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KEY COMPETENCES  
IN VOCATIONAL  
EDUCATION AND TRAINING

ITALY

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Coordination of drafting: Isabella Pitoni

Authors: Manuela Bonacci, Marta Santanicchia

The authors are members and express the specific know-how of Inapp - Istituto Nazionale per l'Analisi delle Politiche Pubbliche

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The thematic perspectives series complements the general information on vocational education and training (VET) systems provided in 'VET in Europe' reports. The themes presented in the series feature high on the European agenda.

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# Introduction

National policy <sup>(1)</sup> supporting key competences development in general education and VET has advanced in the past five years. New legislation <sup>(2)</sup> has been implemented to respond to the critical issues highlighted by international studies, such as PISA 2015 and PIACC 2013.

In Italy, almost all indicators on education and training have improved since 2011, but growth is still slow and scarce to be able to reach the average level in Europe.

PISA 2015 key findings confirm weaknesses but also show some progress: for instance, in mathematics, the results in Italy:

- (a) are slightly below the average of OECD countries;
- (b) have substantially improved compared to 2012;
- (c) vary significantly by region and gender (in favour of boys).

These findings confirm both progresses and the lack of equal, social and educational opportunities (different gender and geographical chances).

According to PIAAC 2013 results, the levels of literacy, numeracy and problem solving are below the average of the OECD countries.

At European level the key competences are included in Riga conclusions and the new programme regarding the New Skills Agenda for Europe.

Riga conclusions (2015) defined a new set of medium-term deliverables in the field of VET, for the period 2015-20, underlining the importance of key competences <sup>(3)</sup>.

The New Skills Agenda for Europe, launched in 2016 by the European Commission, boosts measures to ensure higher and more relevant skills,

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<sup>(1)</sup> Ministerial Decree No 139 del 22/08/2007 'Regulation on compulsory education and key competences'.

<sup>(2)</sup> In particular:

- (a) Decree No 13/2013 on the 'Definition of the general rules and basic performance levels for the identification and validation of non-formal and informal learning, and the minimum standards of the national skills certification system';
- (b) Law No 107/2015 on the 'Reform of the national education and training system' – the 'good school';
- (c) Decree No 81/2015 innovating the apprenticeship system.

<sup>(3)</sup> One of the deliverables of Riga conclusions concerns the importance of strengthen key competences in VET curricula and provide more effective opportunities to acquire or develop those skills through IVET and CVET.

improving visibility and use of available skills, and a better understanding of skills needs and trends in the labour market. One of these measures regards the innovation of the European framework of reference on the eight key competences for lifelong learning <sup>(4)</sup>. In the Italian context, key competences are mainly addressed in the lower and upper secondary cycle (lyceum, technical and vocational schools) of the national education system (responsibility of the education ministry) <sup>(5)</sup> and VET system (IeFP) <sup>(6)</sup> under the responsibility of Regions. IeFP-VET is provided by technical and vocational schools and regional training centres.

Since September 2012, EU key competences for lifelong learning were defined as targets within the Italian educational system in the curricula of pre-school and primary school under the competency of MEUR in a national regulation.

The national development of key competences generated from the European set of key competences (2006) and there is an explicit reference in the national legislation, the Ministerial Decree 139/2007, which is still the basic rule on key competences in Italy. Subsequent legislation has further developed the basic principles of KC in VET as per 139/2007 decree, in particular:

- (a) in 2013 a Legislative Decree (No 13/2013) reinforced the approach of key competences through the development of the national system for competences certification;
- (b) in 2015 a recent Law reforming the education and training system, the so called 'good school' <sup>(7)</sup> focused on key competences content, methodology and funding for both general education and VET under the competency of the MEUR;
- (c) in 2015, within the jobs act framework, Decree No 81/2015 innovating the apprenticeship system, identified new categories of key competences (for a specific type of apprenticeship).

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<sup>(4)</sup> Recommendation 2006/962/EC on key competences for lifelong learning.

<sup>(5)</sup> MEUR – Ministry of Education, University and Research (MIUR – Ministero dell'Istruzione, dell'università e della Ricerca).

<sup>(6)</sup> IeFP – Istruzione e formazione professionale the system is under the regional competency and it is articulated into three-year and four-year courses, and lead – respectively – to professional qualifications and diplomas (regional VET system).

<sup>(7)</sup> Law No 107/2015 on the 'Reform of the national education and training system' – the 'good school'.

## Certification of key competences in VET

Article 8 of the Presidential Decree No 122 (22 June 2009) defines the certification of competences, including key competences of the first and second cycle of education and training. In particular, with regard to the second cycle of education, where most of the key competences are acquired, the criteria for the certification of key competences which must be acquired by the end of compulsory education (10 years long or 16 years of age) are set in the Ministerial Decree No 139/2007.

The final and intermediate certifications, for the recognition of credits and competences in VET pathways, under the competency of regions, are defined in the Article 20 of the Legislative Decree, No 226 (17 October 2005).

Within this legislative framework, the national development of key competences, generated from the European set of key competences <sup>(8)</sup>, is based – at national level – on Ministerial Decree No 139/2007. This rule states that: ‘knowledge and skills required to achieve compulsory education are referred to four cultural axes, which form the basis to develop learning pathways oriented to the acquisition of eight key citizenship competences’.

The eight key citizenship competences are:

- (a) learning to learn;
- (b) planning;
- (c) communication;
- (d) collaborating and participating;
- (e) acting independently and responsibly;
- (f) problem solving;
- (g) identifying connections and relationships;
- (h) acquiring and interpreting information.

The four cultural axes are:

- (a) language skills (Italian/foreign languages);
- (b) mathematical skills;
- (c) scientific-technological skills;
- (d) history and social skills.

Since 2010/11, certificates are issued to graduates of compulsory education at the end of the first two years of secondary school (lyceum, technical and vocational schools) and the first two years of vocational education and training (IeFP-VET).

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<sup>(8)</sup> Recommendation 2006/962/EC on key competences for lifelong learning.

The certificate also specifies that these basic competences, necessary to fulfil the four cultural axes, are interrelated to the key citizenship competences set out by the 139/2007 regulation.

The national institute responsible for evaluating the education and VET systems (INVALSI) <sup>(9)</sup> methodologically supports and guides providers that issue the certificates. It also provides teacher training, guidelines and methodological support for assessing competences and online support, including regular surveys, assessment tools, methodology and analytical information on learning outcomes by VET provider.

Since 2015, this certification model has been tested also in the first education cycle (primary and lower secondary general education). Many (1 489) public and private schools volunteered. In June 2015, the education ministry (MEUR) assessed the functionality of the model through online questionnaire and suggested improvements. A qualitative audit was also arranged with a group of schools taking part in the pilot action. The widespread participation of schools indicates the awareness and interest of teachers; at the same time, this work represents an interesting bottom up model of promoting innovation <sup>(10)</sup>. The results of the pilot action are encouraging and the certification will become compulsory for all first level education providers in 2016/17.

## Key competences within the national system for competences certification

The implementation of the national system for certification of competences aims at enhancing recognition and transparency of qualifications (Decree 13/2013). It has reached important results in the past two years and has become an effective legal framework for developing and recognising key competences which include:

- (a) implementation of the national repository of general education and training diplomas, vocational qualifications as a unique reference for the certification of competences;
- (b) definition of a minimum standard framework which guarantees the quality of competences certification services.

