

# The changing nature and role of vocational education and training in Europe

## VET in higher education: Country Case Studies

AO/DSI/JP/Changing\_Role\_of\_Vet/009/15

### Case study focusing on Italy

prepared for CEDEFOP – European Centre for the Development of Vocational Training

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#### *Disclaimer*

*This text is presented in its original form.*

*It has neither been revised nor edited by Cedefop.*

## **The changing nature and role of vocational education and training – overall aims**

The purpose of the Changing nature and role of VET-project is to improve our understanding of how VET is changing in the countries belonging to the European Union (as well as Iceland and Norway). Over a three-year period (2016-18) the project will analyse how vocationally oriented education and training has changed in the past two decades (1995-2015) and based on these results investigate the main challenges and opportunities facing the sector today and in the future. Work is divided into six separate but interlinked themes:

- (a) the changing definition and conceptualisation of VET;
- (b) the external drivers influencing VET developments;
- (c) the role of traditional VET at upper secondary level;
- (d) VET from a lifelong learning perspective;
- (e) the role of VET at higher education levels;
- (f) scenarios outlining alternative development paths for European VET in the 21st century.

The study takes as its starting point that vocationally oriented education and training is something more than the traditional VET delivered at upper secondary level (in the form of school-based education or training, apprenticeships, or combinations of these). Due to the requirements of lifelong learning, we are able to observe diversification of VET with new institutions and stakeholders involved. We also see an expansion of VET to higher education areas, partly through reform of existing institutions, partly through the emergence of new institutions. This has been caused by factors internal to the education and training system as well as by external pressures linked to demographic, technological and economic changes.

This particular case study, together with 9 other case studies, provides input to theme (b) of the project ('The external drivers influencing VET developments').

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## Case study

**Country: ITALY**

**Author: Marco Innocenti & Veronica Messori**

**Title of the case study: Higher VET in Italy**

### 1. Introduction

*Please provide a concise introduction that gives an overall indication of the change processes observed (during the last 20 years) related to VET at higher levels in terms of 'academic or vocational drift' or 'expansion of VET at higher levels (outside higher education)'.*

Higher education learning pathways are offered by three types of institutions in Italy: universities belonging to the system of academic higher education, high-level arts music and design institutions (Alta formazione artistica e musicale, AFAM) and higher technical institutions (Istituti Tecnici Superiori, ITS) belonging to the system of the tertiary education. Higher education institutions in Italy are autonomous. They are able to establish their own mission and governing bodies (Rector, Board of Management and Senate) and their teaching and research structures. Italy has 95 university institutions (61 state universities, 17 non-state universities, 6 higher schools and 11 online universities) and 127 higher education institutions for fine arts, music, dance and design.

The entire sector, but especially the university education category, underwent a radical renewal at the end of the 1990s, motivated both by choices of national significance and by the desire to bring the system into line with the European model outlined by the Bologna which Italy has helped to promote from the outset.

In Italy, the introduction of VET at higher levels is quite new.

Traditionally the Italian higher education system has not included programmes and approaches oriented to enhance and increase the transition of students from school to work. Moreover, the current presence of VET in this kind of education is limited, as well as the contribution and co-operation with employers and labour market stakeholders.

In Italy only 18% of people aged 25-65 year old have attained tertiary education, 4% at bachelor's and 14% at master's or equivalent level. Regarding young adults aged 25-34 the difference with OECD countries is more moderated compared to the previous one, in particular 26% have a tertiary education while the average in OECD countries is 43%. <sup>(1)</sup>.

In Italy there is a consistent number of students leaving the study cycle (many of them become NEET) or accessing the labour market without continuing the learning pathway. This can be related to a low level of enrolment of students coming from secondary education, a significant level of drop-out and an insufficient offer of tertiary courses with a strong voca-

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<sup>(1)</sup> OECD, 2017

tional structure. According to OECD indication in Italy the low level of tertiary attainment is also due to poor employment prospects and low financial returns from attaining tertiary education (with a significant difference amongst gender).

Recently the Italian government has enhanced the level of technical and vocational content in academic pathways, linking them with labour market needs in order to create specific links between non-academic tertiary education and academic pathways, which will encourage the access of students in higher education.

In 2007 (Decreto Ministeriale 16 marzo 2007), a 'Bachelor's degree' (Laurea) was provided by the Universities, as an alternative to the 'Master degree' (obtained after 5 years) which has already been formally established. This short academic pathway lasts 3 years and is aimed at providing students with easier access to the labour market gaining technical skills and increasing their employability, especially for specific vocational profiles in the health and legal sector. Unfortunately, the outcome of this pathway was not what the reform was expecting. In fact, the number of students accessing the labour market after these courses is very low, and the majority of students choose to continue their studies for acquiring a Master degree. Others students, on the other hand, leave their studies to choose a different job career, or end up becoming unemployed.

The insufficient results obtained through the introduction of Bachelor's degree, and the low and poor linkage of the learning paths with the labour market, resulted in the Italian Government introducing a Professional Bachelor's degree (Decreto Ministeriale 12 December 2016, n.987) which was more oriented to the employability of students and better connected with employers and labour market needs. The implementation of the **Professional Bachelor's degree** can be considered as **vocational drift** of higher education, as it foresees the introduction of vocational learning approaches and methods in the academic pathway.

In 2007, Italy carried out a significant evolution in the field of higher education promoting specific vocationally-oriented higher education programmes aimed at enhancing and facilitating young people's access to the labour market, taking into account an academic profile. In particular, specific formal VET pathways have been established with the strong co-operation of employers, universities, schools and VET Agencies. These new institutions (*Istituti Tecnici Superiori, ITS*) established with a specific National Law (Legge 2 aprile 2007, n. 40, art. 13), offer short-cycle tertiary programmes according to the Bologna structure but which are not linked with the Bachelor programmes and are less theoretical. They cover techniques, ideas and concepts not generally taught in upper secondary education. In the last few years, the school reform introduced measures to boost the ITS such as:

- enabling students with only four-year upper secondary vocational qualification to access ITS after completing a foundation year;
- increasing the permeability between ITS and academic higher education (e.g. Bachelors' degree and Master degree) by simplifying administrative procedures.

The introduction of **ITS** as vocationally-oriented higher education programmes can be considered as **vocational drift** of higher education.

The importance of strengthening the connections between VET (including ITS) and academic higher education pathways (Bachelor's and Master degrees) is a primary objective for the Italian Ministry of Education, University and Research (MIUR) and it is a priority in the future

educational strategy and policy. In particular, a single framework is requested in order to guarantee an effective and efficient tertiary education system as well as effortless bridges between VET and Academic Higher Education. This aim is the main focus of the policy of the Ministry.

## 2. VET at higher levels

*Please briefly describe the current situation related to 'VET at higher levels' in your country and refer to the following questions:*

*Which **types of vocationally oriented degrees/qualifications** are currently awarded at **EQF levels 5-8** and **since when**? Please include the titles of these types and their NQF/EQF level and **describe them briefly!** Please use the most commonly used English translation for the titles of qualification types and use these titles consistently! <sup>(2)</sup> To which **educational segment** do they belong (e.g. higher education, post-secondary level VET, CVET)? What is the **'importance' of these types** (e.g. in terms of number of learners or graduates) compared to other types (such as number of students enrolled in academic HE programmes)? Are there any prevailing economic sectors?*

*Please include any **figures or diagrams** (time series), if possible!*

In Italy, VET at higher levels is offered by three types of institution: *universities, high-level arts, music, and design institutions* (Alta formazione artistica e musicale, AFAM) and *higher technical institutions* (Istituti Tecnici Superiori, ITS). The figure below provides an overview of the enrolled students in the main programmes offered at these institutions. <sup>(3)</sup>

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<sup>(2)</sup> If applicable, refer to the Cedefop NQF monitoring reports – see: <http://www.cedefop.europa.eu/en/events-and-projects/projects/national-qualifications-framework-nqf/european-inventory>

<sup>(3)</sup> Data about University Master degree (levels I and II) are highly fragmented and it is not possible to acquire useful information.

