



EQAVET

European Quality Assurance
in Vocational Education and Training

Supporting the implementation of the
European Quality Assurance Reference Framework
for Vocational Education and Training

POLICYBRIEF

This series of policy briefs is designed to share the results of the EQAVET sectoral seminars with a wider audience of VET providers, policymakers and other stakeholders. The present policy brief has been prepared by the EQAVET Secretariat on the basis of the discussions at the seminars and the material provided by its expert supporting the development of the sectoral seminar approach. It reflects the opinions of the sectoral seminar participants and does not constitute an official European Commission or EQAVET position.

On quality assurance in initial & continuing vocational education and training

**EQAVET
Sectoral
Seminar**

The information & communications technology Sector

Participating countries: AT, CY, CZ, EE, FI, DE, EL, HU, IT, LV, NL, NO, PT, RO, SE

SUMMARY

This policy note is based on the EQAVET sectoral seminar on the quality assurance of education and training in the ICT sector, which was hosted in Berlin by BITKOM, the Federal Association for Information Technology, Telecommunications and New Media, (October 14-15, 2013). The seminar brought together quality assurance experts from national and regional authorities, national agencies, national reference points, VET providers, practitioners, and industry representatives from 16 member countries. (All the material is available on the website at <http://www.eqavet.eu/gns/what-we-do/sectoral-seminars/sectoral-seminar-ICT.aspx>)

CONTEXT and INTRODUCTION

The European quality assurance framework for VET (EQAVET Framework) provides a quality assurance instrument for initial and continuing VET which may be used by European countries to deepen the culture of quality assurance of VET and to improve its responsiveness to social and economic change. EQAVET includes a set of quality descriptors and indicators for the four stages of its quality cycle (planning, implementation, evaluation and review) to support documentation, development, monitoring and evaluation in order to improve the effectiveness of VET provision and quality management practices.

The EQAVET Framework recognises that approaches to VET need to be compatible with national/regional systems and with the needs of industry and the community, which vary from region to region and country to country. The ultimate goal is to encourage national governments, VET providers and employers to adopt quality assurance processes for the provision of training, to promote continuous improvement and public

confidence that the quality of VET is being safeguarded and enhanced, regardless of where the learning process takes place (for more information on the Framework, visit the EQAVET quality cycle online tool: click [here](#) for guidelines at system level, and click [here](#) for guidelines at provider level).

EQAVET sectoral seminars and the development of a culture of quality assurance in the EU

Within this context the EQAVET Network has developed sectoral seminars as a way of promoting and consolidating a culture of quality assurance in VET among the key stakeholders of different sectors. These seminars support the exchange of experience and expertise, the cross fertilisation of ideas, and mutual learning between European countries, involving quality assurance national reference points, VET providers, industry representatives, national and regional authorities and social partners. The sectoral seminars play an important role in deepening knowledge of the EQAVET Framework and in promoting a culture of quality assurance in VET.

The sectoral seminars aim to:

1. Improve and develop quality assurance in EU VET systems, with a focus on continuing VET;
2. Reflect on how quality assurance in VET is addressed and managed by companies;
3. Generate useful policy recommendations in relation to the use and implementation of the EQAVET Framework with special attention to specific sectors.



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THE ICT sector and QUALITY ASSURANCE in VET

The fourth sectoral seminar addressed the ICT sector, which is among the leading sectors in Europe and affects economic growth in two ways: directly, through the expansion of companies working in this field, and indirectly, through the effective utilisation of ICT within all economic sectors.

The ICT sector can be considered a strategic sector for the discussion of quality assurance issues for a number of reasons:

- It represents a substantial part of EU GDP and affects a large proportion of the EU labour force
- It has a highly intensive R&D sector, and is growing much faster than the average European industry
- It is a pervasive sector, so its efficient use can improve productivity throughout the economy
- It provides many new opportunities for young people
- It is suitable for self-employment and new entrepreneurs because it does not require large investment to start a new business
- It is a strategic sector for EU, which has launched the Digital Agenda, and a large program for supporting its development within European countries (<http://ec.europa.eu/digital-agenda>)
- It is a sector where different learning paths co-exist (including formal qualifications, certifications awarded by industry and training providers, non-formal education facilitated by employers, and informal learning).

The ICT sector provides us with a useful context for reflecting on the quality of the training provided (the quality of provision, qualifications, the skills and competences achieved), whether it satisfies employers and learners, and how to secure the success of the training activity using the model, quality criteria and indicators of the EQAVET Framework.