The national technical committee prepares the implementation guidelines. The effective implementation of the certification of competences within the regional vocational training systems represents the ex-ante condition for

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<sup>(9)</sup> [www.invalsi.it](http://www.invalsi.it) [accessed 4.5.2017].

<sup>(10)</sup> [www.indicazioninazionali.it](http://www.indicazioninazionali.it) [accessed 4.5.2017].

accessing the 2014-20 ESF operational programmes. To this end, a ministerial decree has been adopted (30 June 2015) on the recognition of regional qualifications and related skills throughout the country. It also provides the infrastructure and operational basis for the overall set up of the system for the certification of competences. An online tool: the atlas of labour and the repertory of qualifications is now available <sup>(11)</sup>.

## Key competences within the 'good school' reform

An indirect, yet substantial reference to policies promoting key competences (also in VET) is in the 2015 reform of the national education and training system (Law 107/2015) the so-called 'good school'. Curriculum in upper secondary schools will implement teaching practices with additional resources and school autonomy. Economics and law curricula will be strengthened but also music, arts and sports. Digital and language skills are promoted by a national three-year plan for digital schools which aims to improve digital competences of teachers and learners, and expand the use of internet in schools. The plan also introduces content and language integrated learning (CLIL) <sup>(12)</sup> from primary level onwards. Currently, CLIL is compulsory only in the last year of upper secondary education, but not in leFP-VET.

The reform is oriented to increase skills and competences necessary in a prospective of better inclusion in the future labour market, mainly:

- (a) providing an offer in the education and VET systems more adequate to students' needs (personalisation of learning pathways if possible) and able to orient them to the future;
- (b) increasing specific skills such as:
  - (i) language (English) and communication skills through the development of content and language integrated learning;
  - (ii) literacy and the Italian language for foreign learners;
  - (iii) mathematical-logical and scientific skills;
  - (iv) digital skills, ICT (computational thinking, critical and conscious use of social networks and media);
  - (v) musical, artistic, entrepreneurial skills;

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<sup>(11)</sup> The online tool – the atlas of labour and the repertory of qualifications: [http://nrpitalia.isfol.it/sito\\_standard/sito\\_demo/index.php](http://nrpitalia.isfol.it/sito_standard/sito_demo/index.php) [accessed 4.5.2017].

<sup>(12)</sup> <http://www.indire.it/progetto/clil-content-and-language-integrated-learning/> [accessed 4.5.2017].

- (vi) active and democratic active citizenship skills, legal and economic knowledge, healthy lifestyles and education on environmental awareness;
- (vii) incrementing school-work alternance approaches in all upper secondary cycle of education and VET.

The plan for digital schools allocated EUR 30 million to schools in 2015 to enhance competences and tools related to digital innovation <sup>(13)</sup>. A crucial feature of this process, which involves the entire education system (including technical and vocational schools), is the direct involvement of schools and teachers. Each school must identify and train 'digital entertainers' which will have a strategic role in spreading innovation, assessing needs and formulating projects to access funding.

One of the structural measures provided by the 2015 reform is accrediting training providers in the regional initial VET (IeFP) which can contribute to the enhancement of key competences in VET. In coherence with these provisions, the higher technical education and training courses are also expected to enhance key competences such as: foreign languages and digital competences.

## Key competences in apprenticeships

Apprenticeships help integrate young people into the labour market. It is a permanent labour contract for young people based on both: employment and vocational training. It is one of the cornerstones of the Italian dual system. Some training modules, provided during the apprenticeship, are managed by the regions and autonomous provinces. Within the jobs act framework, Decree No 81/2015 has reviewed the system. Now, apprenticeships can be divided into three groups <sup>(14)</sup>:

- (a) qualification and/or professional diploma apprenticeships (upper secondary school diploma and the certificate of higher technical specialisation) for young people aged 15-25;

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<sup>(13)</sup> [http://www.istruzione.it/scuola\\_digitale/index.html](http://www.istruzione.it/scuola_digitale/index.html) [accessed 4.5.2017]

<sup>(14)</sup> The reform also changed the terminology attributed to the three types of apprenticeship (with respect to the previous classification identified in the so called 'Biagi Law' – Legislative Decree No 276/2003) as well as some aspects of the content itself. In the Italian language the three different groups are:

- (a) apprendistato per la qualifica professionale;
- (b) apprendistato professionalizzante o contratto a mestiere;
- (c) apprendistato di alta formazione e ricerca.

- (b) skills upgrade apprenticeship for young people aged 18-29, who learn and achieve a professional qualification usually in the craft sector;
- (c) higher education (including PhD) and research apprenticeship for young people aged 18-29.

While in the first group training involve the achievement of key competence as defined in the D.M 139/2007, the second group has a different classification.

Companies must comply with the 'training obligation' imposed on them by law with regard to workers employed with an apprenticeship contract (2<sup>nd</sup> group). In fact, the legislation provides that the apprentice must attend, on average, 120 hours of formal training per year of duration of the contract, divided as follows:

- (a) 40 hours: basic and transversal skills (to be carried out compulsorily outside the company in a training agency accredited for CVET by the region);
- (b) 80 hours: professional and technical skills (to be carried out within the company if there is the internal training capacity, or outside in a training agency accredited for CVET by the region).

Basic and transversal competences include:

- (a) workplace relationships and communication;
- (b) corporate organisation and economy;
- (c) company and workers' rights and duties;
- (d) safety, security and health in the workplace;
- (e) language and computer competences.

Recent national guidelines recommend the integration of basic and transversal competences with key competences for lifelong learning (according to Recommendation 2006/962/EC on 18 December 2006).

## Common elements to all key competences

Before analysing the eight EU KCs one-by-one, the table below describes elements common to all key competences.

### How acquisition of the key competences at upper secondary VET is promoted at national/regional level

#### Trasversal information referred to all set of key competences

<ul style="list-style-type: none"><li>• national/regional curricula, standards and qualifications</li></ul>	<p>In the national strategy, EU key competences, with particular reference to the basic competence area (communication in mother tongue; foreign languages, maths, etc.), are generally intended as a stand-alone component both at level of standard of competences and curricula. While, with reference to transversal competence area (learning to learn; entrepreneurship; etc.), they are usually embedded with the technical-professional component within the training context. However, to emphasise key competence relevance, compulsory education certificate has a specific position in the national referencing framework (EQF Level 2), according to the state-region agreement 20 December 2012 (which constitutes the formal adoption of the first referencing report of the Italian qualification system to EQF).</p> <p>Compulsory education certificate (also including leFP-VET) formally certifies the level of basic competencies achieved by learners, with reference to the four cultural axes and their relationship with the eight key citizenship competences. As already specified, it is awarded at the end of the first two-years by MEUR (lyceum; technical or vocational schools) or regions (leFP-VET training courses), according to the specific education and training pathways.</p>
<ul style="list-style-type: none"><li>• training VET teachers trainers</li></ul>	<p>Teachers within the education system (technical and vocational school-based VET) undergo initial and continuing training in order to be able to enter and act within the national system. Initial training includes a self-assessment pathway and tailored training programmes also addressed to test and develop communication, organisation, didactic, and technological skills (<a href="http://neoassunti.indire.it/2017/">http://neoassunti.indire.it/2017/</a> [accessed 4.5.2017]).</p> <p>Teachers are also provided with a specific training for the assessment of students key competences to fulfil compulsory education. INVALSI is responsible for the training plan designed in order to assure consistency of the methods used.</p> <p>Structural measures (Law 107/2015) support training of teachers: yearly voucher (500 EUR per teacher) to be autonomously used for books, courses, cultural events, software; compulsory training for trainers within three-year training plans (funding: 40 million for year from 2016).</p> <p>Trainers within the VET system (leFP) need to be accredited</p>

