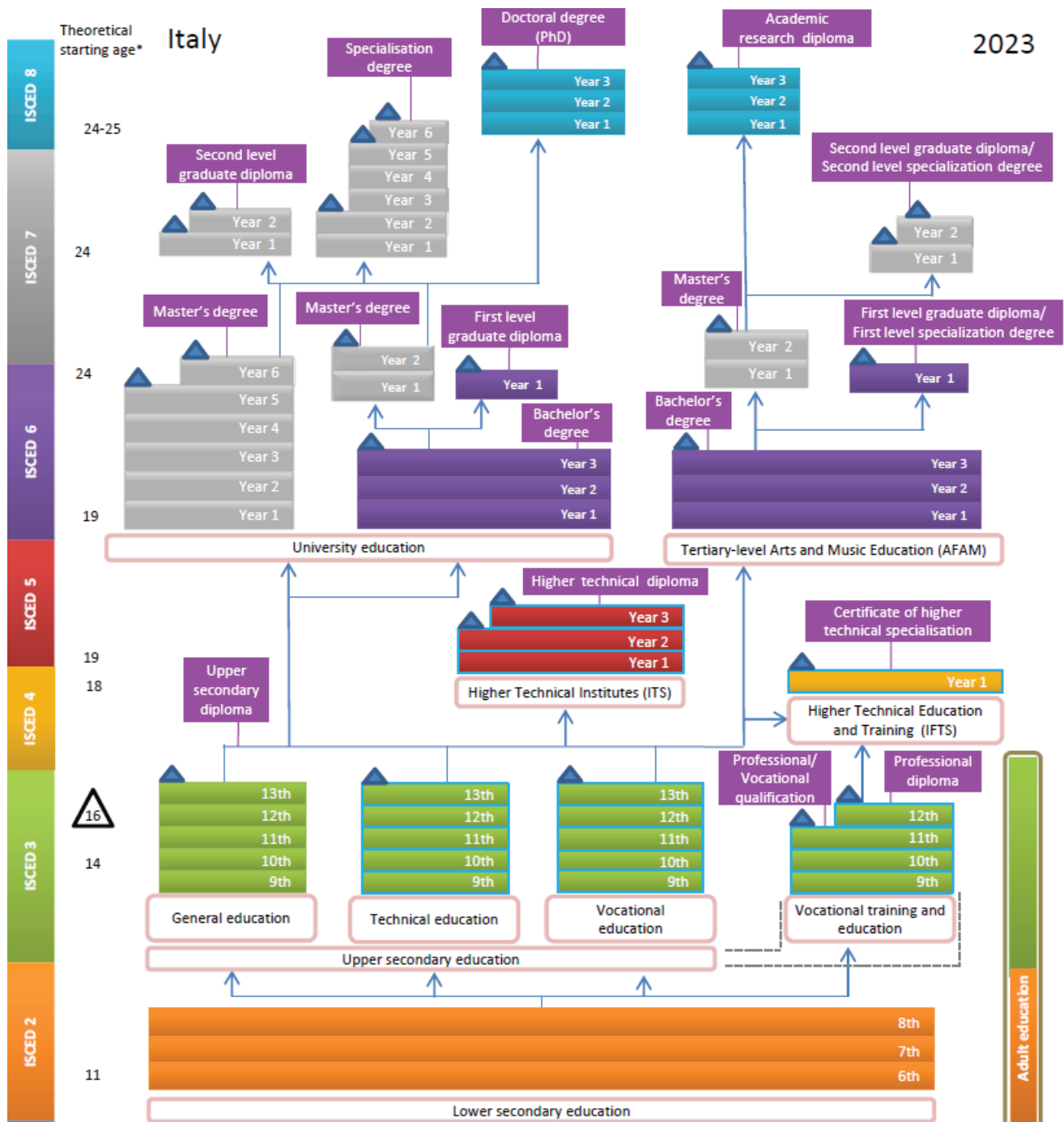
30. *The following data are extracted from:*

- Istat, Annual Report, 2022
- Istat, Education levels and employment returns, 2021

31. *Istat, Annual Report, 2022*

32. This work started already with the Interministerial Decree of 30 June 2015 (National Framework of Regional Qualifications - QNQR).

33. It should be noted that to a large extent Italian classifications traditionally tend to separate vocational training from schooling, whereas the latter also includes technical and vocational institutes, which on the contrary in the various international systems tend to be reclassified under TVET - Technical and Vocational Education and Training. For a re-grouping of Italian courses from an international/EU perspective please refer to UNESCO (<https://unevoc.unesco.org/home/Dynamic+TVET+Country+Profiles/country=ITA>) and OECD web pages (<https://gpseducation.oecd.org/CountryProfile?primaryCountry=ITA>).



As regards lifelong learning³⁴, the last ISTAT survey was published in 2022³⁵, with reference to data collected in 2020 (thus strongly influenced by the first year of Covid-19).

34. Once again, it is important to point out a definitory mismatch between lifelong learning and the concept of lifelong learning, where the former definition is usually applied in the Italian context to training for the benefit of employed people, while the latter refers to all opportunities to enhance skills throughout one's life, thus also including non-formal and extra-occupational training.