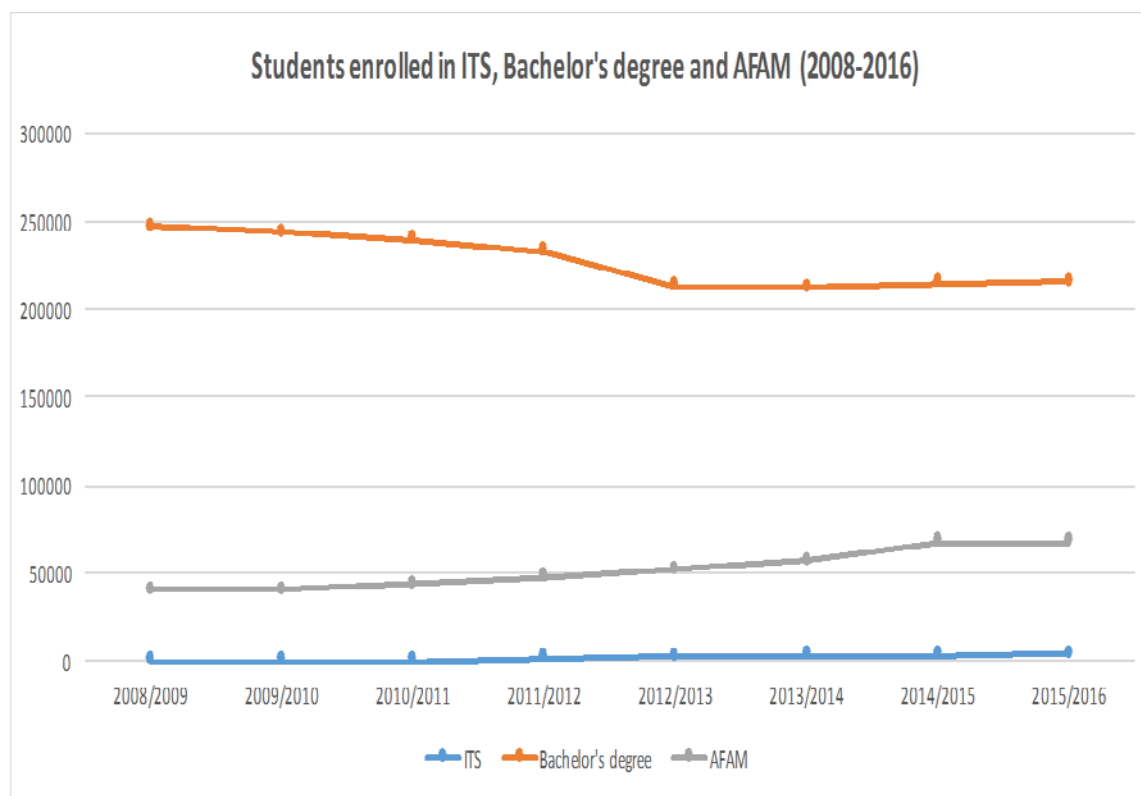


Fig. 1: Students enrolled in ITS, Bachelor's degree and AFM (2008-2006)

Source: Author based on ISTAT, ANVUR, INDIRE, 2008-2015

Other private providers (private schools, agencies and academies) offer higher level courses with a vocational profile but the certificates/diplomas provided by them after the courses are not recognised in the NQF and, with the exception of specific significant cases, they will not be taken into account in this case study.

Linked to EQF levels 5-8, there are five types of vocationally oriented qualifications:

1. Qualifications at EQF level 5 from Higher Technical Institutions
2. Bachelor's degrees with a vocational orientation (professional Bachelor) at EQF level 6, traditionally acquired through studies at university (within higher education)
3. University Master (levels I and II) at EQF level 7-8 from universities or specialised university institutions
4. Higher specialisation diploma linked to EQF levels 7 and 8
5. . First and Second level academic diploma in Arts and Music (AFAM) linked to EQF levels 6 and 7

When we talk about tertiary education in Italy, it becomes clear the number of people enrolled in this typology of learning pathway is lower than the EU 28 average, and this trend will persist in the next few years (tab.1).

Tab.1: Number of tertiary education students by level, 2015 (thousands)

	<b>Short-cycle tertiary education (e.g. ITS)</b>	<b>Bachelor degree or equivalent</b>	<b>Master degree or equivalent</b>
Italy	6.5	1076.7	710.5
EU 28	1397.5	11984.4	5423.1

Source: Author based on EUROSTAT Statistic explained (online data code: educ\_uae\_enrt01) 2015

The table n. 2 on the other hand provides the percentage of enrolled Italian students acquiring a qualification related to the higher education (considering short-cycle tertiary education, bachelor degree and master degree).

Tab.2: percentage of students enrolled acquiring a qualification related to higher education (2016)

	<b>Short-cycle tertiary education (e.g. ITS)</b>	<b>Bachelor degree</b>	<b>Master degree</b>
Italy	0.2	28	20
OECD average	11	36	17

Source: Author based on 'Education at a glance (OECD, 2017, <http://gpseducation.oecd.org/CountryProfile?primaryCountry=ITA&treshold=10&topic=EO>)

In the following paragraphs, we will briefly present the main types of vocationally oriented degrees/qualifications currently awarded by the Italian VET and education entities at EQF levels 5-8, on the basis of the organisations providing them.

### **Ad 1. Higher Technical Education diploma**

As indicated in the introduction, in 2007, the Italian government established a new type of vocationally oriented learning path aimed at providing students with newer, faster opportunities to access the labour market.

The *Higher technical education diploma* (Diploma di Istruzione Tecnica Superiore) is classified at EQF level 5 and can be acquired at the end of a specific course attended in a Higher Technical Institute (ITS), which is a Foundation made by different 'productive actors' (listed below) and stakeholders. ITS' were established in 2007 and formally implemented in 2010. The number of students enrolled in ITS between 2011 to 2015 is around 12,000 (1,492 students in 2011, 1,893 students in 2012, 2,270 students in 2013, 2,938 students in 2014, 3,521 in 2015). In 2016, 4,131 <sup>(4)</sup> students were enrolled in ITS for the first time and the level of employment of graduates (1 year after graduation) was around 80% <sup>(5)</sup>.

There are 93 ITS' distributed at regional level and they are focused in 6 Technological Areas:

- ✓ Energy efficiency (13 Institutes)

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<sup>(4)</sup> Source of data: INDIRE (2017). Monitoraggio Nazionale 2017 Percorsi ITS, 2017

<sup>(5)</sup> Source of data: INDIRE (2017). Monitoraggio Nazionale 2017 Percorsi ITS, 2017



- ✓ Sustainable Mobility and Transportation (17 Institutes)
- ✓ Life Technologies (7 Institutes)
- ✓ New Technologies for enhancing “Made in Italy” (34 Institutes)
- ✓ Information and Communication Technologies (10 Institutes)
- ✓ New Technologies for arts, tourism and heritage (12 Institutes)

ITS are Foundations made by schools, vocational training agencies, employers, universities and other stakeholders which co-operate in designing and providing the courses. At the present, the main partners of ITS are 676 employers, 404 Secondary Schools, 295 Vocational Training Agencies, 194 Local Administrations, 98 Universities, 93 Employers’ Consortiums and Research Institutions, 40 Employers’ Associations, 33 Professional Orders, 15 Chambers of Commerce, 13 Trade Unions, 7 financial institutions. The presence of the Universities guarantees an academic approach of the programmes and content.

## **Ad 2. Bachelor’s degree**

The Bachelor’s degree course gives the student an appropriate command of general scientific methods and principles, even when the programme is oriented toward the acquisition of specific professional knowledge, and provides a solid base for those who wish to continue their studies with a 2nd level degree or a 1st level master (see below).

To be admitted to a Bachelor’s degree course, people must have a secondary school diploma or a suitable equivalent foreign qualification. This degree course lasts three years.

In 2007, the Italian Government established a short academic education cycle lasting 3 years and providing, at the end of the learning path, a *Bachelor’s degree* (Laurea) which is classified at EQF level 6. The aim of this introduction was to design a higher education pathway with a vocational component, aimed at facilitating the access of graduates to the labour market.