	<p>in the regional system. To be accredited they can be:</p> <ul style="list-style-type: none"> <li>• school teachers qualified for teaching at secondary level with reference to the specific subject;</li> <li>• experts with documented experience of teaching. With particular reference to basic competences, they just can be trained by trainers graduated on specific subjects (tables are available).</li> </ul> <p>Note that leFP courses can be delivered in both systems: technical and vocational schools (MEUR) and regional VET providers.</p>
<ul style="list-style-type: none"> <li>• centralised assessment of the key competences in VET</li> </ul>	<p>The sets of competences in the four cultural axes (linked to the eight key citizenship competences) are assessed at the end of compulsory education against the standards defined in the Decree No 139/2007. They are certified on a nationally valid format for the certification of competences (MEUR Decree No 9 – January 27th 2010). Three levels of competences can be achieved: basic, intermediate, advanced (or basic level not achieved). The certificate is structured in a way that the description of competences, acquired at the end of the first two years of the upper secondary education and the first two years of leFP training courses, is concise and transparent.</p> <p>INVALSI provides a training plan addressed to the Institutions involved, which includes a compendium (a guide) about PISA-OCSE framework: designing of tests; interpretation of results).</p>
<ul style="list-style-type: none"> <li>• other instruments (e.g. ways of working, teaching/learning methods)</li> </ul>	<p>The shift to LOs approach is gradually improving capacity of Italian education and training system to develop targeted competences. The system is becoming more flexible and internally consistent. The latest decade reform measures, based on the key concepts proposed at European level in the field of transparency, quality assurance and qualifications descriptors, follow the needs of the civil society and labour market. LOs approach is gradually showing its impact on the ways of teaching and learning (more flexibility; more correspondence and integration between learning objects and learning outcomes; more permeability between systems; more learners awareness regarding learning (what, why, how).</p>

## 1. Key competence: communication in the mother tongue

<b>The acquisition of the key competence at upper secondary VET is promoted at national/regional level</b>	Yes
<b>How is it promoted?</b>	
<ul style="list-style-type: none"> <li>national/regional policy document(s)</li> </ul>	See below
<ul style="list-style-type: none"> <li>national/regional law(s), regulation(s)</li> </ul>	<p>(EQF level 2)</p> <p>Ministerial Decree (MEUR) No 139/2007 (rules for compulsory education), based on the Law No 296/2006 (extension of compulsory education: 10 years long or 16 years of age), then updated by Law 133/2008 (opportunity to complete compulsory education within both education and VET systems).</p> <p>The Decree, with reference to the EU Recommendation 2006, promotes key competences, also including EU key competence No 1, by defining common standards of competences (basic and transversal) to be achieved at the end of compulsory education, through different pathways (lyceum, vocational and technical upper secondary schools – five years; or leFP-VET – three or four years. The decree sets up four cultural axes, with related sets of competences (knowledge and skills) and eight citizenship key competences, nationally defined. The four cultural axes form the basis to develop learning pathways, equally oriented to the acquisition of the eight key citizenship competencies.</p> <p>The first cultural axe, concerning language skills (Italian, foreign), refers to the EU No 1 communication in mother tongue. The language skills (axe) refer to language skills as basic competences. In practice the Decree promotes, about this specific area of competence, learning pathways oriented to the development of the ability to communicate in terms of:</p> <ul style="list-style-type: none"> <li>mastering tools of expression and argument;</li> <li>reading, understanding and interpreting texts;</li> <li>producing texts for different target groups;</li> <li>using the foreign language(s);</li> <li>comprehending artistic and cultural heritage;</li> <li>using and producing multimedia texts.</li> </ul> <p>The first cultural axe has also a direct correspondence to the national key competence No 3 communication. Nevertheless in the national strategy the cultural axes have an overall impact on the set of the eight key competences.</p> <p>(EQF level 3-4)</p> <p>State-regions agreements dated 27 July 2011 and January</p>

2012.

According to the state-regions agreement the national register of vocational education and training qualifications (No 21) based on national standards of competencies (basic and technical-professional), includes: professional operator qualifications (three-year vocational course) and professional technician qualifications (four-year vocational course). The national standards promote key competences, by assuring training pathways, equally oriented to a common minimum level of basic competencies, also including communication in mother tongue. The national standards develop the sets of basic competences and key citizenship competences already assessed at the end of compulsory education and training, according to the above mentioned Decree 139/07 (more information in example No 1).

(EQF Level 4)

Law No 107/2015 upper secondary (lyceum-vocational-technical) school reform

The law improves language skills development: reinforces Italian for foreign students and English for all students, also through general subjects/contents taught in English.

(EQF Level 4-5)

Decree of the President of the Council of Ministers dated 25 January 2008

Guidelines for the reorganisation of the higher technical education and training system and the establishment of higher technical institutes.

The decree states that both higher technical education and training (ITS EQF 5) and higher technical education courses (IFTTS EQF 4) base their curricula on common basic-transversal competences, also including linguistic, social-relational and communication skills.

Apprenticeship

Decree No 81/2015 – jobs act framework

The decree has reviewed the system. Now, apprenticeships (contract) can be divided into three groups aimed at:

- achieving a qualification and/or professional diploma apprenticeships (upper secondary school diploma and the certificate of higher technical specialisation) for young people aged 15-25;
- skills upgrading for young people aged 18-29, who learn and achieve a professional qualification;
- higher education (including PhD) and research for young people aged 18-29.

First type (1) involves the achievement of key competences, as defined in D.M 139/2007.

Second type (2): 120 hours of formal training per year of

	duration of the contract, of which 40 hours dedicated to basic and transversal skills, also including workplace relationships and communication (to be carried out compulsorily outside the company in a training agency accredited for CVET by the region).
<ul style="list-style-type: none"> <li>national/regional curricula, standards and qualifications</li> </ul>	<p>EU key competence 1 is promoted as a stand-alone component both at level of standards and curricula. Example 1 provides details about training time dedicated to the development of this competence within a three-year training pathway aimed at achieving a professional operator qualification for construction (EQF 3).</p> <p>About the national qualification system, the compulsory education certificate (EQF 2), formally certifies the level of language skills (Italian) achieved.</p>
<ul style="list-style-type: none"> <li>training VET teachers trainers</li> </ul>	The table at the end of Introduction provides transversal information common to all key competences.
<ul style="list-style-type: none"> <li>centralised assessment of the key competence in VET</li> </ul>	The table at the end of Introduction provides transversal information common to all key competences.
<ul style="list-style-type: none"> <li>other instruments (e.g. ways of working, teaching/learning methods)</li> </ul>	The table at the end of Introduction provides transversal information common to all key competences.
<b>The progress of improving key competence levels/learning outcomes among upper secondary VET students is monitored</b>	
	Yes
<b>How is it monitored?</b>	
<ul style="list-style-type: none"> <li>through international or national statistical data</li> </ul>	<p>INVALSI tests the progress within the education system (lyceum, technical and vocational schools) consistently with OECD PISA surveys.</p> <p>Equal assessment is provided in the lefp-VET pathways.</p>
<ul style="list-style-type: none"> <li>survey(s)</li> </ul>	No
<ul style="list-style-type: none"> <li>benchmark(s)</li> </ul>	No
<ul style="list-style-type: none"> <li>other instrument(s)</li> </ul>	No
<b>Key competence level improved among upper secondary VET students since (+/-) 2010</b>	<p>Regarding Literacy, within PISA 2015, Italy ranks significantly below the OECD average, with a score of 485 points and a standard deviation of 94. Within the international context, this result sets Italy between the 29 and 37 in the overall ranking of all participating countries and between 23 and 28 restricting the comparison to the 34 OECD countries.</p> <p><i>Source: INVALSI report 2015.</i></p>