35. ISTAT, *Formazione nelle Imprese. Anno 2020*. 2022.

In 2020, 68.9% of the active companies in Italy with at least 10 employees carried out vocational training, and among large companies (250 employees and more) this share exceeds 90%. Over four million workers participated in training courses (44.6% of the total workforce, with slight differences between men and women). In line with the past, companies located in the North-East (74.5%) and the North-West (72.3%) did most of the training. In 2022, the participation of adults in training activities covered 9.6 per cent of the population aged 25-64. The share remains stable, compared to 2021, a year in which there was an important increase after the significant drop in 2020, certainly due to government restrictions on travel and activities imposed to contain the COVID-19 pandemic. Unfortunately, the ISTAT sampling does not detect specialised lifelong learning in the agri-food sector, nor in waste management, making it necessary to analyse additional sources.

The OECD recently carried out a special focus³⁶ on the lack of skills in the agri-food sector. As expected, one of the most critical issues detected in the analysis work itself is due to the enormous variability of skill requirements depending on the level of technology effectively employed by companies. For example, when the agricultural sector is technology-intensive, there is a high demand for highly skilled workers able to use these technologies. On the contrary, when the demand for labour is linked to more traditional production technologies, the demand for medium skilled workers may be prevalent since production is concentrated in sectors with relatively low added value and obsolete production technologies. From this point of view, it is not the snapshot of the existing mismatch that is most relevant, but rather the responsiveness of the country and/or the sector to the new emerging skills challenges and in matching the demand and offer of workers' skills in the labour market. The OECD work from this point of view is very useful as it identifies among the common elements in all the countries examined a very high rate of need not only for technical-professional skills, but also for so-called soft skills: the greatest skills shortages are related to social skills and teamwork, problem solving, learning, planning, and job specific skills.

As regards the agri-food sector, according to the census data of the ISTAT 2020³⁷, it should be noted that the analysis of the age of the farm manager still shows a limited presence of farm managers in the younger age brackets and a prevalence in the more advanced ones: in 2020, the percentage of farm managers up to 44 years of age was 13.4%, down from 17.6% in 2010. In general, the education of company leaders is still very much linked to experience in the field: more than half have an education qualification up to the eighth grade or no qualification at all (almost 59%) and only 9.9% have a university degree.

It should be noted, however, that MYSEA Project deals with topics that attack economic sectors that have been treated in an aggregated manner up to now (agri-food and waste management), although they are characterised by substantially different dynamics and dimensions. For a more precise identification of critical issues and relevant recommendations, it is necessary to propose a greater systematisation, which will be further developed in the fourth paragraph. The consultation of the parallel report *Decent Work Policy for Youth* for a more precise identification and delimitation of sectors is encouraged.

36. OECD, *Labour and Skills Shortages in the Agro-Food Sector*. 2023

37. ISTAT. 7th General Census of Agriculture: First Results, Statistics Report. 2022

3. Analysis of MYSEA findings

MYSEA Project first allowed for a comparative transnational interpretation of the issues covered in this report. The entry elements examined were in particular:

1. WP3 - Output 3.4 - Surveys - Italian Report
2. WP3 - Output 3.5 - Existing situation analysis - Italy
3. WP3 - Output 3.6 - Statistical Report - Cross-border analysis
4. WP4 - Activity 4.1.1: Designing the Curricula Methodology
5. MYSEA Interim Report - Profile of participants in MYSEA courses
6. No. 4 workshops organised online between July and September 2023

The first of these documents is an overview of the quantitative results presented in October 2021 and related to the questionnaires administered to 257 young people, 111 companies and economic operators and 30 training agencies and schools. In addition to these questionnaires, 26 interviews were conducted with stakeholders selected from both economic operators and education and training agencies. The results of the questionnaires were subsequently analysed in depth in the second document mentioned above. It is important to mention that 76.6% of the respondents belonged to the Agri-food sector and 23.4% to the Waste management sector.

Among the most interesting results is the confirmation, with respect to the national picture outlined above, of the lack of adequate skills, not only at the technical-professional level, but also at the level of transversal skills, e.g. the propensity for teamwork, information sharing, unexpected problem solving and organisational change. It is not sufficient, therefore, to master new digital tools or the operation of machines with artificial intelligence in order to enable the workers of the future to integrate efficiently into new work contexts. The most important aspect in workers' competences is the ability to adapt their skills to new organisational and production models. Companies that are looking for workers are in fact struggling to find skilled workers in digital skills, communication and marketing, environmental awareness, management, e-commerce, food processing.

All this in the face of momentous transformations in the very characteristics of work in the agri-food sector, which would allow a concrete relaunch of its attractiveness:

The occupational interest that emerges in the survey is in line with the National statistics about the Agrifood and the secondary activities connected to the sector in Italy: the last generations of farmers and entrepreneurs, applying an approach of multi-functionality, have made the sector a transversal sector which is still attractive for Youth and Women that approach the Agri-food not only for practicing agriculture but also for working with tourism opportunities (such as in the case of the agritourisms), for providing social services (such as the experience of the social farming) and for developing business activities where they can produce, process and sell - directly or not - their own products.³⁸

38. From WP3_Output 3.4 - Survey, pages 12-13

The premises mentioned in the previous two paragraphs allow us to highlight how MYSEA Project has correctly designed its training offer in Italy. The explicit training objectives are indeed in line with the general needs of the sector:

- to learn about the emerging sectors of the Blue & Green Economy
- to deepen the knowledge of the mechanisms relating to the processes and dynamics specific to the agri-food industry and waste management sectors (operations, production, processing, logistics, etc.)
- to work in digital marketing on social media, web presence and the creation of websites and blogs on green economies
- to improve their transversal and practical skills with techniques for teamwork, effective communication, problem solving and time management to acquire entrepreneurial skills with analysis and assessment of the feasibility of an idea, creation of a business plan for sustainable companies.

