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IO 2: Country Reports collection

version (EN)

HOW ARE INDUSTRY 4.0 REQUIREMENTS IMPLEMENTED IN THE
VOCATIONAL EDUCATION AND TRAINING SYSTEM

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The Country reports elaborated within Intellectual output IO2 have the aim to investigate **how the requirements of Industry 4.0 are implemented in the different European vocational training systems**, namely in Slovakia, Czech Republic, Germany, Austria, Veneto Region (Italy) and Slovenia.

This summary provides a brief overview of country reports conclusions and provides reference to full text content of Country reports as the main documents matrix of IO2 output. The summary has been developed considering the methodology applied, the processes and actors included in each country reports and the respective conclusions.

Each country report applied the methodology developed as IO1, which included:

- a preliminary analysis of the VET system and market needs in the different countries or regions;
- an analysis of actors and stakeholders involved in the processes of innovation and the cooperation among them;
- the processes implemented to innovate the VET systems, from the analysis of industry 4.0 needs to the implementation of training programs developing industry 4.0 competencies.

To carry these analyses, desk research and interviews with strategic actors have been conducted. In some reports, a survey has been used too.

In **Slovakia**, most processes are formalized by a law framework. The VET system in Slovakia started the reformation process 6 years ago. At the moment there is quite well in place the process of forecasting labor needs and requirements, the dual education system at VET providers besides the prevailing school system. The legal framework regulating the VET formalizes and establishes an institutional framework of involving employers representatives in the process of adaptation and creation of new education programs.

The central role is played by ŠIOV, which represents the Ministry of Education, Science, Research and Sport of the Slovak Republic and which, as a methodological body, incorporates changes into educational programs, prepares the process of new departments, etc. Sector councils play an important role in preparing qualifications cards and standards. The qualifications are based on the real needs of the labor market, which are described mainly in the National System of Occupations.

The process of adoption of the VET system is ongoing. There are new trends in Europe that Slovakia needs to face. For this purpose there are in preparation new measures based on Strategic documents such as: Action Plan of Intelligent Industry of the Slovak Republic; defining a need to increase young people's knowledge and skills on digitalisation, to develop more appropriate, forward-looking and interdisciplinary curricula at all levels of education (including lifelong learning programs) with a better financial support program. Provide more new, highly specialized skills: **skills for IoT, informatics, coding, digital skills, STEM subjects** (science, technology, engineering and mathematics), **creative design and business subjects, but also for the areas of standardization, metrology, testing...** Furthermore, a compilation of the national strategy on Work 4.0 is in process.

Reference to full text versions of the country report:

[Country report Slovak republic, language version EN](#)

[Country report Slovak republic, language version SK](#)



In the **Czech Republic**, the National Pedagogical Institute is responsible for the revision and innovation of programs. It is not defined how often this process should happen. On a local level, the national framework is adapted by the VET providers to the local needs and strong cooperation between local companies is highlighted. The legislation now encourages vocational schools to cooperate with businesses in concrete ways, which contributes to greater school activity. On the other hand, active employers are interested in cooperation.

Reference to full text versions of the country report:

[Country report Czech republic, language version EN](#)

[Country report Czech republic, language version CZ](#)

In **Germany**, there are clearly defined processes and responsibilities leading to effective cooperation among all involved actors. The proposals for the introduction and revision of VET programs may come from different actors (but mainly from employer's associations, trade unions and the Federal Institute for VET). All actors involved are consulted at some stage of the 3-step revision process and finally, the responsible ministries administer the implementation of the revisions. In Germany, the Federal Institute for Vocational Education and Training (BIBB) is the responsible body for matters relating to vocational education and training. The results of their research serve as a prerequisite for the design, revision and adaptation of training regulations to economic, technological and social change. In addition, BIBB is responsible for producing documentation on changes and updates to VET programmes and on trends or developments in the VET sector; this includes reports, journals, information brochures, manuals, framework curricula, training regulations, press releases, presentations and recommendations for VET providers. The thoroughness of the well-established and longstanding system makes the revision of VET programmes a complex and often lengthy process. The long duration of revisions as well as the general confidence in a well-defined system (with a certain degree of reluctance towards external trends and developments) limit the potential for innovation.

Reference to full text versions of the country report:

[Country report Germany, language version EN](#)

[Country report Germany, language version DE](#)

In **Austria**, the processes of innovation identified are regulated and detailed. Revision of VET programs is done in a five-year cycle, but a revision process can be made at any time upon request if a need seems necessary. The initiators of these processes so far have been the industries involved in the educational processes, but to have a more standardized revision, new solutions can also be proposed by the Ministry of Economy. Research institutes, a federal agency together with the Ministry of Education would develop a curriculum that can be reviewed by other stakeholders and finally implemented and evaluated. Quality assurance with regard to practice-oriented training might be further developed. The development of a new profession with curricula can take up to 3 years, the revision of a profession with regard to new requirements and competencies can be completed within one year.

Reference to full text versions of the country report:

[Country report Austria, language version EN](#)

[Country report Austria, language version DE](#)

In **Veneto Region (Italy)**, the regional VET system (Istruzione e Formazione Professionale IeFP) follows some national standards developed in 2019 by the Regions, the Ministry of Education, University and Research, and the Minister of Labour and Social Policies, according to the analysis of some national agencies. The standards include the possible professional profiles that can be certified at the end of the VET programmes and the related final competencies: they should be revised every three years. Further regional standards might be then defined by the Region only, who is also in charge of the distribution of the funding for VET courses according to the regional labour market needs. On a more local level, the different training centres, in line with the regional and national standards, develop pedagogical paths, innovative projects and strategic cooperation with local companies to assure up-to-date training and facilitate the employability of students. Cooperation among local and regional actors is effective, whereas, among the national and regional/local levels, the roles of the different actors in the processes of innovation are under discussion and not defined by law yet. The territorial nature of the system on one hand facilitates the encounter of the local labour needs, but on the other hand, it hinders the development of standard innovation processes on a national level.

Reference to full text versions of the country report:

[Country report Veneto Region \(Italy\), language version EN](#)

[Country report Veneto Region \(Italy\), language version IT](#)

In **Slovenia**, the education system is organised mainly as a public service. Public and private institutions and private individuals with a concession implement publicly valid programs. At the national level, the primary responsibility and competence for adult education and training lie with the Ministry of Education, Science and Sport, where a special Directorate for Secondary and Higher Education and Adult Education operates. Three forms of general non-formal adult education have been permanently funded from public funds for many years, namely study circles, centres for independent learning and knowledge exchange. Recognition of non-formally acquired knowledge covers all levels of education and enables the acquisition of a profession through the National Vocational Qualification (NPK). The Ministry of Education is the only body that in about 80% influences the contents of the secondary school curriculum. The remaining part is left to individual schools to a limited extent for particular areas. They define what activities, training, and scopes they will offer to students within the obligatory, elective contents. The duration of the procedures depends on various factors and the interest of individual services within the Ministry, and periodic revisions and amendments to the curriculum. Once the changes are adopted, they start to be introduced in the school curricula at the beginning of the next school year after adopting the changes.

Reference to full text versions of the country report:

[Country report Slovenia, language version EN](#)

[Country report Slovenia, language version SI](#)

Overall, these processes are quite new in all the countries involved, and some of them are still striving for legislative definitions of all these processes. It is very useful to have regulations defining stakeholders' specific roles and the revision processes' time-cycle, both for the innovation of the VET sector in the different countries and its standardization on a European level. However, even when regulations are set, it might be positive to leave room for further legislative change and innovation.



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