## 2. Key competence: communication in foreign languages

<p>The acquisition of the key competence at upper secondary VET is promoted at national/regional level</p>	<p>Yes</p>
<p>How is it promoted?</p>	
<ul style="list-style-type: none"> <li>national/regional policy document(s)</li> </ul>	<p>See below</p>
<ul style="list-style-type: none"> <li>national/regional law(s), regulation(s)</li> </ul>	<p>(EQF level 2)  Ministerial Decree No 139/2007  The first cultural axe, concerning language skills (Italian, foreign), refers to the EU No 2 communication in foreign languages. The Decree promotes, about this specific area of competence, learning pathways oriented to the development of the ability to communicate, also in terms of using the foreign language(s).  (EQF level 3-4)  State-regions agreements dated 27 July 2011 and January 2012  The national standards promote key competences, by assuring training pathways, equally oriented to a common minimum level of basic competencies, also including communication in foreign languages (A2 is the level to be achieved for professional operator qualification; B1 is the level to be achieved for professional technician qualification).  (EQF level 4)  Law 107/2015 Upper secondary (lyceum-vocational-technical) school reform.  The Law improves language skills development: reinforcing Italian language for foreign students and English for all students, also through general subjects/contents taught in English.  (EQF level 4-5)  Decree of the President of the Council of Ministers dated 25 January 2008.  Guidelines for the reorganisation of the higher technical education and training system and the establishment of higher technical institutes.  The decree states that both higher technical education and training (ITS EQF 5) and higher technical education courses (IFTS EQF 4) base their curricula on common basic-transversal competences, also including linguistic, relational and communication skills.</p>
<ul style="list-style-type: none"> <li>national/regional curricula, standards and</li> </ul>	<p>EU key competence 2 is promoted as a stand-alone component both at level of standards and curricula. Example</p>

qualifications	1 provides details about training time dedicated to the development of this competence within a three-year training pathway aimed at achieving a professional operator qualification for construction (EQF 3). About the national qualification system, the compulsory education certificate (EQF 2), formally certifies the level of language skills (English) achieved.
• training VET teachers trainers	The table at the end of Introduction provides transversal information common to all key competences.
• centralised assessment of the key competence in VET	The table at the end of Introduction provides transversal information common to all key competences.
• other instruments (e.g. ways of working, teaching/learning methods)	The table at the end of Introduction provides transversal information common to all key competences.
<b>The progress of improving key competence levels/learning outcomes among upper secondary VET students is monitored</b>	
	Yes
<b>How is it monitored?</b>	
• through international or national statistical data	INVALSI tests the progress within the education system (lyceum, technical and vocational schools) consistently with OECD PISA surveys. Equal assessment is provided in the leFP-VET pathways.
• survey(s)	No
• benchmark(s)	No
• other instrument(s)	No
<b>Key competence level improved among upper secondary VET students since (+/-) 2010</b>	
	No data

### 3. Key competence: competences in maths, science and technology

<b>The acquisition of the key competence at upper secondary VET is promoted at national/regional level</b>	
	Yes
<b>How is it promoted?</b>	
• national/regional policy document(s)	See below
• national/regional law(s), regulation(s)	(EQF level 2) Ministerial Decree No 139/2007 About this specific area of competence, the second cultural

axe, Mathematical skills and the third one related to scientific-technological skills refer to the EU No 3 key competence. Competences related to mathematical skills and scientific-technological skills are intended as basic competences. In practice the decree promotes, in this specific area of competence, learning pathways oriented to the development of the ability to act in terms of:

(mathematical skills)

- making calculations, also by using computer applications and charts;
- comparing and analysing geometric figures, identifying relationships;
- identifying strategies for problem solving;
- analysing and interpreting data by deduction and reasoning;

(scientific-technological skills)

- observing, describing and analysing natural phenomena by understanding the concepts of systems and complexity;
- based on experience, analysing phenomena linked to transformation of energy;
- contextualising awareness of the potential and limitations of technology.

(EQF level 3-4)

State-regions agreements dated 27 July 2011 and January 2012

The national register of VET qualifications is based on national standards of competencies (basic and technical-professional). The national standards promote key competences, by assuring training pathways, equally oriented to a common minimum level of basic competencies, also including mathematic, scientific and technologic area of competence.

(EQF level 4)

Law 107/2015 upper secondary (lyceum-vocational-technical) school reform.

The law improve mathematical-logical, scientific, and digital skills development: investments for new digital labs and training for trainers.

(EQF level 4-5)

Decree of the President of the Council of Ministers dated 25 January 2008.

Guidelines for the reorganisation of the higher technical education and training system and the establishment of higher technical institutes.

The decree states that both higher technical education and training (ITS EQF 5) and higher technical education courses (IFTS EQF 4) base their curricula on common basic-

	transversal competences, also including scientific and technological skills.
<ul style="list-style-type: none"> <li>national/regional curricula, standards and qualifications</li> </ul>	<p>EU key competence 3 is promoted as a stand-alone component both at level of standards and curricula. Example 1 provides details about training time dedicated to the development of this competence within a three-year training pathway aimed at achieving a professional operator qualification for construction (EQF 3).</p> <p>About the national qualification system, the compulsory education certificate (EQF 2), formally certifies the level achieved with reference to mathematical and scientific-technological cultural axe.</p>
<ul style="list-style-type: none"> <li>training VET teachers trainers</li> </ul>	The table at the end of Introduction provides transversal information common to all key competences.
<ul style="list-style-type: none"> <li>centralised assessment of the key competence in VET</li> </ul>	The table at the end of Introduction provides transversal information common to all key competences.
<ul style="list-style-type: none"> <li>other instruments (e.g. ways of working, teaching/learning methods)</li> </ul>	The table at the end of Introduction provides transversal information common to all key competences.
<b>The progress of improving key competence levels/learning outcomes among upper secondary VET students is monitored</b>	
	Yes
<b>How is it monitored?</b>	
<ul style="list-style-type: none"> <li>through international or national statistical data</li> </ul>	<p>INVALSI tests the progress within the education system (lyceum, technical and vocational schools) consistently with OECD PISA surveys.</p> <p>Equal assessment is provided in the leFP-VET pathways.</p>
<ul style="list-style-type: none"> <li>survey(s)</li> </ul>	No
<ul style="list-style-type: none"> <li>benchmark(s)</li> </ul>	No
<ul style="list-style-type: none"> <li>other instrument(s)</li> </ul>	No
<b>Key competence level improved among upper secondary VET students since (+/-) 2010</b>	<p>Regarding science in PISA 2015, Italy ranks significantly below the OECD average, with an average score of 481. Compared to all countries Italy is between the 32 and 36 position and between the 26 and 28 position, considering only the OECD countries.</p> <p>Regarding maths, Italy has achieved an average score of 490 and it is not significantly different from the OECD average. The position is between the 17 and 26 position.</p> <p>Source: INVALSI report 2015</p>