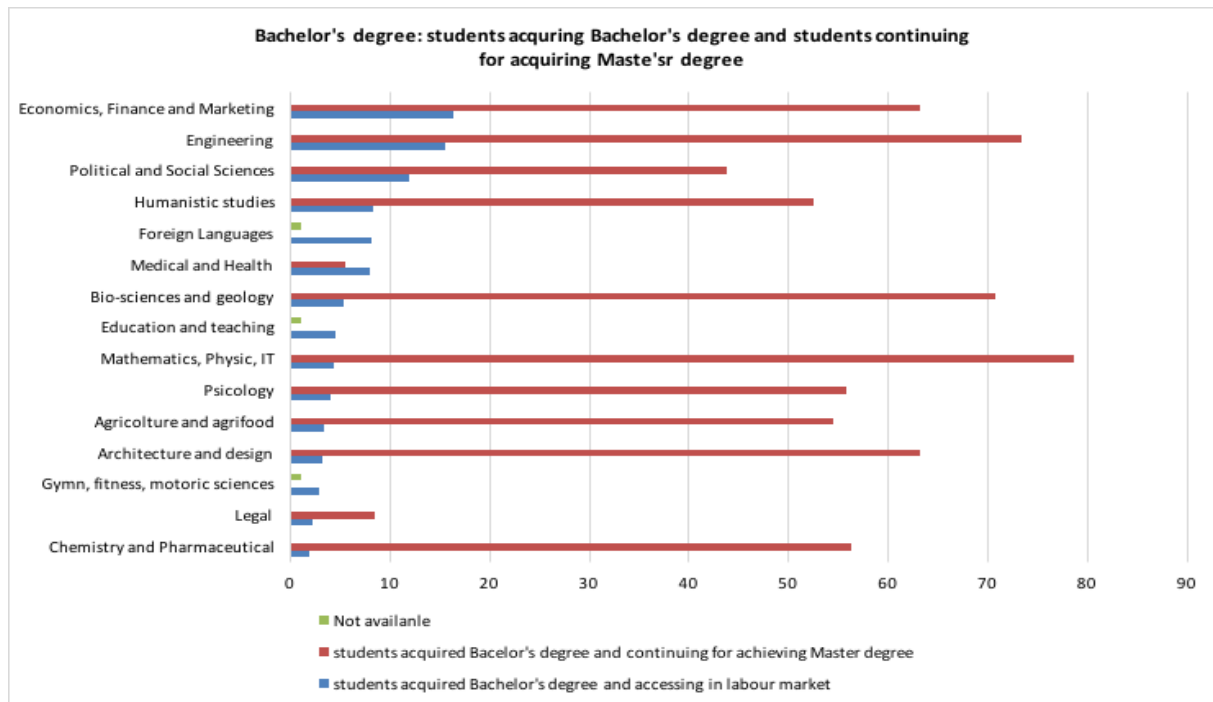
However, the expectations have not been met. The courses, in fact, were only attended by students as a bridge for attending learning pathways for the acquisition of a Master’s degree (additional 2 years) and did not respond to the employers’ expectations. This trend generated a significant diminution of the number of courses offered in this ‘short academic pathway’ and also an important and strong re-thinking of this educational option. Moreover, the number of students enrolled in the Bachelor’s degree courses in the year 2015/2016 was in total 1,002,758 <sup>(6)</sup>. The majority of the graduates, 75.2% <sup>(7)</sup>, continued their learning pathway in order to acquire the Master’s degree. This is a signal that these short academic programmes, originally aimed at helping young people to access the labour market, had not worked as the government had expected (fig.2).

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<sup>(6)</sup> Source MIUR Statistic Database, <http://statistica.miur.it/scripts/postlaurea/vpostlaurea.asp>

<sup>(7)</sup> ANVUR (2016). Rapporto biennale sullo stato del Sistema universitario e della ricerca, 2016

Fig.2: Students who have acquired Bachelor's degree and accessing in the labour market and students who have acquired Bachelor's degree and continuing studies for acquiring Master's degree-



2016

Source: Author based on statistic MIUR Statistic Database, ANVUR, 2016 Rapporto biennale sullo stato del Sistema universitario e della ricerca, 2016

Bachelor's degree courses with a stronger vocational orientation and a significant link with the labour market concern especially the Medical and Health sector and, in particular, job profiles as physiotherapists, dieticians, obstetricians, health and radiology technicians, dental hygienists and nurses.

The introduction, in 2016, of the 'professional Bachelor's degree' (*Laurea Professionalizzante*) (Decreto Ministeriale 12 December 2016, n.987) foresees the introduction of technical and vocational contents and methodologies in the universities pathways (excluding the health sector in which these components are already present). This new learning pathway aim at representing a new learning opportunity with a specific Bachelor degree acquirable at the end of the studies and can be considered as a recent sign of vocational drift in higher education. The new Legislative Decree foresees, the following dispositions that - in the next few months - will be applied in some pilot learning pathways:

- ✓ acquisition of input from the productive sector (mainly through employers' associations and social parties) in terms of professionals needs and skills in order to structure learning pathways providing technical knowledge and skills directly applicable in the labour market.;
- ✓ carry out a test of one pilot course in each Italian university acknowledging the following criteria: 1) establishment of an agreement amongst universities and employers and/or professional associations for the development and implementation of the pilot learning course; 2) opportunity for students to acquire training credits after having attended the

- internship period; 3) guaranteeing number of adequate teachers and tutors in charge of the implementation of the programme;
- ✓ enrolment of maximum 50 students;
  - ✓ assessment of the pilot course in term of employment level of graduated (80% of graduates should be employed one year after graduation).

The launch of this new type of course will be in 2017/2018 so implementation data is not available yet.

However, it can be observed, looking at the draft design of programmes that several Italian universities are currently developing and that will be launched in the next year, these Professional Bachelor's degree pilot courses will concern especially sectors such as mechatronics, mechanical engineering, web design, agriculture and food.

### **Ad 3. University Master (levels I and II)**

In Italy, the vocationally orientated training courses offered and provided by the universities, after the acquisition of Bachelor's and Master's Degrees, are several and heterogeneous. The reform concerning these paths is dated in 2004 (Decreto Ministeriale 270/04).

Unfortunately, there are no official data available on this kind of course. Data are quite fragmented, where possible all data are already indicated

All Italian universities offer this kind of course and, after their completion, it is possible to acquire a First Level University Masters (*Master Universitario di primo livello*) classified at level 7 EQF or a Second Level University Masters (*Master Universitario di secondo livello*) classified at 8 EQF.

In some cases, especially in the medical and health sector, courses are defined at the institutional level following specific legal rules and laws.

Due to the fact that these courses are aimed at specialising participants in a specific job, a lot of them are technical and vocationally oriented, lasting 1 year (at least) and foreseeing a mandatory traineeship.

In 2014/15, the number of students enrolled in a First Level University Masters was 23,440<sup>(8)</sup> and the majority of courses focused on specific sectors such as marketing, architectural and mechanical design.

Students enrolled in a Second Level University Masters in 2014/2015 were 15,996.

The Italian scenario related to this typology of learning pathway is, anyway, quite fragmented in terms of data available and acquirable, in this respect there is not a single source where to pick up information because the Italian Regions and Universities are free to elaborate their data and information and release reports/documents. Thus, it is not always possible to provide information related to this qualification type in the later sections of this report.

### **Ad 4. Higher specialisation diploma**

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<sup>(8)</sup> Source: MIUR Statistic Database, <http://statistica.miur.it/scripts/postlaurea/vpostlaurea.asp>

The Higher Specialisation diploma (*Attestato di perfezionamento*) established in the 1990s is classified at EQF level 7 and 8 and can be obtained after the completion of a course offered by a university. It requires the possession of a Bachelor's degree, a First/Second Level University Master's degree or an Upper Secondary Education diploma (if it fits with the scope and the contents of the course). Some of the Higher Specialisation diploma courses are linked with specific job qualifications or licences (e.g. teachers or naturopath etc.) and /or prepare students for exams for regulated jobs (e.g. accountant). Their duration can last from 3 months to 1 year.

These courses are based on the autonomy of each university so it is difficult to have data and figures on the enrolment rate or participation of students due to the fact there is not a unique entity in charge of the monitoring and collection of data.

#### **Ad 5. Specialisation diploma**

The Specialisation diploma (*Diploma di Specializzazione*), classified at EQF level 8, can be acquired after a Master's degree and is addressed to students who want to acquire a specialisation in specific jobs and sectors regulated by national laws. These kinds of courses were established in 1982 (D.P.R. 10 marzo 1982, n. 162) and are provided by specific Specialisation Schools linked to universities.

In particular, it is possible to acquire a Specialisation diploma for practicing jobs linked to psychology, health and medicine, veterinary, cultural heritage protection, public administration and legal areas.

For example, the Specialisation diploma for Teachers will, from 2018 on, have a duration of three years and will, with a limited number of places, be offered at universities at regional levels.

#### **Ad 6. First and Second level academic diploma in Arts and Music (AFAM)**

The Italian Ministry of Education established First and Second level academic diplomas in Arts and Music (AFAM) in 1999 (Legge 21 dicembre 1999, n. 508). The entities authorised to grant these titles are 137 institutions (public and private) such as Academies of Arts, Music, Theatre, Dance, Design etc. The acquisition of the title is linked to a learning pathway with practical exercises and lessons as well as a traineeship.

In 2014/15, there were 86,872 students enrolled in these kind of institutions, 44% of which attended Academies of Arts (<sup>9</sup>).

The First level academic diploma (*Diploma Accademico di primo livello*) classified at level 6 EQF can be accessed by students who have obtained the Upper Secondary Education diploma. It lasts 3 years and permits students to access public administrations (schools or oth-

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<sup>9</sup> Source MIUR Statistic Database, <http://statistica.miur.it/scripts/postlaurea/vpostlaurea.asp>; ANVUR (2016). Rapporto biennale sullo stato del Sistema universitario e della ricerca, 2016

er entities), artistic enterprises or the learning path for acquiring a second level academic diploma.