Also in terms of micro-design, the training offer was characterised by a modular and flexible structure in line with the identified target group of young people and women. The training was structured in three courses of 100 hours each and an additional optional course on entrepreneurial skills. The duration of the theoretical training was approximately three months, followed by a period of 300 hours of in-company practical training (carried out at companies located in Tuscany and Lazio). Recipients were also mentored by a personal tutor and were able to make use of an e-learning platform, benefiting not only from a training course in the strict sense of the word but also from an integrated process combining guidance and training through which participants build their own career path with the support of a pedagogical guide. The training is based on individual courses and took place mainly online, in asynchronous mode. The online training was integrated with in-presence workshops and forums and online seminars in synchronous mode. Each student was also involved in the construction of his/her own project work, which further complements the contents of the sharing platform by contributing, with his/her work, to the 'learning community' that the project has established.

In the course of further roundtables, held between July and September 2023, with a number of specially identified sector stakeholders³⁹, many of the aspects emerged during MYSEA Project and the findings of this report were further corroborated and reinforced. In an attempt to reclassify the collected observations, three catalytic themes may be identified:

1. The systematic lack of practical skills, resulting from a general lack of a work-based learning approach in the Italian vocational education and training system
2. The lack of capacity to continuously analyse the specific needs of each sector or geographical area and to provide timely training responses
3. The need to work more on the attractiveness of the sector to the younger generation

Concerning the first point, a young female farmer efficaciously observes:

In my experience what is really missing, precisely at school and training level, is specialised training. As far as I'm concerned, it seems a paradox that I go to agricultural institutes and can't find someone who knows effectively how to garden. At the school we are taught the four cornerstones, a little bit of animal production, a little bit of vegetable production; but mostly we study cereals and fruit plants. Everything else is not considered agricultural activity, except that on our tables we get vegetables and it would be nice if they were Italian produced, so at least in my experience it is really complicated.

39. In this regard, we would like to take this opportunity to thank the various representatives of Consorzio Abaco, Fondazione Metes, Slow Food, ConsumerLab - Future Respect, as well as the numerous farms involved in the different tables

Not to mention food processing for which there is absolutely no training on processing in the laboratory. Not even just on the basics, like knowing what an HACCP manual is or what good practices are. I found it difficult to find someone who had a minimum of skills, so I actually had to do the training directly on the people who then came to work for me. Therefore, in my opinion, this is a major shortcoming: that especially in a sector that is extremely developed in Italy, there is no basic training, even only within schools, or at least that specialised training courses are then made available. And that's on an activity that underpins our agricultural production.

With respect to the second point, the situation must necessarily be analysed more in terms of school policies (which, as we mentioned relate to national ministerial competences) and sectorial and regional training policies. As regards the school system, we consider what was observed by a school headmaster to be effective:

The big problem is schools. Unfortunately, schools have so-called programmes or 'national indications' that are the same for everyone; they are not differentiated by territory. Thus, there might be one territory that would need to develop certain skills in one area and another territory that would need to develop skills in another area, and here we get into an extremely complicated matter. The complication is that of the skills that teachers may have in a given field. Today, for many of them, there is a certain, let's call it, fossilisation in what are school programmes. Also because once you get to the end of it, there is a state exam that requires that there are only and exclusively certain subjects that are included, so the most attention from schools is undoubtedly directed towards those.

Perhaps also as a function of this national rigidity, many schools see ITS as a good opportunity to escape the trap of the national 'programme':

Once again, there should be a very collaborative involvement between ITS and companies, in order to directly understand what the needs of the market are. The market demands certain skills in a given sector in a specific region, so this ITS therefore has to work on these competences.

On the topic of closeness to the territory for a timely response to training needs, this is a generalised and transversal observation, summarised here by a trade union representative:

The regional/territorial level is the core where training must be built; round tables must be organised. [...] If this is true for bargaining, it should also be true for the training offer and the response to the training demand. Yet this means questioning everyone: from the institutions to those who represent the companies and the workers, in order to provide an answer from the point of view of training.

4. The main 'drivers of change' for public policies

After a brief overview at European, Italian and MYSEA project level, it is now necessary to propose interpretative keys to outline possible future scenarios. We will do so on the basis of some preliminary considerations. First of all, we consider it necessary to diversify the reasoning on the basis of the distinction of different sectors:

- Agriculture
- Food and beverage
- Integrated waste cycle (waste management)

This approach stems from the important work carried out by the National Institute for Public Policy Analysis (INAPP) through three separate publications⁴⁰, which are part of the continuous monitoring carried out by the former ISFOL (Institute for the Development of Vocational Training for Workers) on the subject of anticipating vocational needs.