## 4. Key competence: digital competence

<p>The acquisition of the key competence at upper secondary VET is promoted at national/regional level</p>	<p>Yes</p>
<p>How is it promoted?</p>	
<ul style="list-style-type: none"> <li>national/regional policy document(s)</li> </ul>	<p>See below</p>
<ul style="list-style-type: none"> <li>national/regional law(s), regulation(s)</li> </ul>	<p>(EQF level 2)  Ministerial Decree No 139/2007.</p> <p>About this specific area of competence: digital competence (EU key competence No 4) is intended as a transversal area. However it is specifically quoted in the first cultural axe language skills, in terms of ‘using and producing multimedia texts’, but also in the mathematical skills in terms of ‘making calculations, also by using computer applications and charts’, as well as in the scientific-technological skills ‘awareness of the potential and limitations of technology’.</p> <p>Digital competence is also included in the national key competence No 3 Communication (described as the ability to represent events, concepts, procedures, by using different languages and IT and multimedia devices).</p> <p>(EQF level 3-4)  State-regions agreements dated 27 July 2011 and January 2012.</p> <p>The national standards promote key competences, by assuring training pathways, equally oriented to a common minimum level of basic competencies, also including digital competences (mathematic, scientific, technologic area).</p> <p>(EQF level 4)  Law No 07/2015 upper secondary (lyceum-vocational-technical) school reform.</p> <p>The law provides interventions about digital competence at system and individual level. At national level it introduced a national plan for digital schools (which involves vocational and technical schools), to develop digital skills and introduce new technologies in the school labs.</p> <p>More in details Law 107/2015 sets a funding of EUR 30 million per year to be added to the general annual budget for schools since 2016, and it provides:</p> <ul style="list-style-type: none"> <li>cooperation with universities, companies and third-sector associations to develop activities and projects for the enhancement of students’ digital skills;</li> <li>training of teachers and trainers for didactic innovation to spread digital culture for learning, training and new job skills;</li> <li>best practices also by promoting a national network of</li> </ul>

	<p>digital institutions for research and training;</p> <ul style="list-style-type: none"> <li>digital textbooks and support the schools in creating their own learning materials.</li> </ul> <p>At individual level, the Law launches the institution of the digital student card aimed at mapping the competences acquired in different educational contexts, including non-formal and informal learning.</p> <p>(EQF level 4-5)</p> <p>Decree of the President of the Council of Ministers dated 25 January 2008.</p> <p>Guidelines for the reorganisation of the higher technical education and training system and the establishment of higher technical institutes.</p> <p>The decree states that both higher technical education and training (ITS EQF 5) and higher technical education courses (IFTS EQF 4) base their curricula on common basic-transversal competences, also including IT skills.</p> <p>Apprenticeship</p> <p>Decree No 81/2015 within the jobs act framework.</p> <p>The decree has reviewed the system. Now, apprenticeships (contract) can be divided into three groups aimed at: 1) achieving a qualification and/or professional diploma apprenticeships (upper secondary school diploma and the certificate of higher technical specialisation) for young people aged 15-25; 2) skills upgrading for young people aged 18-29, who learn and achieve a professional qualification; 3) higher education (including PhD) and research for young people aged 18-29.</p> <p>First type (1) involves the achievement of key competences, as defined in the D.M 139/2007.</p> <p>Second type (2): 120 hours of formal training per year of duration of the contract, of which 40 hours dedicated to basic and transversal skills, also including digital competence).</p>
<ul style="list-style-type: none"> <li>national/regional curricula, standards and qualifications</li> </ul>	<p>The table at the end of Introduction provides transversal information common to all key competences.</p>
<ul style="list-style-type: none"> <li>training VET teachers trainers</li> </ul>	<p>The table at the end of Introduction provides transversal information common to all key competences.</p>
<ul style="list-style-type: none"> <li>centralised assessment of the key competence in VET</li> </ul>	<p>The table at the end of Introduction provides transversal information common to all key competences.</p>
<ul style="list-style-type: none"> <li>other instruments (e.g. ways of working, teaching/learning methods)</li> </ul>	<p>The table at the end of Introduction provides transversal information common to all key competences.</p>

<b>The progress of improving key competence levels/learning outcomes among upper secondary VET students is monitored</b>		No
<b>How is it monitored?</b>		
• through international or national statistical data	No	
• survey(s)	No	
• benchmark(s)	No	
• other instrument(s)	No	
<b>Key competence level improved among upper secondary VET students since (+/-) 2010</b>		No data

## 5. Key competence: learning to learn

<b>The acquisition of the key competence at upper secondary VET is promoted at national/regional level</b>		Yes
<b>How is it promoted?</b>		
• national/regional policy document(s)	See below	
• national/regional law(s), regulation(s)	<p>(EQF level 2) Ministerial Decree No 139/2007</p> <p>Learning to learn (EU key competence No 5) is adopted as transversal competence within the set of nationally defined key competences (it is No 1). At national level learning to learn is intended in terms of ability to 'self-organise learning, identify, choose and use different sources and methods of information and learning (formal, non-formal and informal), also following personal timing, strategies and methods of both working and/or studying'.</p> <p>(EQF level 3-4) State-regions agreement dated 27 July 2011 and January 2012</p> <p>The national register of VET qualifications is based on national standards of competencies (basic and technical-professional). EU key competence No 5 is addressed within the historic and socio-economic area of competence, together with the EU KC No 6 and 7, in terms of: 'ability to transform ideas into actions, by improving knowledge and awareness. Ability to identify personal and professional learning opportunities'.</p> <p>(EQF level 4) Law 107/2015 Upper secondary (lyceum-vocational-</p>	

	<p>technical) school reform</p> <p>The law focuses on the development of learning to learn and entrepreneurship competences. Common components are: autonomy, responsibility, differentiation. Wider autonomy to schools will enable further optional subjects to be developed thus better meeting the needs of tailor made learning. Besides, school-training alternance will guarantee students with practical experiences.</p>
national/regional curricula, standards and qualifications	EU KC5 is adopted as a transversal competence within the set of nationally defined key competences (it corresponds to No 1). It is promoted as an 'embedded' component at level of curricula.
training VET teachers trainers	The table at the end of Introduction provides transversal information common to all key competences.
centralised assessment of the key competence in VET	The table at the end of Introduction provides transversal information common to all key competences.
other instruments (e.g. ways of working, teaching/learning methods)	The table at the end of Introduction provides transversal information common to all key competences.
<b>The progress of improving key competence levels/learning outcomes among upper secondary VET students is monitored</b>	
	No
<b>How is it monitored?</b>	
through international or national statistical data	No
survey(s)	No
benchmark(s)	No
other instrument(s)	No
<b>Key competence level improved among upper secondary VET students since (+/-) 2010</b>	
	No data