The Second level diploma (*Diploma Accademico di secondo livello*) classified at level 7 EQF, can be obtained by students with a Bachelor's degree or a First level academic diploma. It lasts 2 years and the number of places is limited.

In both learning pathways, there is an effective mix between vocational and academic components due to the fact the learning pathway is based on theoretical content and vocational learning methods needed to access effectively in the labour market.

This kind of learning pathway is not changed during the years and this is the reason why we will not focus on this in the following sections of the report.

### **3. Change processes during the last 20 years - educational system perspective**

*One of the unique features of this study is the emphasis given to the historical development of VET systems. In this section, the focus is on the change processes that have taken place during the last 20 years related to VET at higher levels in terms of 'academic or vocational drift' or 'expansion of VET at higher levels (outside higher education)' from the perspective of the educational system.*

*Depending upon the situation in your country, relevant developments might have started already before the 1990s. In other cases there may be no need to take such long-term perspective, but at the very least the commentary should go back to the middle of the 1990s.*

*Please describe first these change processes and their impact on the overall system (3.1), before presenting characteristics of VET offered at higher levels from the perspective of the educational system (3.2). Please clearly distinguish between the different objects and contexts of change, respectively the different types of VET qualifications/programmes offered at higher education levels.*

*Please refer to the "Characteristics and indicators of 'academic drift', 'vocational drift' and 'expansion of VET at higher levels (outside HE)'" (presented in Table 2 of the guidance note; the relevant aspects are included in each section here below): Please reflect whether any of these characteristics and indicators can also be identified in your country and which ones – identified in your country - should be added.*

Please note: in the following section information related to the above-mentioned learning programmes and qualifications acquirable in Italy is reported. In some cases, due to the Italian administrative structure (where the organisation of training systems is under the responsibility of each Italian Region) it was not possible to acquire homogeneous data about the issues and items discussed below. The available data has been reported in order to provide an overview as much as possible complete.

#### **3.1. Change processes and their impact on the system**

Since 1996 in Italy, a robust reform of tertiary education has been initiated.

In particular, the reform was focused on overcoming the current system that foresees that only universities can offer an access to the labour market and the only learning pathway of tertiary education. This irregularity was aggravated, in fact, by the almost exclusive offering of particularly long and challenging university courses - of a legal duration from four to six years, but of an average duration of more than seven, for obtaining a Master's Degree.

The introduction of two-year or three-year lasting university courses (Italian Bachelor's degrees in 2007), which should be more oriented to the labour market, had a very limited quantitative impact on the university system. Yet, the experience of these courses, especially the integration of traineeships and stage, was a significant innovation factor in the supply of higher education.

The 1990s reform of tertiary education has foreseen the creation of three institutionally and functionally distinct components:

- ✓ University education (universities and colleges)
- ✓ Higher artistic and musical education (art academies, music conservatories, etc.)
- ✓ Advanced Integrated Technical Training (actually named Higher Technical Education and Training)

The distinction between these components was based on the diversity of the internal institutional actors, the specificity of the training objectives, the teaching methodologies, the content and the duration of their respective study and the training paths.

The general adoption of training credits, moreover, allowed students to move from one component to the other with the recognition of acquired education and training levels. For Higher artistic and musical education qualifications, it is possible, on a case-by-case basis and limited to access to public-service competitions, to recognise them as diplomas awarded in Universities' paths.

In the above mentioned higher education programmes it is foreseen in addition to the theoretical and classroom learning path internships lasting up to six months or up to twelve months will also be included. (this can also be considered and vocational drift in higher education).

Concerning the reform of Universities, in order to modernise them, in the years 1996-99, a large and comprehensive process of innovation was activated through specific legislative and administrative measures such as:

- access and guidance to academic studies (planned actions, in collaboration between schools and universities, during the last two years of secondary education, in order to guide and support the choice of students in tertiary education);
- introduction of the Higher education for specialisation: activation (1998-99) of the four-year degree program for the training of primary cycle teachers, activation (1999-2000) of the two-year lasting specialisation school for the training of secondary school teachers, establishment and activation (2000-2001) of the two-years specialisation school for legal professions (magistrates, lawyers, notaries), reform of the courses and schools for the specialist training of medical doctors. Before these types of specialisations there were only Master degrees after them, graduates were ready to access in the different professions (e.g. teachers, lawyers etc.).

Before the introduction of this new 'reformed' learning pathway the above-mentioned professions were still trained inside the higher education as mentioned through Masters degrees enabling graduates to access their professional system.

Concerning the strengthening of vocational aspects in higher education, as already explained, the introduction of the Bachelor's degree in 2007, classified at level 6 EQF was aimed at facilitating the access of graduates in the labour market in a fast way. Unfortunately, the effectiveness of this path was not successful due to the fact that the connection with the labour market and the employers was not so strong and effective.

For this reason, in 2016 (Decreto Ministeriale 12 December 2016, n.987) the Italian Government launched the '**professional Bachelor's degree**' (*Laurea Professionalizzante*) which is strongly oriented to labour market needs and following the requests from employers and employers' associations. It aims to provide graduates with technical skills directly applicable in the labour market. This new programme will be aimed at connecting the academic pathway with a vocational approach in order to improve, increase and accelerate the access of students in the labour market. The professional Bachelor's degrees can be seen as very important projects aimed at strengthening vocational aspects in higher education and their introduction can therefore be considered as **vocational drift** of higher education.

The **Higher technical education diploma** (Diploma di Istruzione Tecnica Superiore) introduced in 2007 and formally implemented in 2010, can be considered an example in which a vocational-based programme has been included in higher education programmes, introducing also academic contents, defining agreement with universities and creating an effective mix between academic and vocational approaches. The introduction of this programme could be considered as **vocational drift** (both for higher education and academic) because new types of programmes/qualifications with vocational orientation have been introduced as part of higher education.

This type of vocationally oriented learning path is aimed at providing students with new, fast and easier opportunities for accessing the labour market by introducing programmes providing academic and theoretical contents mixed with on-the job-training phases. The universities are partners of this kind of institutions and guarantee an academic approach and permeability in these specific learning pathways.

### *3.2 Changes related to characteristics of 'VET at higher levels'*

#### *3.2.1 Changes related to governance and institutional structures of 'VET at higher levels'*

Some of the programmes/qualifications listed in Section 2 are not changed during the last years. The only changes are focused on the **Higher technical education system**, the **Bachelor's degree** and **University Master (levels I and II)**

The **Higher technical education system** was launched by the Ministry of Education, University and Research (MIUR) in 2007 and permanently implemented in 2010. Regional Authorities are responsible for the financial management and coordination of the programmes while new legal entities called 'Technological Poles' (Poli Tecnologici) are responsible for designing and providing the courses.

Technological Poles constitute an organisational mode of sharing the public and private resources available, also for a more efficient and effective use of the spaces and laboratories of schools and training institutions, with the full use of the tools (financial, human, technological) provided by the Italian Government.

In order to ensure the coherence of the ITS learning pathway, the Regions prepare specific inter-institutional agreements including all actors involved in the functioning of the Technical Poles. In this way, Italian government and Regions choice is focused on connecting different actors and stakeholders, sharing their experiences and background combining the institutional strategies, with the objectives and needs from productive sectors (enterprises, employers' organisations and social partners) as well as vocational schools, universities and research centres located in the region.

INDIRE (Istituto Nazionale Documentazione Innovazione Ricerca Educativa, National Institute for Documentation, Innovation and Educational Research) on behalf of MIUR, develops and manages the Higher technical education database, which collects the Higher Technical Education offers at local level, monitoring them over time, with the aim of constantly improving the system. INDIRE contributes to the monitoring and evaluation of ITS courses and prepares monitoring reports. In addition, it conducts research to analyse the structural, organisational and educational elements practiced in the various ITS, in order to encourage a process of innovation and empowerment. ITS' are financed by the Ministry of Education, University and Research (MIUR), the Regions and the ESF.

Concerning the provision of courses, ITS (Istituti Tecnici Superiori) are Foundations made by schools, vocational training centres, employers, universities and other stakeholders that cooperate in designing and providing the courses (this type of governance – involving employers - can be considered as vocational drift). These courses are carried out by Technological Poles that are located in the schools and, for specific technical/vocational activities, in vocational agencies and private companies.

In regards to **professional Bachelor's degrees**, they are designed and launched by MIUR in 2016 and their provision and organisation is the responsibility of universities that define agreement and collaborations with employers, employers' associations and other stakeholders in order to design learning pathways really linked with labour market needs and requests. This governance structure can be considered as indication of vocational drift of higher education.