Secondly, while grounding the considerations that follow on the basis of the findings in the preceding paragraphs, we will in no way propose a strict cause/effect relationship here, placing ourselves at a considerable distance from the scientificity that a rigorous predictive analysis should assume. We will rather supplement what is represented by the aforementioned INAPP reports by means of additional elements deriving from the literature cited so far (with a prevalence of the Cedefop skills forecast exercises) and, of course, from the observations and evidence that emerged within the MYSEA framework.

4.1 Agriculture⁴¹:

To summarise very roughly, the industry trend seems to highlight the need for skills that are substantially outside the core business of the 'traditional' farmer. According to INAPP⁴², the areas for the development of new competencies in the sector will relate in particular to:

- the environmental sustainability of production processes (advanced techniques for managing and protecting crops, adapting to and counteracting climate change, organic farming and other diversified ecological methods, enhancement of biodiversity, protection and regeneration of soil and landscape);
- the market, quality and supply chain relations (strategic and operational marketing, production redevelopment, supply mechanisms and short and local supply chain management);
- the food security of production;
- the management, administrative and financial skills of companies and entrepreneurs (management skills, access to credit and knowledge of financial and insurance instruments, regulations and their evolution, safety);
- the diversification and multifunctionality (agrotourism, educational farms and social agriculture);
- the ability to network and contribute to local development (skills for the valorisation of local heritage and its specialities);
- the exponential reinforcement of IT skills in business life and the choice of new technologies to support production, innovation and research.

40. INAPP, Anticipating Professional Needs in the Green Economy, 2018

INAPP, Anticipation of occupational needs in agriculture and forestry, 2021

INAPP, Anticipation of occupational needs in the food and beverage sector, 2021

41. Please refer to the *Decent Work Policy* report for a precise delimitation of the sector

42. For an in-depth analysis see paragraph 4.1 of INAPP, Anticipating Professional Needs in the Food and Drink Sector, 2021

Although these trends may perhaps seem obvious, it is important to remember the snapshot of the sector taken by the aforementioned ISTAT census. In fact, we are talking about skills needs that are largely disruptive to the economic fabric of this sector, especially in Italian regions where micro-enterprises dominate and in a context that we have seen is characterised by an extremely low youth component.

INAPP also identifies a useful list of competences that constitute the references that shape the changing professions in the sector, and of course these competences are variously distributed according to the professional profiles. However, it is strikingly evident that certain skills are of strategic importance for all professional profiles, from the entrepreneur to the farm worker, including all specialised technical profiles (agronomists, zootechnicians, farm machinery drivers, etc.):

Tabella 12 **Indice di cambiamento delle Competenze ed Indice di rilevanza delle Unità/Classi Professionali selezionate**

Competenze selezionate	Molto importante	Importante	Poco importante	Ininfluyente	Unità Professionali selezionate										Indice di rilevanza %		
					1.2.1.1.0	1.3.1.1.0	2.3.1.3.0	2.3.1.4.0	3.2.2.1.1	3.2.2.1.2	3.2.2.2.0	6.4.1	6.4.2	7.4.3		Indice di rilevanza v.a.	
Essere in grado di sviluppare approcci orientati all'autodiagnosi, all'autocorrezione e al miglioramento continuo																40	100,0
Essere in grado di recepire le esigenze della clientela per lo sviluppo di prodotti e servizi																34	68,2
Essere in grado di presidiare la strategia di acquisto e di vendita di prodotti e servizi																24	15,6
Essere in grado di promuovere e sostenere processi produttivi, organizzativi e commerciali fondati sulla cooperazione e sulla valorizzazione di filiere e reti																28	36,8
Essere in grado di interagire positivamente all'interno di contesti interculturali e multidisciplinari e di partecipare efficacemente ad attività fondate sulla interazione di visioni, comportamenti, approcci tra loro differenti																32	57,8
Essere in grado di promuovere l'analisi dei rischi all'interno e all'esterno dei processi decisionali aziendali																34	68,2
Essere in grado di svolgere funzioni di pianificazione, coordinamento, organizzazione e gestione dei processi logistici, interni ed esterni all'azienda, che permettano al prodotto di essere distribuito dal luogo di produzione al cliente finale																25	21,0
Essere in grado di suggerire l'utilizzo efficace di nuovi saperi, metodi, soluzioni gestionali all'interno dei processi produttivi e organizzativi e di ricerca																28	36,8
Essere in grado di interpretare e applicare normative generali e specifiche in relazione al sistema aziendale/organizzativo locale, nazionale (e internazionale) di riferimento																27	31,6
Essere in grado di utilizzare sistemi informativi e strumenti di comunicazione web based nella gestione ordinaria dei processi aziendali																40	100,0
Essere in grado di selezionare le tecnologie più appropriate nella gestione e nello sviluppo dei processi produttivi aziendali																29	42,1
Essere in grado di promuovere attività orientate alla diversificazione e alla multifunzionalità di processi, prodotti e servizi aziendali																28	36,8
Essere in grado di utilizzare le lingue straniere all'interno dei differenti ambiti caratteristici della propria dimensione professionale																28	36,8
Essere in grado di acquisire e utilizzare risorse per una corretta ed efficace attività finanziaria																21	0,0
Indice di Cambiamento v.a.	50	54	52	37	44	40	44	32	32	33							
Indice di Cambiamento %	81,8	100,0	90,9	22,7	54,5	36,3	54,5	0,0	0,0	4,5							

