INTERNATIONALISING
VOCATIONAL
EXCELLENCE

BUILDING EVIDENCE TO SUPPORT VOCATIONAL EXCELLENCE FOR THE DIGITAL AND GREEN TRANSITIONS

The Role of Centres of Vocational Excellence in the Digital Transition

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Centres of Vocational Excellence (CoVEs) are leading 'role model' VET providers that collaborate with economic, educational, social, and political partners aiming to provide high quality VET skills as well as to contribute to regional development and growth. Their excellence derives from the extended scope of their activities and their capacity to meet the needs of their stakeholders.

INTRODUCTION

The digital transition pervades all areas of the economy and society. For decades, Europe's societies and economies have been experiencing a radical digital transformation, fostered by 'digitalisation' and the acceleration of many types of interaction through an increasing number of connected devices and data flows.

What does the digital transition mean to vocational education and training (VET)? How can the journey be managed with excellence? This report presents examples from the United States, Europe, and Asia on how Centres of Vocational Excellence (CoVEs) manage the digital transition and what lessons they have learned to date. The cases show that the digital transition requires a whole-institutional approach, including the development of an implementation strategy, digitalisation of curriculum content and learning environment, skills development of teachers, and collaboration with the industry, research institutions, and many other external stakeholders.

The key purpose of the study is to explore how CoVEs respond to the digital transition and how they manage the whole-institutional change. What factors are important for a successful digital transition?

Four CoVEs were selected for the case studies of the digital transition:

Shenzhen Polytechnic, China is a public higher technical vocational education (TVET) institution offering diplomas of higher vocational education equivalent to EQF levels 4 and 5. Shenzhen Polytechnic, is a pioneer amongst Chinese TVET institutions in formulating action plans for both digital transformation and artificial intelligence and has developed numerous digital learning resources.

Campus d'excellence Industrie du Futur-Sud (CEIFS) in France is an association consisting of a network of general secondary, technological, vocational, and higher education institutions as well as training organisations, research laboratories, and public authorities. The CEIFS prepares young people for jobs at the forefront of industries that are part of the digital transition, e.g., operating automated equipment, industrial maintenance, and robotics.

Helsinki Business College (HBC) in Finland is a private training organisation owned by the Helsinki Chamber of Commerce and the Finnish Business College Foundation. The HBC is a leading school when it comes to digital learning in VET and may serve as an inspiration to other VET providers.

Temasek Polytechnic, Singapore offers diploma courses, equivalent to EQF level 5, across six schools. The School of Engineering and its two centres were chosen for this case study, as the two centres represent significant examples of the integrative use of digital tools to support learning.

The four cases represent very different VET systems and show that VET institutions can take many different routes to the digital transition. We hope that the findings will inspire VET institutions and policymakers worldwide.

MAIN RESULTS

In the section below, we have summarized the key findings, grouped under the main themes of the study.

MANAGEMENT

The CoVEs' digital transition is guided by government and involves the private sector.

The four cases represent very diverse political systems. However, looking across the cases we can discern that the way CoVEs manage digital transition at institutional level depends on the way the government manages the VET system, the financial resources allocated to it, and engagement of the private sector and other external stakeholders.

A persistent national political focus on digitalisation of the economy and the education system is an important precondition for the digital transition, and national strategies for digitalisation of society and the economy help to define the digital skills needs to be addressed by the VET institutions.

The digital transition requires that the VET system has a responsive organisation involving the private sector in curricula development to keep up with rapidly evolving digital technologies.

In some countries, reforms have been launched to make the VET system more responsive and adaptive to the skill needs of the labour market, and ensure that it reflects regional territorial priorities. A VET institution's collaboration with the industry can be developed so that it becomes active part of an eco-skills system, including educational institutions, industry partners, trade associations, public authorities, and other stakeholders.

The digital transition of CoVEs require flexible, demand-oriented funding that allow for private financing.

The CoVEs have established demand-oriented funding systems and allocation of resources that allow for flexibility and private financing. The systems allow for project-based funding, where collaboration and projects/programmes developed with the private sector are financed depending on needs. Such flexible funding systems are beneficial to the digital transition because they mobilise

digital expertise and know-how in collaborative projects involving educational institutions, training organisations, regional authorities, and industry partners. In other words: a "skills-eco system".

In the French case, the CEIFS provides an example of project-based allocation of resources: the CEIFS identifies potential industrial partners to cooperate with and brings together its members to implement projects that generate skilled graduates who can meet their current skills needs.

Similarly, in China, recent reforms have made the funding of the VET system more flexible and demand driven. New regulations have been introduced that encourage the sharing of financial costs (and benefits) with the private sector.

CoVEs have established strategies for the 'internal' digital transition of the institution and, 'externally', addressing the digital skills needs of the labour market.