The ICT SECTOR in the EU: STRATEGIC IMPORTANCE

The ICT sector accounts for a substantial part of the European economy, representing in 2009 4.0% of EU GDP (€470 billion)¹, and is growing at seven times the rate of the rest of the economy. Employment among ICT practitioners has been growing by around 3% a year, with labour demand outstripping supply in many countries; the demand for ICT professionals continues to grow whilst other jobs are disappearing.

ICT is also a highly R&D-intensive sector, accounting for around a quarter of European R&D; investments and ICT services are important drivers of productivity growth and economic performance across all sectors, increasing their overall efficiency and competitiveness. Development and uptake of ICT applications are crucial for boosting the international competitiveness of European business and, in turn, increasing employment.

Almost all sectors are affected by ICT: ICT is an enabler of innovation and productivity growth, which should ultimately translate into economic performance. Therefore the competitiveness and the innovation capability of European industry and social cohesion are dependent on the strategic and effective use of ICT and the knowledge, skills, competences and inventiveness of the European workforce and citizens.

Therefore **ICT is a significant element of the European Union agenda**; in 2007 the European Commission Communication "*E-skills for the 21st century: fostering competitiveness, growth and jobs*"², set a long-term e-skills agenda for Member States and stakeholders, including five major action lines at EU level:

- *Longer term cooperation*
- *Human resources investment*
- *Attractiveness*
- *Employability and e-inclusion*
- *Lifelong acquisition of e-skills.*

Within the second of these action lines the European *E-Competence Framework*³ was produced, to facilitate mobility, transparency of qualifications, and to promote recognition and credit transfer between formal, non-formal and industry ICT training and certifications.

In 2010 the **Digital Agenda for Europe** (DAE), containing 101 actions, in 7 pillars, was adopted; its 6th pillar (Action 126) deals with enhancing digital literacy, skills and inclusion, and launched the *Grand coalition for digital jobs and skills*⁴, to:

- Improve the image and attractiveness of ICT careers
- Offer training packages co-designed with the ICT industry
- Offer more aligned degrees and curricula at both vocational and university level to respond to the needs of both students and industry

Improve recognition of qualifications across countries by stimulating take-up of a European certification scheme for digital skills of ICT professionals, based on the existing *E-Competence Framework*.

¹ JRC (2012) The 2012 Predict Report An Analysis of ICT R&D in the EU and Beyond

² COM(2007) 496 final

³ <http://www.ecompetences.eu/>

⁴ <http://ec.europa.eu/digital-agenda/en/our-goals/pillar-vi-enhancing-digital-literacy-skills-and-inclusion>

CHALLENGES for VET QUALITY ASSURANCE in ICT and ISSUES to be ADDRESSED

The fast growth of the ICT sector continues to create new job profiles and new training pathways.

Education and training programs at secondary and university level support the achievement of both basic and high skills in ICT. At the same time, many people achieve, informally or not formally, considerable expertise in ICT, without getting a formal qualification. It is absolutely essential, in this sector, to keep up to date, given the constant need to introduce new products. The demand from European enterprises is increasingly for higher level problem-solving and entrepreneurial skills to address the needs emerging from cloud computing, cybersecurity, green technologies and eHealth applications⁵.

This sector is evolving very rapidly, so the continuous training carried out through formal or non-formal learning is of strategic importance.

There are a large number of courses designed to meet the demand for training in this area: thousands of different training provisions are offered, ranging from technical courses (almost every ICT provider offers some) to high-end specialised courses or seminars offered by universities or foundations.

This environment creates a number of new challenges:

1. **The quality of the training provision.** Given the large number of training activities carried out by a variety of VET providers, investment in developing further quality assurance in the ICT sector becomes crucial, both to ensure that learners receive a high standard of training and to provide the sector with workers with the necessary skills.
2. **The development of new curricula and new careers.** Continuous innovation in this sector and the demand for new professionals create opportunities to young people. But this can be challenging, as it demands continuous updating of curricula, trainers and the provision of training, in order to match demand and supply, and support youth entrepreneurship.
3. **Recognition of prior learning.** Skills in this field are developed and updated, often, through work experience, complemented by the support of colleagues and individual study and application of appropriate software packages. For this reason, the co-existence of different educational paths (including formal qualifications achieved at higher education institutes, certifications awarded by VET providers, non-formal education facilitated by employers, and informal learning) should be recognised and supported. This is particularly important for the ICT profession, given the speed of innovation within ICT, and the need to harness the skills and knowledge of people coming from outside traditional school and university streams.
4. **Attractiveness of ICT.** Some countries have criticised the shortage of applicants in this sector, especially of women. In Germany fewer than 10% of ICT professionals are women: how can we support women to combine professional activity and family responsibilities? Attracting young people and underrepresented profiles such as women, mid-career workers and vulnerable groups into the ICT sector should be prioritised.
5. **Digital alphabetisation:** the OECD-PIAAC Survey of Adult Skills showed some interesting results:
 - 25% of adults lack the skills to make effective use of ICT;
 - there is a strong relationship between ICT use at work and literacy proficiency;
 - 2/3 of the workforce appear not to have sufficient digital skills to use ICT;
 - intensive recreational use of ICT does not necessarily translate into an ability to use ICT to solve problems.