## 6. Key competence: interpersonal, intercultural, social competences, and civic competence

<p>The acquisition of the key competence at upper secondary VET is promoted at national/regional level</p>	<p>Yes</p>
<p>How is it promoted?</p>	
<ul style="list-style-type: none"> <li>• national/regional policy document(s)</li> </ul>	<p>See below</p>
<ul style="list-style-type: none"> <li>• national/regional law(s), regulation(s)</li> </ul>	<p>(EQF level 2)  Ministerial Decree No 139/2007.</p> <p>About this specific area of competence: the EU key competence No 6 meets the expected outcomes in the fourth cultural axe history and social skills, which concerns:</p> <ul style="list-style-type: none"> <li>• understanding historical change by comparing ages and different geographical and cultural areas;</li> <li>• using a system of rules based on the recognition of constitutional rights and obligations, including respect for individuals, community and environment;</li> <li>• recognising the fundamental characteristics of their socio-economic system.</li> </ul> <p>About the key citizenship competences, the EU competence No 6 has a direct relationship with the competences 4) collaborating and participating and 5) acting independently and responsibly. This two latest competences focus on:</p> <p>4) collaborating and participating: interacting within a group of people, understanding other people's points of view, promoting one's own skills as well as others', managing conflict situations, giving one's contribution to everybody's learning and carrying out group activities, while always respecting other people's fundamental rights;</p> <p>5) acting autonomously and responsibly: actively and consciously taking part in the social activities while asserting one's rights and needs and simultaneously acknowledging other people's, as well as shared opportunities, boundaries, rules and responsibilities.</p> <p>(EQF level 3-4)  State-regions agreements dated 27 July 2011 and January 2012</p> <p>The national register of VET qualifications is based on national standards of competencies (basic and technical-professional). EU key competence No 6 is explicitly recalled in the national regulation within the historic and socio-economic area of competence, in terms of: 'ability to transform ideas into actions, by improving knowledge and</p>

	<p>awareness. Ability to identify personal and professional learning opportunities’.</p> <p>(EQF level 4)</p> <p>Law 107/2015 upper secondary (lyceum-vocational-technical) school reform.</p> <p>The law enhances the development of active and democratic citizenship skills, the development of legal and economic knowledge, and of socially responsible behaviour in relation to culture, the environment and respect of the law.</p> <p>(EQF level 4-5)</p> <p>Decree of the President of the Council of Ministers dated 25 January 2008.</p> <p>Guidelines for the reorganisation of the higher technical education and training system and the establishment of higher technical institutes.</p> <p>The decree states that both higher technical education and training (ITS EQF 5) and higher technical education courses (IFTS EQF 4) base their curricula on common basic-transversal competences, also including legal and economic skills, as well as ‘management of interpersonal and institutional (internal and external) relationships’.</p> <p>Apprenticeship</p> <p>Decree No 81/2015 within the jobs act framework.</p> <p>The decree has reviewed the system. Now, apprenticeships (contract) can be divided into three groups aimed at: 1) achieving a qualification and/or professional diploma apprenticeships (upper secondary school diploma and the certificate of higher technical specialisation) for young people aged 15-25; 2) skills upgrading for young people aged 18-29, who learn and achieve a professional qualification; 3) higher education (including PhD) and research for young people aged 18-29.</p> <p>First type (1) involves the achievement of key competences, as defined in the D.M 139/2007.</p> <p>Second type (2): 120 hours of formal training per year of duration of the contract, of which 40 hours dedicated to basic and transversal skills, also including social and civic competences.</p>
<ul style="list-style-type: none"> <li>• national/regional curricula, standards and qualifications</li> </ul>	<p>EU key competence 6 is promoted both as a stand-alone component (at level of standards and curricula, within the fourth cultural axe history and social skills) and a transversal and ‘embedded’ component.</p>
<ul style="list-style-type: none"> <li>• training VET teachers trainers</li> </ul>	<p>The table at the end of Introduction provides transversal information common to all key competences.</p>
<ul style="list-style-type: none"> <li>• centralised assessment of the key competence in VET</li> </ul>	<p>The table at the end of Introduction provides transversal information common to all key competences.</p>

<ul style="list-style-type: none"> <li>• other instruments (e.g. ways of working, teaching/learning methods)</li> </ul>	The table at the end of Introduction provides transversal information common to all key competences.
<b>The progress of improving key competence levels/learning outcomes among upper secondary VET students is monitored</b>	No
<b>How is it monitored?</b>	
<ul style="list-style-type: none"> <li>• through international or national statistical data</li> </ul>	No
<ul style="list-style-type: none"> <li>• survey(s)</li> </ul>	No
<ul style="list-style-type: none"> <li>• benchmark(s)</li> </ul>	No
<ul style="list-style-type: none"> <li>• other instrument(s)</li> </ul>	No
<b>Key competence level improved among upper secondary VET students since (+/-) 2010</b>	No data

## 7. Key competence: entrepreneurship

<b>The acquisition of the key competence at upper secondary VET is promoted at national/regional level</b>	Yes
<b>How is it promoted?</b>	
<ul style="list-style-type: none"> <li>• national/regional policy document(s)</li> </ul>	See below
<ul style="list-style-type: none"> <li>• national/regional law(s), regulation(s)</li> </ul>	<p>(EQF level 2)</p> <p>Ministerial Decree No 139/2007.</p> <p>About this specific area of competence: EU key competence No 7 has a relation with the expected outcomes in the fourth cultural axe history and social skills. The reasons of this consistency are explained in the above mention Decree (Annex II). It specifies regarding the objectives of the axe that 'as the EU key Recommendation 2006 invites states to improve entrepreneurship, it is important to provide knowledge tools about social and economic development, labour market roles, as well as opportunities for mobility'. The EU key competence No 7 also fits the key citizenship competences No 2) planning and 6) problem solving, intended as:</p> <p>2) planning: planning and carrying out projects concerning the development of study and work activities, by applying the acquired knowledge in order to set relevant and realistic goals as well as one's own priorities, by assessing the existing boundaries and opportunities, by defining strategies and checking own achievements;</p>

6) problem solving: tackling challenging situations by creating and verifying hypothesis, identifying the appropriate sources and resources, collecting and assessing data, putting forward potential solutions which shall include contents and methods acquired from different disciplines according to the specific problem.

(EQF level 3-4)

State-regions agreements dated 27 July 2011 and January 2012.

The national register of VET qualifications is based on national standards of competencies (basic and technical-professional). EU key competence No 7 is explicitly recalled in the national regulation within the historic and socio-economic area of competence, in terms of: 'ability to transform ideas into actions, by improving knowledge and awareness. Ability to identify personal and professional learning opportunities'.

(EQF level 4)

Law 107/2015 upper secondary (lyceum-vocational-technical) school reform.

The law focuses on the development of entrepreneurship competence. Common components are: autonomy, responsibility, differentiation. Wider autonomy to schools will enable further optional subjects to be developed thus better meeting the needs of tailor made learning. Besides, school-training alternance will guarantee students with practical experiences.

(EQF level 4-5)

Decree of the President of the Council of Ministers dated 25 January 2008.

Guidelines for the reorganisation of the higher technical education and training system and the establishment of higher technical institutes.

The decree states that both higher technical education and training (ITS EQF 5) and higher technical education courses (IFTS EQF 4) base their curricula on common basic-transversal competences, also including problem solving and 'ability to organise and manage the working environment with an high level of autonomy and responsibility'.

Apprenticeship

Decree No 81/2015 within the jobs act framework.

