

The VQTS (Vocational Qualification Transfer System) Model

The VQTS (Vocational Qualification Transfer System) Model enables the transparent presentation of work-related competences and the process of competence development. It was originally developed to support transnational mobility in the context of the European Credit System for Vocational Education and Training (ECVET), through an EU funded project (<https://vocationalqualification.net/>). However, it can also be used to develop qualifications, training programmes and occupational profiles, as well as for personnel planning, the allocation of qualifications to qualifications frameworks or increasing permeability between vocational education and training and higher education.

What are the core elements and procedures in the VQTS model?

The core element of the VQTS model is the **Competence Matrix** which displays competences structurally in a table according to core work tasks in a specific occupational field and the progress of competence development.

Competence areas form the vertical axis of the table and are identified based on empirically derived core work tasks. The empirical methods include work process analyses, company surveys, expert interviews, work-related comparison of existing qualifications or occupational profiles and moderated workshops with experts from the occupational field.

The acquisition of competences by a person in training with regard to core work tasks is described for each competence area as **steps of competence development** (horizontal axis). Between two and six successive steps of the competence development process within certain core work tasks are described (from novice to expert) for each area. For expressing differences between steps and the progress of competence development, certain dimensions are used - in addition to the context characteristics. These dimensions refer, for example, to the degree of necessary support or instruction, the ability to deal with a certain complexity, with quality standard demands, with dynamic situations, or with lack of transparency and ambiguity. The descriptions are also supplemented by specific examples providing information for different competence levels and ways of assessing certain level of competence (see example below).

A VQTS-based Competence Matrix can serve as the starting point for **developing qualifications** (in the formal as well as in the non-formal learning context) by indicating the competence areas and the respective steps of competence development that this qualification should cover. Thus, the profile of a qualification is formed from particular parts of a Competence Matrix. Moreover, the way the competences are described – expressing different performance levels – can inform the **levelling of these qualifications** to an NQF.

Competence Matrix „Electronics/Electrical Engineering“

Competence areas (core work tasks)	Steps of competence development			
1. Preparing, planning, mounting and installing electrical and/or electronic systems for buildings and industrial applications	He/She can prepare and carry out simple electrical and/or electronic installations (e.g., cables, electrical outlets, connection and distribution systems, modular electronic components, computer components) as well as carry out and check the necessary wirings and mountings.	He/She can plan, prepare and connect electrical and modular electronic installations (e.g., energy supply in private and business premises, incl. lighting; alternating and three-phase current; electronic systems as units, wireless LAN, multimedia systems). He/She can advise the customer and select the best implementation according to customer specifications.	He/She can plan complex electrical and/or electronically networked installations (e.g., systems of energy distribution, building management systems / KNX, regulation and monitoring systems, building access systems, RFID-systems) and fully wire them. He/She can configure, service and diagnose the functionality of the installation according to customer requirements and for this purpose can use computer-assisted tools.	
2. Inspecting, maintaining and servicing electrical and/or electronic systems and machinery	He/She can carry out basic and scheduled maintenance tasks, inspections and checks at electrical and/or electronic equipment according to maintenance schedules and predefined instructions (e.g., checking voltage tolerances, changing wearing parts in industrial plants, switching and control systems, electrical machinery, computer systems). He/She can use the measuring and testing tools necessary for it.	He/She can carry out and document preventative maintenance and alignment tasks at electrical and/or electronic industrial appliances and systems according to established quality assurance methods (e.g., continuous monitoring of a CNC machine tool)	He/She can analyse and determine availability and condition of electrical and/or electronic systems. He/She can analyse influencing factors on reliability and performance of electrical and/or electronic systems and find causes of malfunctions (e.g., leakage current analysis, power factor correction, EMC analysis).	He/She can develop and document maintenance and inspection methods for electrical/electronic systems based on production and service process analysis as well as on quality management and customer requirements. He/She is able to develop related maintenance, inspection and quality assurance plans (e.g., optimizing MTBF of a production line, planning reserve power supply).

Example of a Competence Matrix, see full Matrix here: [CORE INFORMATION PartI_CM_20090828.indd \(vocationalqualification.net\)](https://www.vocationalqualification.net/core-information/part1/cm_20090828.indd)

Benefits, sustainability and challenges

In particular, a Competence Matrix can be used to facilitate the visibility of **similarities and differences of qualifications** preparing for the same occupational field, for example, in terms of steps of competence development included or not included. This approach was explored in the Cedefop project on *Comparing VET qualifications*.¹

A Competence Matrix can also support the **validation and recognition of competences** acquired in another country or achieved through non-formal or informal learning. This was, for example, the aim of the HCEU project that utilised the VQTS model in the context of comparing and recognising health care qualifications (in the fields of nursing and elderly care) obtained within other learning contexts than the national formal qualifications system.²

The methodological approach of the VQTS model itself has found its way into many qualification development processes. Many EU-funded projects have used this approach for various purposes, including supporting the transfer of vocational competences acquired abroad (mobility in VET) or improving permeability between VET and higher education. However, VQTS-based Competence Matrices are available for a few occupational fields and in few languages only and they are often not updated after the end of the project's lifetime.

The main challenges of the VQTS model lie in the development of a Competence Matrix. Among the crucial aspects is the use of the right empirical methods to identify the core tasks and distinguish the levels of competence development. In addition, the issue of the granularity of descriptions, the

¹ <https://www.cedefop.europa.eu/en/projects/comparing-vet-qualifications>

² <https://www.project-hceu.eu/>



expression of different levels of competence and the use of the right examples must be well considered.

Possible further development of the process

One possible step could be to collect the existing competence matrices, ensure that they are regularly updated with the support of experts and relevant tools (such as ESCO) and store them in a user-friendly and accessible database.

More information

<https://vocationalqualification.net>

<https://www.project-hceu.eu>