4.2 Food and Beverage⁴³

Although it features some elements similar to the agricultural sector, the food processing and distribution sector has some additional special features. According to INAPP⁴⁴, the main drivers of change in terms of skills are:

- the changes in the market and the consumer needs (principles of healthy eating, the impact of new ingredients on the quality of food and drink and on human health);
- the creation and marketing of new products, including organic and eco-sustainable products;
- the implementation of new technologies, software or machinery and equipment, including those for environmentally friendly and efficient sustainable production;

43. Please refer to the *Decent Work Policy* report for a precise delimitation of the sector

44. For an in-depth analysis see paragraph 4.1 of INAPP, *Anticipating Professional Needs in the Food and Drink Sector, 2021*

- the changes in work organisation and organisational culture within the company;
- the implementation of new models and management systems;
- the enforcement of new regulation, legal regulations and quality standards, certification, trademarks, etc.

Probably even more than in the agricultural sector, we are confronted here with an increasing transversal level of complexity management and continuous updating of technical skills (obviously from the point of view of digitisation, but also with regard to process innovations, safety, sector regulations, etc.).

Once again, the index of change proposed by INAPP identifies crucial areas of competence (red and green colours) in all the professional profiles investigated:

Tabella 11 Indice di cambiamento delle Competenze ed Indice di rilevanza delle Unità/Classi Professionali selezionate

Competenze selezionate	Molto importante	Importante	Poco importante	Ininfluyente	Unità Professionali selezionate							Indice di rilevanza v.a.	Indice di rilevanza %
					1.2.1.2.0	1.2.3.3.0	1.3.1.2.0	2.3.1.1.4	3.1.5.4.1	3.1.5.4.2	3.2.2.3.2		
Essere in grado di sviluppare approcci orientati all'autodiagnosi, all'autocorrezione e al miglioramento continuo.												28	100,0
Essere in grado di interagire positivamente all'interno di contesti interculturali e multidisciplinari e di partecipare efficacemente ad attività fondate sulla interazione di visioni, comportamenti, approcci tra loro differenti.												23	54,5
Essere in grado di recepire e interpretare le esigenze della clientela in relazione a prodotti e servizi.												20	27,3
Essere in grado di prendere decisioni in relazione al proprio contesto di riferimento attraverso l'acquisizione di set informativi pertinenti in tempi utili.												25	72,7
Essere in grado di presidiare e/o gestire le strategie di acquisto e di vendita di prodotti e servizi.												18	9,1
Essere in grado di individuare e presidiare i processi logistici, interni ed esterni all'azienda, che permettono al prodotto di essere distribuito dal luogo di produzione al cliente finale.												21	36,4
Essere in grado di individuare e favorire processi aziendali (interni ed esterni) orientati al miglioramento della salute, della sicurezza alimentare, della sostenibilità ambientale.												25	72,7
Essere in grado di promuovere l'analisi dei rischi all'interno dei processi aziendali.												23	54,5
Essere in grado di acquisire e utilizzare risorse per una corretta ed efficace attività finanziaria in relazione alle specifiche strategie aziendali (di livello locale, nazionale, internazionale).												17	0,0
Essere in grado di promuovere e gestire processi interni ed esterni all'azienda in direzione di una crescente capacità di internazionalizzazione.												17	0,0
Essere in grado di promuovere e sostenere processi produttivi, organizzativi e culturali fondati su una costante valorizzazione delle dinamiche produttive e relazionali locali.												17	0,0
Essere in grado di trasferire set di nuovi saperi all'interno dei processi produttivi, organizzativi e di ricerca.												17	0,0
Essere in grado di interpretare e applicare normative generali e specifiche in relazione alle esigenze di adeguamento continuo alle caratteristiche della 'geografia' regolativa, amministrativa e produttiva dei propri mercati di riferimento (locali, nazionali e internazionali).												21	36,4
Essere in grado di utilizzare sistemi informativi e strumenti di comunicazione web based nella gestione ordinaria dei processi aziendali e selezionare le tecnologie più appropriate nella gestione e nello sviluppo dei processi produttivi aziendali.												21	36,4
Indice di Cambiamento v.a.					50	46	54	47	32	32	35		
Indice di Cambiamento %					81,8	63,6	100,0	68,2	0,0	0,0	13,6		

4.3 Waste cycle (waste management)⁴⁵

The waste sector today seems to be impacted by factors of change that have not yet succeeded in affecting the Italian education system. Leaving behind the usual delimitation of the sector as only collection, transport and disposal companies (already subject to strong regulatory and process, as well as technological, pressures), the waste cycle actually also involves production firms, which must increasingly incorporate solutions and skills capable of responding to social and market demands regarding environmental sustainability and the circular economy. As INAPP argues in fact:

Moving from the regulatory drivers at European and international level, the focus today is not only on climate-changing emissions into the atmosphere, but also on material flows and resources, according to the need not to waste resources in a circular economy logic.