At institutional level, the CoVEs have put in place digital transition strategies. These establish objectives for the integration of digital content into programmes in collaboration with external stakeholders and research to ensure their industry relevance. These objectives "translate" the digitalisation of the economy into education programmes that address the digital skills needs of the labour market. Furthermore, the strategies establish plans for the alignment of teachers, students, and administrative staff to the digital transition of the institution itself. CoVEs emphasise that the digital strategy must be holistic e.g. that it should cover the whole institution, requiring an ongoing focus and open mindset of teachers, leaders, and

students.

For example, in the Singapore case, the Temasek Polytechnic (TP) has developed a strategy with external and internal components: Externally, the TP addresses the digital transformation of the economy/society in partnership with the industry to develop industry-relevant digital skills. The digitalisation of programme content and the integration of digital technologies in the curriculum is a continuous process conducted by the institutional management in close collaboration with the industry. Internally, the TP's pedagogical approach emphasises a digital learning environment applying pedagogy, tools and structures which help students develop intrinsic motivation and take ownership of their learning.

CoVEs involve private sector in systematic and continuous upskilling of teachers.

The digitalisation of programme content and the learning environment makes it important that teachers are equipped with updated digital skills and knowledge about their subject.

Consequently, the CoVEs regard teacher upskilling as an important part of the digital transition. The upskilling of teachers must be systematic and involve all teachers on a continuous basis. CoVEs emphasise the importance of changing the mindset of teachers to ensure that they change and adapt their teaching methods. Furthermore, the private sector must also be involved in teacher training by providing industry placements. Furthermore, teachers are encouraged to engage in peer learning and sharing their digital knowledge from company placements with other teachers and students.

EXTERNAL STAKEHOLDERS

CoVEs involve the private sector in digitalisation in multiple ways.

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A persistent national political focus on digitalisation of the economy and the education system is an important precondition for the digital transition, and national strategies for digitalisation of society and the economy help to define the digital skills needs to be addressed by the VET institutions The cases show that the CoVEs regard it as important to involve the private sector in the digital transition, which is done in multiple ways: Industry partners can contribute with expertise and digital technical equipment to be used in education. The CoVEs involve industry partners deeply into curricula development where they influence

syllabus lists and identification of skill needs and formulation of learning outcomes. Industry partners provide company placements for teachers and work-based learning for students, in the form of apprenticeships. The involvement into learning content and curricula is regular, formalised, and detailed, which is beneficial to both the CoVE and the industry partners.

Some of the case studies show that the collaboration between CoVEs and the private sector is encouraged by governmental incentives. For example, in China, the **Shenzhen Polytechnic** and its industry partners believe that their collaboration is fostered by advantageous political conditions. The collaboration between providers of vocational education and the industry is a priority for the Chinese government which, by offering tax reductions to private actors, encourages both parts to pursue partnerships.

Similarly, in the French case, the CEIFS collaborates with private companies to meet the needs created by technological and economic change. Companies are not formally required to pay for their involvement although they often contribute resources to projects. The companies that work with the CoVE are eligible for a tax refund related to their spending and contribution on workforce training.

DIGITAL CONTENT IN CURRICULA AND PROGRAMMES

Industry relevance is a key criterion for integrating digital content in programmes.

The four case studies represent a broad spectrum of CoVEs that provide genuine digital programmes, where digital skills constitute the key learning outcomes – and also CoVEs that provide non-digital programmes.

A key criterion for the integration of digital content in programmes is the industry-relevance of the digital tools and skills. The identification of digital programme content and curriculum changes takes place in partnership with industry partners and government authorities at national or regional/local level. In some cases, it may be government authorities that go forward analysing the skills needs across a set of sectors.

The labour market requires technical digital skills combined with transversal skills.

In relation to the digital transition, the labour market requires multidisciplinary skills sets that combine digital technical skills