The decree has reviewed the system. Now, apprenticeships (contract) can be divided into three groups aimed at: 1) achieving a qualification and/or professional diploma apprenticeships (upper secondary school diploma and the certificate of higher technical specialisation) for young people aged 15-25; 2) skills upgrading for young people

	aged 18-29, who learn and achieve a professional qualification; 3) higher education (including PhD) and research for young people aged 18-29. First type (1) involves the achievement of key competences, as defined in the D.M 139/2007. Second type (2): 120 hours of formal training per year of duration of the contract, of which 40 hours dedicated to basic and transversal skills, also including entrepreneurship.
• national/regional curricula, standards and qualifications	The table at the end of Introduction provides transversal information common to all key competences.
• training VET teachers trainers	The table at the end of Introduction provides transversal information common to all key competences.
• centralised assessment of the key competence in VET	The table at the end of Introduction provides transversal information common to all key competences.
• other instruments (e.g. ways of working, teaching/learning methods)	The table at the end of Introduction provides transversal information common to all key competences.
<b>The progress of improving key competence levels/learning outcomes among upper secondary VET students is monitored</b>	
	No
<b>How is it monitored?</b>	
• through international or national statistical data	No
• survey(s)	No
• benchmark(s)	No
• other instrument(s)	No
<b>Key competence level improved among upper secondary VET students since (+/-) 2010</b>	
	No data

## 8. Key competence: cultural expression

<b>The acquisition of the key competence at upper secondary VET is promoted at national/regional level</b>	
	Yes
<b>How is it promoted?</b>	
• national/regional policy document(s)	See below

<ul style="list-style-type: none"> <li>national/regional law(s), regulation(s)</li> </ul>	<p>(EQF level 2) Ministerial Decree No 139/2007.</p> <p>About this specific area of competence: the EU key competence No 8 meets the expected outcomes in the fourth cultural axe History and social skills, which concerns 'understanding historical change by comparing ages and different geographical and cultural areas'. It is also consistent with the first axe Language skills in terms of 'using basic tools for the enjoyment of the artistic heritage'. About key citizenship competences, the EU key competence No 8 has a traversal consistency with the nationally valid key competences. It can be underlined, for instance, the link to No 3 communicating (understanding messages of different nature and complexity, delivered through different codes); 4) collaborating and participating (understanding other people's points of view, promoting one's own skills as well as others').</p> <p>(EQF level 4) Law 107/2015 upper secondary (lyceum-vocational-technical) school reform.</p> <p>The law focuses on the cultural expression. Art and music disciplines will be funding by special projects. Besides, the electronic card for teacher' training (vouchers of EUR 500 per year per teacher may be used to participate in cultural, artistic events).</p>	
<ul style="list-style-type: none"> <li>national/regional curricula, standards and qualifications</li> </ul>	<p>The table at the end of Introduction provides transversal information common to all key competences.</p>	
<ul style="list-style-type: none"> <li>training VET teachers trainers</li> </ul>	<p>The table at the end of Introduction provides transversal information common to all key competences.</p>	
<ul style="list-style-type: none"> <li>centralised assessment of the key competence in VET</li> </ul>	<p>The table at the end of Introduction provides transversal information common to all key competences.</p>	
<ul style="list-style-type: none"> <li>other instruments (e.g. ways of working, teaching/learning methods)</li> </ul>	<p>The table at the end of Introduction provides transversal information common to all key competences.</p>	
<p><b>The progress of improving key competence levels/learning outcomes among upper secondary VET students is monitored</b></p>		<p>No</p>
<p><b>How is it monitored?</b></p>		
<p>through international or national statistical data</p>	<p>No</p>	
<p>survey(s)</p>	<p>No</p>	
<p>benchmark(s)</p>	<p>No</p>	

other instrument(s)	No
Key competence level improved among upper secondary VET students since (+/-) 2010	No data

## 9. Examples

### Key competences as addressed in the curriculum of professional operator certificate for construction <sup>(15)</sup> (regions) – EQF 3

- (a) Legislation: the national register for the provision of vocational education and training (state-regions agreement dated 27 July 2011), includes qualifications such as professional operator (three-year leFP-VET course) and professional technician (four-year leFP vocational course).
- (b) How it is achieved: awarded at the end of a three-year leFP vocational education and training pathways (VET). Learners holding a Lower secondary leaving diploma can access this type of VET courses.
- (c) Minimum standards of competences to be achieved. VET courses refer to a minimum level of:
  - (i) basic competences (which include and develop the sets of basic competences to fulfil compulsory education and training related to the four cultural axes, linked to the key citizenship competences according to Ministerial Decree 139/07);
  - (ii) technical-professional competences (general and specific).
- (d) Basic and technical competencies are embedded to define the personal, cultural and professional profile of the qualification.
- (e) There is explicit and specific reference to: ‘minimum training levels based on competence as proven capacity to apply knowledge, skills and personal and/or methodological abilities both in study and work situations as well as in one’s personal and professional development’.
- (f) How the key competences are embedded in the curriculum. The VET courses can be delivered by training providers or schools and the learner is guided towards the achievement of the standard of competences defined at national level through both school-based and work-based learning

<sup>(15)</sup> Attestato di qualifica di operatore edile.

environments. Basic and technical competences (linked to EU key competences) are achieved through different training pathways. You can find below an example of the training pathway as designed in the Piemonte region <sup>(16)</sup>.

		Year 1	Year 2	Year 3	Total
Basic competences	Cultural axe: language skills (Italian)	90	90	40	220
	Cultural axe: language skills (English)	90	60	40	190
	Cultural axe: mathematical skills	90	85	60	235
	Cultural axe: scientific-technologic skills	60	55	30	145
	Cultural axe: history and social skills	80	80	45	205
<b>Total training time (h) for basic competences</b>		<b>410</b>	<b>370</b>	<b>215</b>	<b>995</b>
Technical professional competences	General: security and hygiene; quality; IT;	50	60	40	150
	Specific: ...	480	500	357	1337
Total training time (h) for professional competences		530	560	397	1487
<b>Stage</b>		<b>-</b>	<b>-</b>	<b>320</b>	<b>320</b>
Citizenship competences		10	10	10	30
Guidance		30	30	30	90
<b>Total training time (h) for transversal competences and guidance activity</b>		<b>40</b>	<b>40</b>	<b>40</b>	<b>120</b>
Added time for analysis...		70	80	50	200
<b>Exam</b>		<b>-</b>	<b>-</b>	<b>28</b>	<b>28</b>
<b>Total</b>		<b>1050</b>	<b>1050</b>	<b>1050</b>	<b>3150</b>

<sup>(16)</sup> [http://www.regione.piemonte.it/orientamento/s1g/cms/index.php?option=com\\_content&view=article&id=134%3A-modello-descrittore&Itemid=1](http://www.regione.piemonte.it/orientamento/s1g/cms/index.php?option=com_content&view=article&id=134%3A-modello-descrittore&Itemid=1) [accessed 4.5.2017].

## EU key competence 1 as addresses in the vocational schools (MEUR) – EQF 4

- (a) Legislation:
- (i) guidelines for the second two-year cycle and the fifth year of vocational schools (Ministerial Directive No 5 dated 16 January 2012);
  - (ii) Presidential Decree dated 15 March 2010, No 87. Regulations on the reorganisation of vocational schools; Annex A – the student's educational, cultural and professional profile;
  - (iii) Legislative Decree dated 17 October 2005, No 226. General provisions and expected minimum levels of performance on the second cycle of the education and training system;
  - (iv) Law dated 28 March 2003, No 53 'Delegation to the government for the definition of general provisions on education and definition of expected minimum levels of performances in education and professional training'.
- (b) How it is achieved: the upper secondary education diploma is awarded at the completion of five-year secondary education courses in vocational schools (as well as in lyceum and technical schools) after passing the secondary school state examination. The diploma can also be awarded at the completion of higher education apprenticeships courses.
- (c) Minimum standards of competencies to be achieved: the guidelines for vocational schools explain which are the LOs in the framework of the student's educational, cultural and professional profile (with reference to: (i) the first two-year cycle; (ii) the second two-year cycle; (iii) the fifth year), and are expressed in terms of knowledge, skills and competence in line with the EQF.
- (d) How the key competences are embedded in the learning outcomes profile: the following scheme shows the expected LOs both with reference to the common LOs profile for all vocational courses, in which the integration of technical, professional, linguistic, historical and social knowledge are emphasised, and the LOs profile specifically referred to the Italian language and literature subject.