45. Please refer to the *Decent Work Policy* report for a precise delimitation of the sector

[...] These changes have a significant impact also in terms of training and professional requirements, as certification will become increasingly important in the future, both with regard to processes and in the application of quality environmental labels on goods and services. In particular, skills in quality certification of secondary and raw materials, i.e. professionals related to the field of controls and quality labels [...], will be increasingly useful in a future scenario. Moreover, for the cycle of waste, it is necessary to think in terms of the whole industry, so as to conceive an upstream and downstream product and to have the ability to identify which professions are able to intervene upstream and downstream and the related gaps in terms of professional and training needs (to understand which existing professional profiles need to be updated and/or trained in a different way, with different sensitivities).

It is also worth mentioning that the education system, as of today, still has very little perception of the need for specialised training with respect to the new model of the circular economy that generates value chains. At present, there are almost no courses on secondary raw materials in the curricula, the prices of raw materials are not known, nor are the markets or stock exchanges where they are quoted. There is no teaching and, consequently, diffuse expertise on these issues, and the combination of engineering and economics is lacking. The education and training system will, therefore, have to take this into account in the near future.

5. Transversal recommendations

Thinking of addressing local and regional policy makers as a priority, it seems important here to focus on initiatives that can immediately and operationally influence the dynamics of the sectors as identified above. Since they cannot directly influence national legislative dynamics, local actors have at their disposal tools that are more closely linked to the distribution of resources (typically from the EU) and the possibility of triggering or facilitating territorial dynamics by focusing on specific priorities and critical issues. Clearly, such recommendations are addressed not only to public actors (local authorities and their aggregations or emanations), but also to employers' associations, trade unions, district systems, mixed consortia and foundations, and in general to all those actors that in various ways can influence a participatory process aimed at sharing and co-designing (formal and informal) public policies. Therefore, supra-regional structural aspects, which have already been widely noted by the European institutions and referred to on several occasions in the preceding pages, will not be mentioned in the following recommendations. Rather, we will focus here on what each actor/stakeholder can concretely do in order to trigger virtuous circles with respect to their local training ecosystem, whether expressed in the form of a district, local production system, consortium or other. Such recommendations come mostly from reflections consistent with what has been argued so far, although we will attempt here to present cross-sectoral indications for all the sectors analysed, although it is important to remember that at a greater level of detail it will be necessary to further explore the specificities of each of the areas investigated by MYSEA Project (agriculture, agribusiness and waste management). From this point of view, it seems important to distinguish conceptually between:

1. Public policies in the strict sense
2. Policies and strategies of the employer system
3. 'Enlarged' policies that, in line with a 'Quadruple Helix' approach, are capable of intercepting and composing the demands of the educational systems, the economic/productive system, civil society, universities and research and (from the perspective of the 'Quintuple Helix') the demands dictated by environmental and circular economy challenges.

In relation to all these areas, local institutions and local and sectorial employer systems can play an important role in at least the following aspects⁴⁶:

- **Designing flexible and sufficiently abstract** training courses (consistent with the ESCO databases and the Atlas of Labour, as well as with the EQAVET principles) capable of ensuring a continuous adaptation of the contents according to real needs. The concept, apparently trivial, often becomes complex in its concrete applications, not least because of the pressure from the companies and professionals involved in identifying training needs, which by their very nature seek to identify levels of micro-skills that are practical and directly spendable in their own production processes. The role of co-design should therefore be to counterbalance this tendency, in order to create sufficiently abstract curricula, which only in the executive micro-design phase will have to be 'filled in' with specialised content relevant to local characteristics.
- **Systematically involving companies and trade associations in training planning.** More in general, we could say that it is indispensable to ensure that training curricula correspond to the real needs expressed by companies in the territory, in order to reduce as far as possible the gap that too often characterises many employment profiles today. At the same time, co-planning can enable the adoption of on-the-job training systems by bringing companies closer to the training logic and their co-responsibility in territorial 'training pacts'.
- **Systematically involving universities and the world of research in co-designing training.** Closely connected to the previous point, this recommendation originates from the conviction that training planning should be linked not only and not so much to the immediate skills of today, but above all to those of tomorrow. In a scenario of constant and rapid technological evolution, the educational investment we must ensure young people does not only concern easy and immediate entry into the world of work, but also the possibility of expressing their full potential throughout their working lives, also in line with European key competences. Identifying future technologies and production processes, therefore, also allows for sufficiently broad and abstract training design⁴⁷. This approach also aims at a system-level break-down between the academic and SME worlds, facilitating paths of comparison and easier experimentation and technology transfer.
- **Ensuring a strong focus on soft skills and European key competences.** We have extensively seen how future European scenarios, even in the economic sectors we are interested in, transversal skills, primarily green and digital, will become increasingly crucial and indispensable. It is therefore vital to ensure that curricula and trainers are able to respond to these needs and continuously adapt to their evolution.
- **Adopting a micro-credentials-compliant approach.** It is a 'hot' topic at the European level, even if perhaps with respect to our purposes it should be reworded as follows: to ensure that training is offered in autonomous modules, directly linked to expected performances, and not only theoretical knowledge, and individually certifiable (and thus not only through the achievement of an entire qualification). This means not only the subdivision of training into individual Units of Competence (as is already the case in many regions and as now also standardised by the Labour Atlas), but also a guaranteed modularity at the level of the training timetable⁴⁸. In terms of duration, since there is no reference standard, it is necessary to refer to individual regional regulations, although it is reasonable to identify a reference range between 70 and 110 hours⁴⁹.