In this context, **the mechanisms assuring the quality of the training provided, the qualifications received and the skills achieved are of great importance for workers, entrepreneurs and managers of companies operating in the field of ICT.** Workers need to be certain about the quality of training proposals offered in this sector. Entrepreneurs and company managers need reliable information about the quality of the training provision and the professionalism of the workers they employ. The competition in this area is very strong, since consumers are constantly on the lookout for products that will better suit their needs.

Considering these challenges, the seminar addressed the following issues, which have been identified as crucial elements in the development of quality assurance procedures within the sector:

- How to devise quality assurance procedures for the provision of initial and continuous training in the workplace (specially among SMEs)?
- How to set, monitor and update standards for qualifications and for training provision involving social partners and companies?
- How to ensure a match between supply and demand, correcting the current mismatches in the market?
- How to promote and support sectoral and geographical mobility and entrepreneurship in ICT?
- How to recognise qualifications and previous learning integrating EQAVET, EQF and ECVET?

⁵ Commission Staff Working Document, *Exploiting the employment potential of ICTs*, SWD(2012) 96 final

**KEY POLICY
RECOMMENDATION
for developing
QUALITY
ASSURANCE of VET
in the ICT SECTOR**

Two keywords summarise the main messages emerging from the discussions at the seminar: **"Cooperation"** and **"Partnership"**. Cooperation and partnership are necessary between European countries; between policy makers and stakeholders; and between VET providers, universities and social partners, in order to boost the potentiality of the ICT sector and

- reduce unemployment
- improve VET provision
- increase workers' skills
- develop the national economies of EU countries

KEY POLICY RECOMMENDATION:

1. A strong sectoral approach and sectoral strategies are necessary

- a. to forecast the requirements of the labour market for ICT, in consultation with social partners and other relevant stakeholders, by carrying out analysis and studying the future needs of industry
- b. to update standards, curricula and qualifications in the sector continuously, to respond to developments in technology and in the labour market
- c. to plan vocational education and training provision, analysing industry needs at national and local level and defining relevant objectives and targets
- d. to implement the system to assure the quality of VET providers, using also the EQAVET Framework.

Permanent sectoral bodies formed by social partners and other relevant stakeholders can play a significant role in supporting the sectoral approach; in particular they could help SMEs express demand and/or organise quality training, in order to fulfil their needs.

2. The dual/apprenticeship training based on market demand has helped to minimise the mismatch between labour demand and supply. However, this type of training is sometimes challenging for SMEs. Dual studies have been developed also at tertiary level, within *Fachhochschule*, to supply the growing demand for university graduates with sound work experience. This pathway also appeals to young people who are attracted by tertiary studies but want to acquire practical experience, and connects VET and higher education. Other models can also succeed if they are based on cooperation and partnership between the stakeholders. Work experience helps to update teaching and learning, overcoming some inelasticity in the training provision in ICT.

3. Curriculum needs to be based on a competence model, and incorporate work-based learning. A competence model, based on the performance of tasks, would make it easier to adopt an approach based on learning outcomes and make training provision more responsive to industry needs.

4. Elements of entrepreneurship (e.g. Finland and Sweden enable pupils to set up a mock company in order to practice entrepreneurship skills in real life situations) **should be introduced into the curriculum.** They could be particularly useful in the ICT sector, since the emergence of new digital applications create opportunities for entrepreneurial and talented practitioners to start up their own companies.

5. Key skills, like mathematics, and soft skills (communication, consumer orientation, management), should also be integrated into the curriculum for the ICT sector, to introduce into the classroom collaborative forms of work that promote team skills. The demand from European enterprises is increasingly for higher level problem-solving and entrepreneurial skills to address the needs arising from cloud computing, cyber-security, and other complex applications.