The monitoring and evaluation of this kind of courses is the responsibility of ANVUR (National Agency for the Evaluation of Universities and Research Institutes), which is the agency that carries out the evaluation of the University system and specific research based on the data given to the system by MIUR. It proposes the criteria and indicators for the evaluation of the University and Research systems and for the accreditation of Universities. ANVUR works by following the principles of independence, impartiality, professionalism, transparency and is monitored by MIUR. The professional Bachelor's degree courses are financed with national resources managed by MIUR.

The establishment (in 2004) of **University Masters (level I and II)** provided by a partnership between universities and employers association can also be considered as vocational drift of



higher education (for further information about this type please refer to paragraph 4.1). These Masters' programmes have a strong vocational orientation component due to the fact that most of them are provided by Universities in partnership with employers' association and/or single employers.

### 3.2.2 Changes related to the target groups of 'VET at higher levels'

The main target groups of **Higher Technical Education courses** and **professional Bachelor's degrees** include young people with an Upper Secondary Education diploma or a Professional technician diploma. They are predominantly students and no differences or changes can be observed in relation to the past 20 years.

In particular, a big portion of enrolled students in **Higher technical education system** (ITS) are young people aged 18-24 (see Table below) with an Upper secondary education diploma. Some of whom also have a Bachelor's degree or a Master's Degree. The main reason is due to the fact that ITS provide a more specific preparation (knowledge and skills) to students in line with the needs of the labour market and at the end of pathways finding a job is easier than the university pathway.

Tab.3 Number of enrolled students in ITS per age 2015-2017

Age	Years	2015	2016	2017
18-19		539	631	836
20-24		726	731	1097
25-29		140	160	237
> 30		108	162	204
	<b>Total</b>	<b>1,512</b>	<b>1,684</b>	<b>2,374</b>

Source: INDIRE, 2017

As we can see in table 2, the number of enrolled students in ITS has increased in the last three years but it is still considered low compared with the goals of Italian government and MIUR, who aim to increase the level of participation of citizens in vocational higher education by at least 50%.

Concerning **Bachelor's degrees**, enrolled people are young people around 19-years-old. The number of students over 19 are low due to the diminution of the number of recognisable credits for people coming from other universities or other learning pathways (from 60 recognisable credits of 2007 to 14 recognisable credits in 2010).

In 2016, about 17% of the students enrolled in a Bachelor's degree was over 19 years (of them: 35% in medical / health sector and 42% in the disciplinary group dealing with teaching <sup>(10)</sup>).

Concerning the **professional Bachelor's degree**, now, there is no data available yet because the courses will start in 2018 but they will be open to graduates from upper secondary school as well as employed or adult people.

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<sup>(10)</sup> MIUR Statistic Database, <http://statistica.miur.it/scripts/postlaurea/vpostlaurea.asp>

Regarding the **University Master level I** the table below show the number of students graduated from the 2010 to 2016. It can be observed that the number of graduates decreased starting from 2014, probably due to the impact of the socio-economic crisis.

*Tab. 3. Number of students graduated per year (University Master level I)*

<b>Year</b>	<b>Graduated</b>
2010	24994
2011	19997
2012	22776
2013	19745
2014	22018
2015	19485
2016	18721

Source: Author based on statistic MIUR Statistic Database 2010-2016

The tab. 4 provides information about the number of students graduates for the University Master level II. In this case the trends is different, the number of graduates slowly increases starting from 2011.

*Tab. 4. Number of students graduated per year (University Master level II)*

<b>Year</b>	<b>Graduated</b>
2010	12.300
2011	11.231
2012	11.939
2013	11.538
2014	12.678
2015	12.887
2016	13.602

Source: Author based on statistic MIUR Statistic Database 2010.2016

The target group of the above-mentioned learning pathways (Higher technical education system – ITS, professional Bachelor's degree and University Master level I and II) is mainly composed by students, unemployed (normally not having accessed the labour market yet) willing to enhance their skills and knowledge in order to having more chances to find a job when concluded their learning pathway. The status of the students enrolled did not change compared to the past.

### *3.2.3 Changes related to the main purposes and functions of 'VET at higher levels'*

A great portion of students obtaining a **Higher Technical Education Diploma (ITS)** access the labour market immediately after the completion of the learning pathway, despite having the possibility to access an additional academic programme thanks to the training credits system established in 1996. Analysing 2015-2017 monitoring data provided by INDIRE, the

total number of graduates employed 12 months after they achieved a Higher Technical Diploma, is 3,260, 79.5% of the 4,100 graduates, and 70% (2,875) have found work in a coherent area with the learning path attended. On the basis of this data, it is clear that this kind of learning provision is effective and responds efficiently to the requests and needs of the labour market.

Collected data per technology area show a large and growing share both of graduates and employed people in the New Technologies for Made in Italy area, and in the Sustainable Mobility area. The New Living Technology area has the lowest number of employed throughout the period considered. <sup>(11)</sup>

In many cases they are enrolled in companies as Senior technicians, in particular employed in technical and productive processes in mechatronic, mechanic, food chain and food production sectors.

Concerning the occupational status of graduates coming from **Bachelor's degrees**, in recent years, the transition from higher education system and labour market it has been characterised by precariousness and a limited number of job opportunity. In regards to the coherence between the job acquired after the learning pathway and the contents of the degree, there is a strong coherence in medical and health professions as well as teaching professions while less coherence is visible in social studies, statistic, economics and engineering <sup>(12)</sup>.

In 2016, the percentage of students employed one year after obtaining a Bachelor's degree is 41%. The effectiveness of the qualification can mainly be observed for health professions (81%), teaching and science and physical education (58%, 50% and 55% respectively).

Concerning the skills acquired one year after graduation, more than 34% of the students who found a job, stated that the contents acquired during the course was relevant to their current career, whilst 36% declare that their course has little relevance and 29% of graduates say they do not use the knowledge gained during the three-year university program at all (unlike the colleagues in the health professions and the group of teaching and gym) <sup>(13)</sup>.

A different picture appears for the **University Masters**. The actual debate in education and training in Italy states that Italian training system is one of the poorest regarding work-based learning and lifelong learning. In the public debate on education amongst Italian Government and stakeholders it is seen as a positive aspect the emergence of master's courses also directed at managers, professionals from public and private entities and companies. In fact, in the last ten years, 18% of the people enrolled in Master programmes (level I and II) were also employed <sup>(14)</sup>. It is also important to say that some of the courses consider professional experience as a compulsory requirement for admission (this aspect of change process can be considered as vocational drift of the higher education).

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<sup>(11)</sup> INDIRE,. Monitoraggio Nazionale 2017 Percorsi ITS, 2017

<sup>(12)</sup> ANVUR. Rapporto biennale sullo stato del Sistema universitario e della ricerca, 2016

<sup>(13)</sup> ANVUR. Rapporto biennale sullo stato del Sistema universitario e della ricerca, 2016

<sup>(14)</sup> MIUR Comitato Nazionale per la valutazione del Sistema universitario (2008). Indagine nazionale sui master universitari. Il ruolo delle università nella formazione professionale post-lauream, 2008

### 3.2.4 Changes related to the perception of 'VET at higher levels'

As we can see in the previous chapter, only a limited number of students are enrolled in higher learning pathways with a vocational focus.

**Higher Technical Education** pathways attract a low number of students both because it has a very technical approach and because it is not a well-known institution. Moreover, many students prefer to acquire a Bachelor's degree and a Master degree, thinking that an academic diploma is more valid than a technical one.

**Bachelor's degrees** are more often acquired even if more students, after achieving it, decide to continue their learning pathway instead of accessing the labour market (excluding health sector Bachelor's degree programmes in which a lot of students choose to access in the labour market without continuing the academic pathway).

Concerning the others programmes listed in section 2, not significant changes in the last years can be individuated.

## 4. Impact on content and delivery of qualifications and programmes - the epistemological or pedagogical perspective

*This section focuses on the implications of 'vocational or academic drift' or of the 'expansion of VET at higher levels (outside higher education)' for the content and delivery of programmes and qualifications.*

As we have described in the previous chapters, VET at higher levels is focused particularly in productive sectors such as mechatronics, food production, health and medicine. All these courses foresee a period of classroom learning as well as traineeships and practical learning.

### 4.1 Changes in relation to content and profile

The institutions of **Higher Technical Education (ITS)** offer learning programmes in which academic contents and vocational elements are strongly integrated in order to guarantee easier and faster access to the labour market. Thus, the introduction of ITS with their vocationally oriented profiles can be considered as vocational drift of higher education.