46. It should be noted how many of the elements described here are strongly linked to each other, even allowing for positive contaminations

47. Please refer in particular to the skills forecast concept and the operational methodologies indicated by Cedefop: <https://www.cedefop.europa.eu/en/tools/skills-forecast>.

48. However, vocational training is often broken down into several Areas of Activity/Units of Competence, which are spread over entire years and organised in such a way that it is basically impossible for the beneficiary to separate one module from the rest of the programme.

49. This is a 'good practice', the result of standards adopted in many Italian regions, which however can vary according to EQF levels, sector and training context.

- **Systematically designing work-based learning activities.** This is probably an area in which the Italian system still needs to make great strides, not only in the planning of training projects and programmes involving direct experience in the company, but also through the adoption of increasingly immersive methodologies and tools capable of systematically simulating the work experience. This approach, which is obviously highly topical with the technological advancement also in the world of didactics (e.g. with virtual and augmented reality), still largely needs to be explored in the world of non-technological education as well, where teaching methodologies still remain excessively rooted in the classic setting of one-way teacher/learner communication.
- **Investing in the training of trainers.** This action should be a prerequisite for the efficacy of many of the other recommendations listed here, as it is directly related to their efficacy. The investment should be multi-dimensional, e.g.: carrying out international experiences with job shadowing and exchange of good practices; setting up interdisciplinary working groups; breaking down barriers between schoolteachers and VET teachers; acquiring skills (and not only knowledge) in pedagogical methodologies and teaching technologies; developing skills in learning assessment, etc.
- **Anchoring the ITS system to local economic districts and short supply chains.** The EQF level 5, for which Italy started very late compared to many other European countries, now represents an incredible opportunity for the relaunch of local training systems, also thanks to the acceleration and joint investment made possible by the NRRP and the ESF and ERDF structural funds. Local actors can be the key to setting up or reinforcing local district systems that can make the most of local excellence, particularly enterprises, schools and universities. From this point of view, ITS Foundations become by their very nature *COVE platforms - Centres of Vocational Excellence*⁵⁰, as defined by the European Commission, and which should be taken as a benchmark for the definition of integrated strategies and policies at local and regional level.
- **Encouraging the creation of territorial laboratories and open technological experimentation.** This is a practical application, which has already been tested in Italy, capable of guaranteeing the provision and structural and instrumental updating of places (fixed or virtual) where training can be combined with experimentation and technology transfer. Fully-fledged collaborative platforms where companies, research centres, educational institutes, technology providers and local authorities can work together to ensure optimal conditions for the skills expressed by local businesses.
- **Contributing to the attractiveness of the education system**⁵¹. This is actually a very wide-ranging topic and bound to receive increasing attention in the coming years. In fact, for years now this issue has become important in the field of tertiary education, where the quality of teaching and the employment implications have made it necessary for universities (which are now systematically subjected to qualitative and quantitative benchmarking) also to work transversally to enhance their excellence, also from an international perspective. The higher education and vocational training sector will undoubtedly see these trends grow in the coming years and will hopefully feed into the vocational training market especially in terms of the actual educational success of its recipients. Certainly, this approach also entails activating and exploiting all possible levers, such as teacher training, teaching methodologies, available facilities and tools, connection with local businesses, etc.
- **Internationalising training** on various fronts: guaranteeing transnational partnerships and twinning with local systems in other countries; ensuring training experiences abroad for both students and teachers; guaranteeing language skills also through teaching in a foreign language; systematically comparing the expendability of one's curricula with foreign contexts; hosting foreign teachers and testimonials in one's training courses and in job shadowing; hosting students from foreign institutes, etc.

50. <https://ec.europa.eu/social/main.jsp?catId=1501>

51. Obviously, this aspect is closely related to the issue of the attractiveness of economic sectors in general, which is addressed more specifically in the *Decent work* report.

● **Ensuring an impact assessment on training actions**, both at the level of individual interventions and at the macro level of territorial programming. Even today, the Italian education system still appears to be systematically lacking sufficiently consolidated data and analyses in order to concretely assess the extent to which certain curricula (and their actual delivery) meet (and to what extent) the needs of the world of work. This shortcoming becomes particularly evident when confronted with dynamics that tend to increasingly broaden the transversal and 'fluid' scope of professions, which are therefore also more difficult to observe. All the more so today, therefore, it seems indispensable not only to focus on the spending capacity of regional and national authorities with respect to European structural funds, or on the immediate satisfaction of users with respect to the training received, but also on indirect indicators that can provide useful elements for the evaluation of local policies and the defining of future strategies⁵².

52. In addition, the evaluation of training impacts can also further contribute to the labour market orientation work, which is specially analysed in the *Decent Work Policy for Youth* report.