6. Provide flexible education and training centred on the learner's needs, enabling learners to personalise their learning pathways and obtain information and guidance in relation to:

- a. The new and changing careers in this highly complex sector, where opportunities are many but sometimes hard to define, due to the great variety of vet provisions and job profiles;
- b. The transition to the labour market;
- c. The benefits of certifying their competences (e.g. building up a portfolio).

A learner perspective could help reduce early school-leaving, lead to more targeted teaching, and combat the drop in the number of young people entering this sector – a drop which has been documented in several countries. A study of the role of ICT for young people at risk of exclusion, relying on a survey of sixty-one ICT-based initiatives for the inclusion of youth at risk⁶, shows the positive

⁶ JRC (2013) *Information and Communication Technologies (ICTs) for disadvantaged youth: Opportunities and Challenges. Evidence from literature and practice. Policy Report.*, as mentioned by Commission Staff Working Document, *Exploiting the employment potential of ICTs*, SWD(2012) 96 final.

effects of re-engagement in education and training and re-entering employment. Teachers and trainers should make better use of the potential of ICT to improve their teaching, and develop eLearning modules or courses to increase participation and the effectiveness of training. The use of ICT enables training to be organised in innovative and flexible ways, tailored to learners' needs; e.g. Deutsche Telekom offers its employees a digital platform which enables them to plan their professional development, consider career pathways within the company, and seek out training opportunities which enable them to achieve their targets.

- 7. There is a need to monitor training provision and assess learning outcomes (during and/or at end of the course), through final examinations based on standards.** This would be a strategic element of quality assurance. The German system adopts an holistic approach, requiring the apprentice to carry out a real project, based on company experience.
- 8. It is essential to promote continuous training and lifelong learning in the ICT sector, for the sake of both ICT practitioners and ordinary workers.** It has been forecast that by 2015, 90% of jobs will need at least basic computer skills. Acquiring those skills is thus rapidly becoming a precondition for workers to become and remain employable. Continuous innovation in techniques, equipment, market and consumer needs, and the continuous creation of new job profiles means that new skills and competences will be required to perform new tasks. Training packages co-designed with the ICT industry should be offered and the potential of eLearning should be better exploited.

Germany has developed a common framework for the continuing training system in the ICT sector based on three levels (specialist, professional and strategic professional), connected to the German Qualifications Framework. This framework aims to build the careers of specialists and professionals in ICT through continuous training oriented to work processes.

- 9. Of paramount importance is the continuous updating of teachers and trainers.** They should also spend some time working in a company, in order to ensure that competences and knowledge reflect the current needs of industry. Individuals from the business world should also be included among the teaching staff.
- 10. Prior learning is very common in this sector and should be recognised.** This would enable learners to build up a portfolio based on a common framework and would increase permeability in the labour market at national and transnational level.
- 11. The cultural barriers and bias that hinder women from choosing ICT careers should be addressed.** Women should be better informed about the opportunities in the ICT sector and about the new and different profiles required by companies in this sector. The addition of counselling services could improve the image and attractiveness of ICT careers ("*not only for nerds*"). The possibility of flexible ICT working arrangements (tele-work) could also be attractive to both women and men who need to spend more time at home.
- 12. European instruments, like EQAVET, play an important role in managing and assuring quality, fostering common trust, and introducing a common language to ensure the transparency of EU qualifications and the recognition of formal or informal learning.** The E-Competence Framework allows ICT practitioners to assess their competences and proficiency objectively and uniformly and should be exploited for the setting and comparing of digital skills and qualifications. The use of EQF, ECVET and Europass add transparency to qualifications and competences and help improve mobility, which can ensure a greater labour market match. These instruments should be better linked.
- 13. The certification of quality assurance specific to ICT VET provision, and the introduction of new European labels, is still an open question, and some transnational organisations and projects are working on this issue** (e.g. CERT-IT and the VETQI Leonardo project). On the one hand it has created greater transparency and awareness within a very complex sector (where there is a large supply of training provision of varying standards), as existing certifications are sometimes too narrow or non-specific for this area. On the other hand too many labels can complicate the market, and VET providers and SMEs are reluctant to increase the bureaucratic burden by adopting a label. Accreditation systems for CVET providers are a common mechanism in many European countries; the use of EQAVET criteria, as part of national approaches to quality assurance, could help improve the quality of providers.