The basic mission of ITS is to train students in technical and innovative productive processes in order to contribute to the growth of economic development, also through high level professional skills. For this reason, ITS courses are focused on different technical contents which are linked to specific job profiles. These technical contents are energy provision and sustainability, supply chain transportation, vehicle engineering, logistic processes, biotechnology and biomedical tools and instruments, food production, fashion, design and mechanical instruments and engines, tourism and cultural heritage, ICT architecture, programming software and database.

The technical programmes foresee a part focussing on theoretical contents (more academic and linked with research approaches and scientific principles) and a part focussing on vocational approaches more linked with the techniques to be applied into the job as well as specific machines and engines, productive processes application etc.

In Italy, it is possible to achieve a **Bachelor's degree** in different content areas: economics, legal, science and bio-technology, cultural heritage, music, arts and theatre, fashion, indus-

trial design, construction engineering, biology, tourism, training and education, communication, gym and sport, agriculture, food science, chemistry, pharmacy, ICT, security and defence, health (nursing and obstetrician, rehabilitation and physiotherapy technicians, radiology technicians).

Except for the health professions, for which the Bachelor's degree foresees a direct and fast access to the health and medicine sector (public and private hospitals and other health organisations, companies and entities) and that offers structured and articulated programmes with an effective mix between theoretical and vocational elements, other programmes are more theoretical and do not prepare students effectively for accessing the labour market despite some of them (e.g. scientific contents) including a short traineeship.

The insufficient connection between Bachelor's degree pathways and the employability of graduates contributed to the introduction of the **professional Bachelors** in 2016. These courses have not been launched yet but the pilot courses, foreseen in 2018, will be focused on mechanical engineering, mechatronic, food production and ICT, and will be oriented to instruments, methods and activities linked with technical professions and employers' needs.

Concerning the **University Masters (levels I and II)**, they are specialised higher education courses with a strong vocational component. This kind of courses are strongly linked to the real demand of specialised professional skills, explicitly expressed by employers and labour market stakeholders. This means that the First and Second level University Masters include programmes with a strong presence of technical contents and vocational approach. 60% of these Masters' programmes (introduced in 2014) have a vocational orientation component in each courses developed (especially those learning pathways provided by Universities in partnership with employers' associations or single companies).

The First and Second level University Master programmes are strictly linked to the business and economic sector and developed taking into consideration input and needs coming from a particular professional system (i.e. science specialist, maths and physics, specialists in education, specialists in economics, social professions, etc.). In the Italian scenario there are some Masters' pathway appearing underrepresented in respect to the 'weight' their professional sectors have in the labour market and the employment system.

The greater portion of these programmes is related to Economics (18.2%) <sup>(15)</sup>. Considering the job profiles trained, they are 55.8% specialists in human sciences, legal, social and business management and 18% engineers and architects.

In Italy the majority of First and Second level University Master Programmes aim at better qualifying already existing professions, in terms of job profiles (i.e. specialists in human, social and managerial sciences, etc.) while on the other hand just a low number of Master programmes aim at specialising those job profiles and profession considered innovative (such as in the field of mathematics, physic, natural and life science, etc.).

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<sup>(15)</sup>MIUR Comitato Nazionale per la valutazione del Sistema universitario (2008). Indagine nazionale sui master universitari. Il ruolo delle università nella formazione professionale post-lauream, 2008

#### *4.2 Changes in relation to the delivery*

The delivery of VET in higher education includes traineeships or internships as well as a strong link with the labour market and the employers from different productive sectors.

The **Higher education and research apprenticeship programme**, which was introduced in 2011, is an example of a new form of delivery of VET in higher education and a vocational drift in higher education. This programme, in fact, foresees that young people aged 18-29 can be enrolled in private or public companies with the aim to acquire skills and knowledge that is useful for the acquisition of an Upper Secondary Education diploma, a **Higher Technical Education diploma** or a **Bachelor's or Master's degree** as well as a **Research doctorate**. The duration of the company-based component of the apprenticeship must be minimum of 6 months and many of apprenticeship programmes are connected to Master's diplomas and Bachelor's degrees focused on mechanic, logistic, public services and legal. An agreement/contract between company and apprentice and higher education institution is stated in order to guarantee the coherence of the pathway.

The diploma acquirable at the end of this particular learning pathway is the same students can acquire attending the traditional learning system (ITS and University). The Higher education and research apprenticeship programme is to be understood as a dual programme providing and allowing students to same degrees and qualifications of the corresponding mainstream courses.

The training/teaching staff of the Higher education and research apprenticeship learning pathway is normally composed by professors coming from the University system, highly specialised trainers in the field of the course and trainers directly coming from relevant economic sectors (companies, employers' associations, etc.).

Concerning **Higher Technical Education (ITS)**, approximately 30% of the duration of the course is in the company, establishing a very strong link with the productive sectors and labour market through internships which can also be organised abroad.

The pedagogical approach includes theoretical-practical lessons of a specialised level, integrated with: group work; exercises and case simulations; laboratory experiences; business testimonies and visits; participation in fairs and events of national and international interest. In some case training activities abroad are planned with the aim of sharing businesses, research centres and industry institutions. Each course is structured with a classroom component and internships in significant companies in several productive sectors (at least 30% of the whole duration of the course).

Observing the percentage of ITS training hours organised in the business context, in 2016 they were 44% of the total amount. The detail of the technology area shows that the largest number of internships concern the 'Sustainable Mobility' area. Analysing 'New Technologies for Made in Italy', there is an increase in 2017 compared to 2016 in internships in all areas with the exception of Business Services. The highest percentage of participation in ITS programmes is in the agri-food sector and Mechanical sector. The lowest percentage of training hours developed in business contexts is found for the 'Home sector' <sup>(16)</sup>. This distribution of

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<sup>(16)</sup> INDIRE, Monitoraggio Nazionale 2017 Percorsi ITS, 2017

time and content has been in place since 2010 and reflects the rules and the guidelines defined by MIUR concerning ITS.

The teaching staff comes at least 50% from the workplace. Courses are usually articulated in four semesters (1,800/2,000 hours). The courses end with final exams, conducted by Exam Committees consisting of representatives of the school, university, vocational training and labour market stakeholders. Work experience in the company can be also completed under apprenticeship, ensuring greater integration between training and work, to reduce the mismatch between demand and supply of figures and professional skills.

Referring to **Bachelor's degrees**, they apply a didactical approach which is very academic and has a poor presence of vocational training. The only aspect that is linked with the connection to the labour market and the idea of providing fast access to employment, is the internship which is voluntary and can be attended during the course or afterwards, with the aim of guiding people to get to know and access the labour market. Also, teachers are from the academic area.

There are two kinds of internships:

- Internships carried out during the course and aimed to integrate the knowledge acquired through the acquisition of professional experience;
- Internships for guidance, done after obtaining the degree in order to support graduates' in making their professional career choices, to give them the opportunity to acquire additional skills and tools useful in pursuit of a profession and for accessing the labour market and / or to support them in the preparation of the exam for the enrolment in regulated professions.

The first type of internship is determined by the single course and a number of university degree credits (CFUs) are recognised. Italian universities, with respect of the principles established in 2004 by DM 270/04, promote and support internships carried out during the course especially for students enrolled in undergraduate courses, non-medical specialisation schools, master's or doctorates. It is useful to remember that the internship is aimed at increasing and facilitating the learning and training process. Duration of the internship is based on the regulations of each university. Universities and departments are in charge of development and management of internships, according to the rules adopted by these structures.

In analysing the various economic sectors for which internships have been activated, it appears that the health and medicine sector activates the highest number of internships for professional practice (45.3% started in 2013/14), while the others are distributed between public institutions and administrative national bodies, schools for teachers legal and regulated professions <sup>(17)</sup>.

The new introduction of **professional Bachelor's degrees** (2016) and the pilot courses commencing in 2017/2018, define a drastic change in the methodological and didactical approach of the programmes and learning pathways in this segment of higher education. In particular, these new courses will foresee a strong autonomy of universities in terms of governance for the management of human and financial resources, they will offer professional

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<sup>(17)</sup> ANVUR. Rapporto biennale sullo stato del Sistema universitario e della ricerca, 2016

two-years courses (possibly managed, designed and coordinated by a board of economical stakeholders and partners co-operating with the universities), based on 50% of technical content and a 50% internship.

About **University Masters (levels I and II)**, they have a mix of an academic and vocational didactical approach. The specialisation which students acquire in these programmes mainly derives both from the contribution of the academic disciplines (i.e. theoretical lessons and exercises) and the experiences developed in enterprise and job context. Internships are included in 70% of Master's and have significantly increased since 2004 also because the co-operation between universities and employers/labour market stakeholders has grown.

At present, the connection with labour market and the activation of strong collaboration with employers are considered a very important component of the learning pathway (e.g. the Higher Education and Research Apprenticeship programme is strongly connected with Masters' programmes).