### EU key competence 1 as addressed within the Vocational upper secondary school pathways

LOs for vocational upper secondary school pathways established in the educational cultural and professional

Vocational education pathways aim at providing students with competencies based on the integration of technical, professional, linguistic, historical and social knowledge to be used in different contexts. At the end of these courses, students are able to:

- use the acquired cultural and methodological knowledge to rationally, acutely, creatively and responsibly face the world with

profile	<p>its peculiar phenomena and issues, to the benefit of their lifelong learning as well;</p> <ul style="list-style-type: none"> <li>• use the Italian language and vocabulary in different contexts according to the expected communication situations: social, cultural, scientific, economic, technological and work-related contexts;</li> <li>• identify the basic guidelines underlying the history of ideas, culture, literature and arts and comfortably handle fundamental literature and authors, starting from the technical-professional components regarding their area of expertise;</li> <li>• establish relations between local, national and international cultures and traditions both in an intercultural perspective and aiming at increasing their mobility chances both in study and work activities;</li> <li>• acknowledge the worth and potential of the artistic and environmental heritage; develop and show their capability to relate, communicate, listen, cooperate and their sense of responsibility, in the exercise of the role</li> <li>• understand the ethical, social, scientific, productive, economic and environmental implications of technological innovation and its industrial, artistic and handcrafting employment.</li> </ul>	
LOs (fifth year) concerning the subject 'Italian language and literature'	<p>The subject is mainly aimed at achieving the following LOs expressed in terms of competence:</p> <ul style="list-style-type: none"> <li>• identifying and using adequate communication and team-working tools to take part in organisations and professional contexts;</li> <li>• editing technical reports and documenting personal and group activities with regard to specific work situations;</li> <li>• creating and using visual and multimedia tools with reference to expressive strategies and web communication technical tools.</li> </ul>	
	<p>Knowledge:</p> <ul style="list-style-type: none"> <li>• writing techniques for different written genres, even for professional purposes;</li> <li>• tools for the analysis and interpretation of literary texts and for the research on topics regarding the educational pathway;</li> <li>• glossary of technical and scientific terms in different languages;</li> <li>• research tools and methods for technical information;</li> <li>• layout of a curriculum vitae and correct filling of the</li> </ul>	<p>Skills:</p> <ul style="list-style-type: none"> <li>• using field-related language to communicate in work situations;</li> <li>• editing professional texts by using specific technical language;</li> <li>• comparing and using technical and scientific terms in different languages;</li> <li>• interacting with and providing arguments to the service recipient in work situations concerning the areas of expertise;</li> <li>• choosing and using adequate multimedia tools for the</li> </ul>

	European CV; <ul style="list-style-type: none"> <li>• research and classification techniques of multimedia tools and websites, even of specific nature;</li> <li>• specific software for communication;</li> <li>• literature;</li> <li>• other artistic expressions.</li> </ul>	professional area of expertise; <ul style="list-style-type: none"> <li>• editing the European curriculum vitae.</li> </ul>
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## Skills upgrade apprenticeship and good practices regarding entrepreneurship

Companies must comply with the 'training obligation' imposed on them by law with regard to workers employed with an apprenticeship contract (2<sup>a</sup> group). It refers to 120 hours of formal training in three-year contract that the apprentice must attend as follows:

Basic and transversal skills to be carried out compulsorily outside the company in a training agency accredited for CVET by the region. Basic and transversal competences include: <ul style="list-style-type: none"> <li>• workplace relationships and communication;</li> <li>• corporate organisation and economy;</li> <li>• company and workers' rights and duties;</li> <li>• workplace safety;</li> <li>• language and computer competences.</li> </ul>	40 hours	External to the company, usually funded by competent region
Professional and technical skills to be carried out within the company if there is the internal training capacity, or outside in a training agency accredited for CVET by the region.	80 hours	Inside company

An innovating system in this context is represented by the Toscana region which has delivered a series of regional regulations within the apprenticeship, in particular, Annex B of DGR No 609 of 10 July 2012, implementing the Regulation 47R of 2003 (and subsequent amendments) which is the frame for the regional regulation of public training provision, aimed at the acquisition of basic and transversal competencies in the apprenticeship contract.

In this context Tuscany region developed an innovative tool, the TRIO project <sup>(17)</sup>. TRIO is a web system for innovative learning, based on open source software environments that provides, free of charge, training tools and services.

In general TRIO offers to all users a broad catalogue of around 1 900 training products that can be used online at any time. An attendance certificate is available upon request after the final test or when all the intermediate tests have been passed. Technical support and assistance together with tutoring and training guidance services are guaranteed via the help-desk. There is also the opportunity to take part in the social dimension of online learning through webinars, educational workshops in English, computing and community, as well as personalised access for organisations via the creation and management of a web learning group (WLG).

For apprenticeship, the Annex B indicates the TRIO catalogue regarding compulsory area of training such as:

- (a) health and safety in the workplace;
- (b) equal opportunities and apprenticeship contracts.

And training modules for the acquisition of key competences covered, such as:

- (a) communication in the mother tongue;
- (b) communication in foreign languages;
- (c) digital competences;
- (d) entrepreneurship.

The maximum percentage of training which may be realised through TRIO for an apprenticeship is:

- (a) 70% for apprentices with a bachelor/master degree;
- (b) 50% for apprentices holding a secondary school diploma (MEUR) or a professional qualification diploma (leFP-VET provisions);
- (c) 30% for apprentices without the above qualifications.

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<sup>(17)</sup> TRIO per l'apprendistato – <http://www.progettotrio.it/trio/apprendistato.html> [accessed 4.5.2017].

# Conclusions

In the current social context, characterised by economic and social crises, where mobility of workers is more and more foreshadowed in the European labour market, citizens need to achieve those key competences necessary to face working and social situations.

These competences should be acquired at the end of the compulsory education or training pathways and serve as a basis to continue learning in a lifelong learning framework.

In the Italian context, key competences are mainly addressed in the lower and upper secondary cycle of the national education and VET system. The first national regulation of key competences (139/2007) uses the European set of key competences (2006). Some changes have been introduced in the past five years and mainly with a recent law ('good school') reforming the education system (2015). The reform involves lyceum and technical and vocational schools and focuses on those key competences useful in working and social contexts, such as:

- (a) language (English) and communication skills through the development of content and language integrated learning;
- (b) literacy and the Italian language for foreign learners;
- (c) mathematical-logical and scientific skills;
- (d) digital skills, ICT (computational thinking, critical and conscious use of social networks and media);
- (e) musical, artistic, entrepreneurial skills;
- (f) active and democratic active citizenship skills, legal and economic knowledge, healthy lifestyles and education on environmental awareness;

Unfortunately, the average score of Italian learners on key competences, tested in compulsory education (PISA) and later (PIAAC), is below the European average.

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