Annex 1 - Summary of the main findings

The experience and outcomes of MYSEA Project are part of a European, Italian and sectorial context characterised by strong elements of specificity and a series of epochal changes that contribute to laying bare many criticalities in our country's education and training systems. At the same time, the economic fabric of the sectors under research largely shows objective difficulties, such as the low schooling of micro-enterprises in the agricultural sector, or the low propensity for innovation and digitisation compared to other economic sectors or other European countries. In respect of the most probable future scenarios, which highlight the need for a strong investment in multifunctionality and in the presidium of transversal skills (green and digital above all), it seems essential to pay the utmost attention to young people, who for years have been experiencing paradoxical situations of non-inclusion in the labour market and in vocational training courses despite the presence of a labour market with sectors and territorial areas with a strong shortage of skilled personnel. At the same time, Italy is characterised by heterogeneous dynamics at the regional level, with very critical situations in several southern regions, which feature an extremely high incidence of the NEETs phenomenon.

Specifically, MYSEA Project has made it possible to highlight 3 macro-areas of systematic criticality in the relevant economic sectors:

- The systematic lack of practical skills, resulting from a general lack of a work-based learning approach in the Italian vocational education and training system.
- The lack of capacity to continuously analyse the specific needs of each field or geographical area and to provide timely training responses.
- The need to work more on the attractiveness of the sector to the younger generation.

By cross-referencing this data with the analysis of the main drivers of change identified by INAPP in the three reference sectors (agriculture, food processing, waste cycle), we find many transversal concepts which we summarise here:

- Environmental sustainability of products and production processes
- Safety (of products and production processes)
- Circular economy (products, materials, packaging, logistics, etc.)
- Changes in the market and new consumer needs
- Quality and certifications
- Changes in regulatory frameworks and industry regulations
- Implementation of new technology, software or machines and equipment
- Diversification and multifunctionality
- Implementation of new models and management systems
- Ability to network and contribute to local development
- Supply mechanisms and short and local supply chain management

In accordance with the analyses carried out from a European and Italian perspective and the findings of MYSEA Project, the following recommendations have therefore been developed, dedicated in particular to local and regional actors, with the aim of facilitating the matching of training offer and labour market demand. This list especially defines proposals that policy makers and stakeholders can pursue with respect to local training systems, while we refer to the parallel report *Decent Work Policy for Youth* for specific labour market recommendations.

- **Designing flexible and sufficiently abstract** training courses (consistent with the ESCO databases and the Atlas of Labour, as well as with the EQAVET principles) capable of ensuring a continuous adaptation of the contents according to real needs.
- **Systematically involving companies and trade associations inco-designing training**, in order to ensure that training curricula correspond to the real needs expressed by local production systems.
- **Systematically involving universities and the world of research inco-designing training**, considering that training planning should be linked not only and not so much to the immediate skills of today, but above all to the skills of tomorrow.
- **Ensuring a strong focus on soft skills and European key competences**, primarily green and digital, which will become increasingly central and indispensable.
- **Adopting a micro-credentials approach**, in order to ensure that training is offered in autonomous modules, directly linked to expected performances, and not only theoretical knowledge, and individually certifiable (and thus not only through the achievement of an entire qualification).
- **Systematically designing work-based learning activities**, by adopting methodologies and tools that are increasingly immersive and able to systematically simulate the work experience.
- **Investing in the training of trainers**, , by carrying out international experiences, with job shadowing and exchange of good practices; setting up interdisciplinary working groups; breaking down barriers between school teachers and VET teachers; acquiring skills (and not just knowledge) in pedagogical methodologies and teaching technologies; developing skills in the assessment of learning, etc.
- **Anchoring the ITS system to local economic districts and short supply chains**. The EQF level 5 offers today an incredible opportunity to set up or reinforce local district systems that can enhance the excellence of the territory, and in particular enterprises, schools, universities. From this point of view, ITS Foundations become by their very nature *COVE platforms - Centres of Vocational Excellence*⁵³.
- **Encouraging the creation of territorial laboratories and open technological experimentation** in order to ensure the structural and instrumental provision and updating of places (fixed or virtual) where training can be combined with experimentation and technology transfer.
- **Contributing to the attractiveness of the education system**⁵⁴, by testing the training settings for qualitative and quantitative benchmarking, and by activating and enhancing all possible levers, such as teacher training, teaching methodologies, available facilities and tools, connection with local businesses, etc.
- **Internationalising training**, through transnational partnerships and twinning; training experiences abroad for both students and teachers; language skills also through teaching in a foreign language; ensuring the expendability of one's curricula with foreign contexts; hosting foreign teachers and testimonials in one's training courses and in job shadowing; hosting students from foreign institutes, etc.
- **Ensuring an impact assessment on training actions**, both at the level of individual interventions and at the macro level of territorial programming, also by developing indirect indicators that can provide useful elements for the evaluation of local policies and the definition of future strategies⁵⁵.

53. <https://ec.europa.eu/social/main.jsp?catId=1501>

54. Obviously, this aspect is closely related to the issue of the attractiveness of economic sectors in general, which is addressed more specifically in the *Decent work* report.

55. In addition, the evaluation of training impacts can also further contribute to the labour market orientation work, which is specially analysed in the *Decent Work Policy for Youth* report.



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