The internship included in Masters' programmes acquires a significant role principally in science, maths, biology, biotechnology and other scientific sectors.

## 5. The context of change: rationale and drivers for change or persistence

*This section aims at understanding how policy influences and justifies the change processes and which external factors influence and shape policy responses/decisions and the change processes observed.*

The OECD statistics show that the employment rate is normally influenced by the positive impacts the outcomes of higher education systems can generate in terms of specialisations and skills enhancement and placements. The vocational component of the learning pathway can be seen as the 'most advanced technology' for tackling the youth unemployment rate. OECD analysis and MIUR data agrees that one of the main causes of the high youth unemployment rate in Italy is the structure of the training courses provided: a low number of training and learning offers which are able to quickly specialise students and which are closely integrated with the economic and productive sector able to pick up their professional needs and features.

In February 2017, a specific **National Steering Committee**, promoted by the Ministry of Education, University and Research and attended by the Minister of Education, the Education and the VET ministry department director, the President of Universities Committee and the Coordinator of ITS Committee, has been initiated (Ministerial Decree n.115 of February 2017), aimed at coordinating and harmonising the system of Higher Technical Education and the professional Bachelor's degrees.

The Committee agreed that a unitary design is required, in order to have a systemic picture of the relationship between Universities and ITS and their final qualifications. The Committee says also that it is necessary to create models and processes that make it possible to move students from one system to another in a logic of continuation and completion of the learning path, within a formal and stable collaboration between different actors and stakeholders.

Among the issues considered strategic, in line with the EU guidelines for a successful policy on tertiary education, the National Steering Committee has highlighted the need to:



- ✓ take the strategic and operational dimension of lifelong learning not only for young people but also for working adults, and for young people from the age of 15, and also value the credits acquired in the school-work alternative paths and apprenticeship and for adults, those acquired at work in the context of the knowledge society and innovations which characterise the fourth industrial revolution;
- ✓ make it transparent and simpler to understand the organisation of the overall offering of VET institutes and agencies, universities and ITS tertiary education pathways to facilitate orientation, giving constant visibility to its employment outcomes;
- ✓ optimise resources by integrating ITS and professional Bachelor's degree;
- ✓ mark the identity of the different training paths, by defining ITS increasingly as 'Special Schools for Applied Technologies' and on the other by professionalising degrees as orienting towards (new) regulated professions nationwide, starting from those ordinances, nevertheless being aware that in certain areas already there is a specific legislation that links university curriculum, internship and enrolment to the profession (this is the case of Legal professions);
- ✓ diversify the training offer regarding: the mission of Universities and ITS, study methods and teaching methods (functional to enhance quality, relevance of skills, attractiveness) with the possibility of calibrated recognition of training packages between the various paths;
- ✓ encourage partnerships between vocational training institutes, research universities, employers and high technology centres;
- ✓ engage ITS on the training of specialised figures that are able to move in the industrial contexts, with particular reference to the profiles that are emerging in Made in Italy; without forgetting other highly competitive sectors such as Big Data, the Internet, Nano-materials, Neuro-technologies, Advanced Robotics, etc.
- ✓ Increase funding dedicated to ITS.

In Italy there is still no organic design for professional tertiary education. The Higher Technical Institutes (ITS) have been constituted for a few years following the DPCM on January 28, 2008 and, with Ministerial Decree no. 987/2016, it has been foreseen the testing of Bachelor's professional degrees.

Starting from these initiatives, in the last few years, the Italian Government has discussed the opportunity and necessity that higher education programmes increase their connection and cooperation with labour market and consequently increase the vocational component in their learning pathways. ITS and new professional Bachelor's degrees are significant outcomes of this debate.

In particular, the drivers that led to the introduction of these programmes were strongly connected with the need of empowering higher education programmes with a different pedagogical approach in which theoretical contents can be effectively mixed with vocational and technical contents, methods and tools. Specifically, the main drivers for the creation of ITS were:

- ✓ answering to the employers' needs with a higher qualified training offer based on new and specialised technical skills in order to promote innovation processes and technological development also for a smart specialisation;
- ✓ supporting the integration between education, vocational training and labour market systems concerning, in particular, technical professions in order to promote and share scientific and technical culture and approach;

- ✓ boosting innovation policies and technological development in SMEs;
- ✓ spreading technical and scientific approaches increasing the interest of young people to the technical professions;
- ✓ establishing and defining permanent and formal relationships with Inter-professional funds (funds aimed at training employees and created by employers' associations) for adult training.

Concerning the new introduction of Professional Bachelor's degrees, the main driver of this reform is the need to respond to the employers' requests to enrol graduates with a learning background based on theoretical basic contents but especially on technical knowledge. This background is strongly linked with companies and labour market approaches and processes, and will be strategic for the fast and effective employability of graduates and also strongly appreciated by employers and labour market stakeholders. The effort of the Universities from 2016 is to link the Masters levels I and II with the features (in terms of requests, needs, skills and knowledge, job profiles, etc) of the labour market and the challenges employers and companies have to face.

## 6. Focusing on nursing and engineering

*Please reflect on the particular situation in the nursing and engineering areas: Which main change processes (in relation to 'academic drift', 'vocational drift', expansion of VET at higher levels outside higher education') can be observed in this area? What are the specificities and differences compared to other areas?*

### a) Nursing

Nursing is an example of **academic drift** inside a vocational programme.

Between 1990 and 1992 (Law 19 November 1990 and Legislative decree n. 502), a specific university path for nursing with the acquisition of an Academic diploma was established for the first time (before the Law 19/1990 and the D.lgs n. 502 the profession was regulated by the Law n. 124/1971 establishing ad hoc professional training schools for the acquisition of the qualification). In this way, the Government formalised the importance of this profession and the necessity to mix academic and vocational training in the learning path. In 1992, the professional qualification was further specified as an outcome of an academic pathway and part of higher education.

The law made on the 10th August 2000, n. 251 defines further the learning pathway of health professionals in the field of nursing who carry out professional autonomous activities aimed at the prevention, care, rehabilitation and safeguarding of individual and collective health, performing the functions identified by the rules of their respective professional profiles and the specific codes of ethics and using planning methods for assistance goals in the age of paediatric, adult and geriatric.

The **Bachelor's degree in Health professions** (Laurea triennale in Infermieristica) has been in place since 2004. It is coordinated by universities and lasts 3 years. It has an aca-

demographic basis and a strong vocational focus. In 2016 the enrolled students were 662,000 of which, 64% enrolled in Nursing and 36% in other health professions (<sup>18</sup>).

The achievement of job skills is carried out through theoretical and practical training that also includes the acquisition of behavioural skills and is achieved in the specific work context of each profile so as to guarantee, at the end of the training course, the full acquisition of all the necessary professional skills and their immediate utilisation in the labour market.

Particularly important, as an integral and qualifying part of the nursing learning path, is the practical training and clinical training activity, with the supervision and guidance of assigned tutors, coordinated by a teacher belonging to the highest level of training provided for each specific professional profile and corresponding to the standards defined at European level, where available.

The vocational approach is the core of the Bachelor's degree in Health professions and the basic training way for developing professional skills, diagnostic reasoning and critical thinking.

The application of the University Reform Act 270/2004 to the Bachelor's degree in Health professions represents an opportunity to redesign and consolidate the experiences gained in university education. In the course of these years, many training strategies have been tested in the practical training of the students, and coordinators and tutors have invested considerable efforts to improve their pedagogical preparation and to disseminate tutoring skills in the training facilities.

However, there are still few publications and research on the quality and effectiveness of different internships, even though there is a wealth of tacit knowledge, not written or collected in documents, as a rule in the internal heritage of individual graduate courses.

The internship is included in the course in an integrated way and based on a plan based on theory and practice. It is believed that a model of internship subordinated to theory (first theory and then practice).

Students have to dedicate to the internship no less than 1,200 hours per year (1,400 hours for the first class) in contact with health professionals operating at hospitals, health companies, and health communities.

Internship locations can be identified within agreement between the health and social structures of companies and the University (regional or local agreement protocols) or national or foreign external structures for which accreditation and specific conventions.

#### *b) Engineering*

This can be considered as an example of vocational drift of an academic pathway.

A strong change in the engineering profession and, consequently, in the higher education path, was introduced in 2001 (DPR n. 328 "Changes in the regulatory rules for accessing and acting the Engineer profession"). The new rules introduced with this Decree, have changed

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(<sup>18</sup>) Source: Conferenza permanente corso di laurea in professioni sanitarie 2016  
<http://cplps.altervista.org/blog/>

the academic pathway with the introduction of two different learning paths for acquiring the authorisation to formally act in the profession:

- the first one lasts five years (Master's degree) and allows access to National Exams for acting in the profession. This is more academic and based on theoretical and research content;
- the second one lasts three years (Bachelor's degree), has a vocational component and the graduates are called "junior".