with transversal and behavioural skills. Some of the CoVEs are large corporations that can accommodate to such skills needs requirements because they comprise partner educational institutions in different fields and disciplines that can be combined in multidisciplinary programmes. The organisation of such multidisciplinary skills packages requires a concerted effort. Furthermore, coordinated efforts on the part of education institutions and industry partners are also required to organise company placements/apprenticeships that guarantee practical training of specific digital
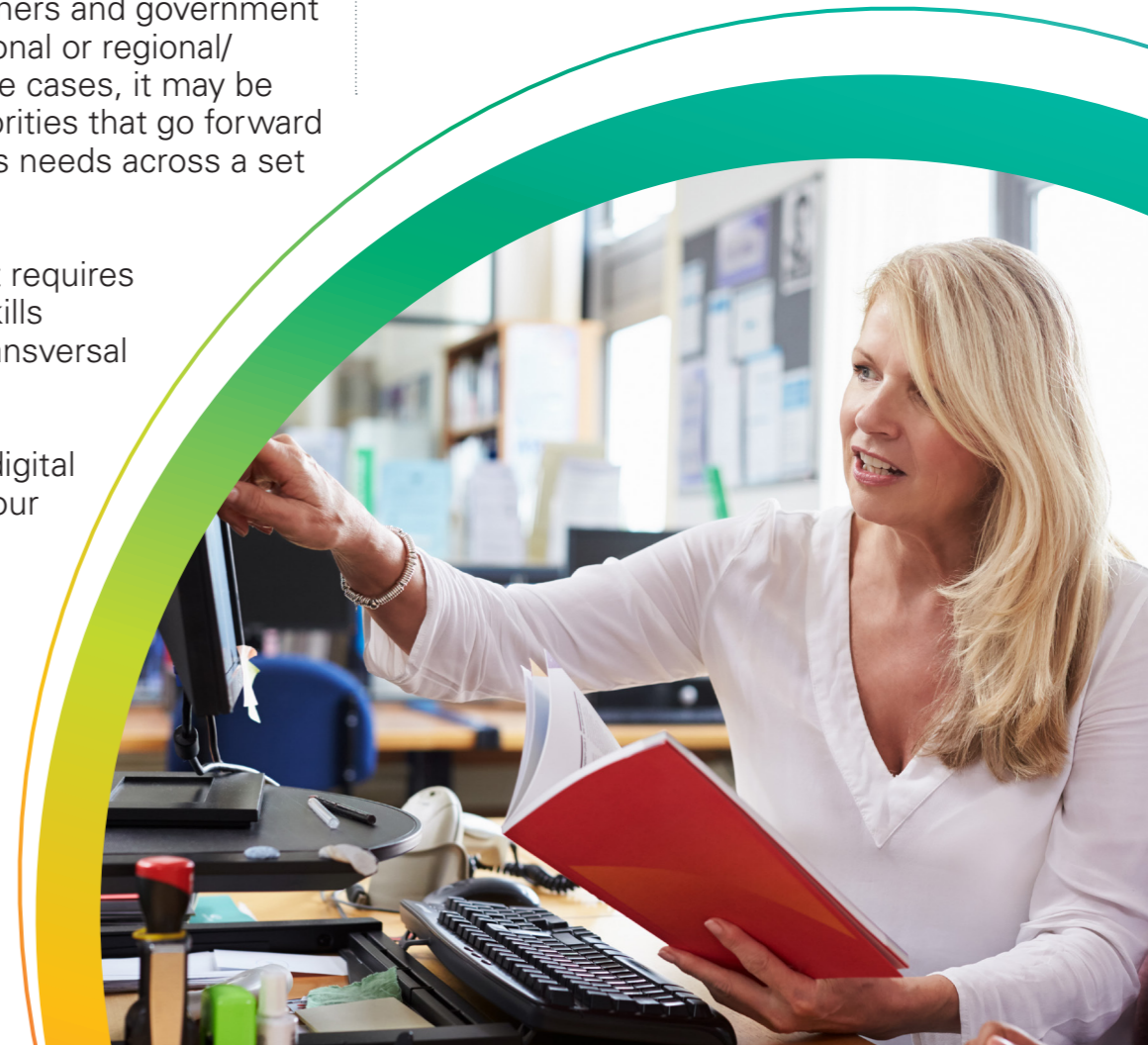
skills.

Educational provision of digital skills requires flexibility and project-based programme development.

The case studies show that the CoVEs emphasise flexibility and industry relevance in educational provision. One approach to achieving this is project-based programme development, which enables the CoVE to align different educational and industry stakeholders through projects, bringing them together in thematic areas to identify skills needs related to new digital technology trends.

The flexible project-based programme development means that the student can choose his or her own individual path of progression and combine different programmes and projects that address specific sectors and industries. This flexibility benefits students and it enhances the ability to keep up with rapidly evolving sectors/industries.

PEDAGOGICAL APPROACHES

Practice-based and self-directed learning are important.

Looking across the four cases, the CoVEs emphasise that digital skills are developed through practice-based and self-directed learning, where the learners develop competences by doing their own practical experiences and experiments in realistic settings that prepare them for the world of work. Solving problems/ assignments for real clients is one of the ways to do this. All CoVEs have established digital tools and platforms that facilitate collaborate and self-directed learning.

Digitally enabled gamification of learning is applied to enhance student motivation and excitement.

Gamification of the learning experience is regarded as an important tool for fostering intrinsic motivation, making learning more engaging and increasing students' knowledge retention as compared to traditional schooling. CoVEs also apply skills competitions, which also can motivate learning and performance – and strengthen the identity and prestige of vocations. Winners of skills competitions create role models for other students and enhance the adoption of new technologies. Digital tools are highly compatible with the concept of gamification as, for instance, smart assessment tools allow for instant scoring and ranking of both objective and subjective assignments.