Moreover, with the Decree of 2001, the traditional profession of engineering disappears and the Universities introduced three types of professions: engineers specialised in construction and environment, engineers specialised in industrial processes (e.g. mechanical) and engineers specialised in ICT and digital information.

At the same time, as requested by employers and labour market stakeholders, the offer of becoming a technician specialised in engineering processes (especially in mechanic, mechatronic and digital) in ITS courses focused in engineering as well as Master's strongly focused in engineering processes and products (also addressed to adult population).

Concerning ITS', the main productive sector involved in ITS' programmes, is mechanical engineering. In fact, more than 44% of students of ITS find a job in mechanical or mechatronics companies <sup>(19)</sup>. In particular ITS prepares two job profiles:

- ✓ Senior Technician for innovation of mechanical processes and products: he/she works in the field of design and industrialisation, the use of materials, mechanical processes / products, the use of software for representation and simulation. He/she combines several technologies, such as mechanics and electronics, and acts in construction, testing, documentation of automated processes / systems. In this context, he/she applies control and control systems as well as testing, commissioning and fault prevention methods. He/she schedules and maintains the maintenance also by intervening in post-sales in collaboration with the commercial management and interacts and collaborates with the technological structures of the context in which it intervenes.
- ✓ Senior Technician for automation and mechatronic systems: he/she works to realise, integrate, and control automated machines and systems for the most diverse types of production. He/she uses interface devices between the controlled machines and the programmable devices that control and test them to put them into operation by documenting the solutions developed. He/she manages control and regulation systems and collaborates with the technological structures responsible for the creation, production and maintenance of the devices on which it is operating. He/she also cares for economic, regulatory and security aspects.

The ITS courses aimed at training these professions are provided in 4 semesters for a total of 2,000 hours of which 800 hours of training in the most important mechanical companies, with compulsory attendance with a minimum participation of 80%.

All courses are strongly oriented to the 'know-how' and work culture and are therefore focused on a practical-laboratory teaching that involves alternating theoretical lessons in the classroom and in the company, exercises and group work in the laboratory, visits and project work in the company. Most of the lectures are entrusted to professionals from the workplace.

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<sup>(19)</sup> INDIRE, Monitoraggio Nazionale 2017 Percorsi ITS, 2017

In fact, engineering technicians in the field of mechanics and design are involved and are working with the students in classroom, traineeship and project work at the company.

Concerning Bachelor's degrees, in 2015/2016, 155,013 students were enrolled in Engineering and the Engineering programmes were the second most popular ones in the whole University offer, after Economic academic pathways.

This figure increased in the last four years due to the strong requests of graduates from employers and also because the different specialisations foreseen in the academic pathway offered many employment opportunities for graduates. Sectors like engineering applied at productive processes management, digital innovation products or automation in mechanical and mechatronic production are very appreciated by employers and preferred by students.

## 7. Current debates and future perspectives

*Please describe main current debates and any trends that can be observed or expectations related to future developments of 'VET at higher levels' (and specifically in the nursing and engineering areas) and provide evidence underpinning trends or expectations.*

Currently, the Italian debate on tertiary education is very active and severe and involves the Ministry of Education, universities, schools, employers and research institutes as well as economic actors and social stakeholders.

A 'National Steering Committee' has been launched in order to define goals and priorities for improving the Italian tertiary education (see Section 5). The idea is that in the next future higher education pathways should be more open to the labour market introducing more vocational content and methods in didactical programmes and methodologies. At the same time, it is important to support and increase the offer of Higher Education training that actually in Italy is poor and not sufficient.

Strengthening the vocational aspect of tertiary education, in a way consistent with the EU strategic guidelines, means diversifying the supply of the various institutions that are part of the tertiary system, universities and higher technical institutes (ITS), because this can help to achieve specific goals, such as:

- ✓ increasing the level of participation in tertiary education;
- ✓ strengthening the entire technical and scientific training chain;
- ✓ significantly increasing opportunities for good employment for young people and permanence in the labour market for employed adults by developing proactively responsive skills, paying particular attention to digital and innovative skills.

The Italian scenario related to the VET in higher education is still quite heterogeneous and diversified in relation to the different geographical areas. The Higher Technical Institutes (ITS) have been established few years ago following the DPCM of the 28 January 2008 and with Ministerial Decree no. 987/2016 it has been foreseen the testing of Bachelor's professional degree.

The goals of VET at higher levels, for the future, include:

- increase the overall number of people between the ages of 20 and 34 who hold a tertiary or equivalent education diploma and support the continuous training of workers (also in relation to EQF levels 3 and 4);
- adopt innovative organisational models - to be stimulated with appropriate instruments not only financially - to develop and articulate the overall technical and scientific training chain, making it more personalised, streamlined and communicative in the outcomes as well;
- promote retraining mechanisms for students leaving the university courses by orienting them towards professional paths;
- strengthen guidance and pathways for access to freelance professions and entrepreneurship, starting with technical ones, including better and more engaging higher secondary schools, in particular technical and vocational institutes, and accredited training institutions;
- improve the employment opportunities of young people and their permanence in the labour market through the involvement of economic and social actors by universities and ITS from the planning phase of the pathways also to facilitate the integration of available resources.

Starting from these goals and, in particular, concerning the new professional Bachelor's degrees, the universities are requested to define a new system of three-year, based on highly qualifying courses, enabling students to quickly acquire technical skills also introducing vocational approaches and tools. A compulsory partnership with companies, and employers' associations will be also requested from the new professional Bachelor's programmes adopting the approach already experimented in health professions.

Concerning the Higher Technical schools, the goal is to launch and carry out a system of degrees that can be achieved after 2/3 years. The training course, co-designed with businesses, is characterised not only by the links to the needs of the labour market, with particular attention to the technical characteristics of the productive sectors, but to allow young people and adults to work at the level of senior technicians in innovative work processes that require specific expertise in applied technology. The course could be designed and built by ITS only in the presence of a federation agreement with the university pursuant to art. 3, comma 2, of the law n.240 / 2010 and D.P.C.M January 25, 2008.

On the basis of these rules, universities can organise courses for achieving a Bachelor's professional degree in agreement with the Higher Technical Institutes, also using human resources, laboratories and other instrumental facilities of the ITS according to the criteria and modalities defined in the agreement mentioned above. A dialogue system must also identify training credits that universities intend, in their didactic autonomy, to recognise in addition to the minimum provided by current legislation for graduates of the Higher Technical Institutes. They will be used by graduates in ITS who wish to enrol in a professional Bachelor's degree course to acquire a higher-level qualification or a specialisation in a field consistent with the one already pursued.

It is desirable, moreover, that the coordinating bodies between universities and ITS be encouraged by appropriate measures concerning the organisation of the paths, including minimum operating requirements, and financial support, defined by the decree of the Minister of Education, University and Research.

## 8. Overview

*This table should provide an overview of what types of changes due to ‘academic or vocational drift’ or ‘expansion of VET at higher levels (outside higher education)’ can actually be observed in the country.*

*Please indicate the main processes and phenomena identified during the last 20 years in the table below – referring to the direction of change, the object of change, the context of change (or target area of change), the key processes observed and the results of these processes as well as their time frame and indicate the sections in which they are presented! Examples of key processes/results are presented in table 1 of the guidance note.*

Table 1 **Overview**

Direction of change	Object of change	Context/target area	Key processes observed / results	Timeframe	Section
<b>Academic drift</b>	<b>VET (outside HE)</b>	VET with academic contents	Introduction of Higher Technical Institutes (ITS): practical contents and traineeship mixed with academic principles and basis through the collaboration with Universities	<b>2007</b>	<b>2,3,4</b>
<b>Vocational drift</b>	<b>Higher Education</b>	VET with academic contents	Higher Technical Institutes (ITS): learning pathway with practical contents and academic principles (developed in collaboration with Universities)	<b>2007</b>	<b>2,3,4</b>
		Professional oriented HE	Introduction of Bachelor's degree	<b>2007</b>	<b>2,3,4</b>
		professionally oriented HE	Introduction of professional Bachelor's degrees as pilot programmes for linking Bachelor's degree with employers' needs and labour market Introduction of Higher Technical Institutes (ITS)	<b>2016</b> <b>2007</b>	<b>2,3,4</b>
		traditional (or academic) HE programmes	Introduction of Higher education and research apprenticeship programme	<b>2011</b>	<b>2,3,4</b>
		Professional oriented HE	Introduction of I and II level University Master	<b>2004</b>	<b>2,3,4</b>

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