



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

**The Role of Centres of Vocational Excellence in
the Green Transition**





INTRODUCTION

The green transition of the economy and society is gaining enormous momentum. Vocational schools and centres must respond to this dynamic with a new education and training provision that meets the evolving demand for skills for the green transition. The green transition requires a ‘whole-institution’ approach, including the development of an implementation strategy, the ‘greening’ of curriculum content and the learning environment, campus ‘greening’, skills development for teachers and collaboration with the industry, research institutions and many other external stakeholders.

The key purpose of the study is to explore how CoVEs are responding to the green transition and how they are managing the whole-institution change. What factors are important for a successful green transition?

Five CoVEs were selected for the case studies of the green transition:

Green Tech Academy at **Olathe West High School, Kansas, USA**. Green Tech Academy (GTA) is a specific VET programme integrated into the high school. The GTA programme excels particularly in providing students with technical and transversal skills relevant to the green transition.

TAFE Queensland, Robina Campus, Australia. The campus has been designed to be a flagship in terms of the integration of environmental and social sustainability into VET. At the Robina Campus, which has been operational since July 2022, strategic efforts have been made to embed sustainability into every aspect of the

campus’s operation, including campus design, course curriculum and student life.

Temasek Polytechnic, Singapore. Temasek Polytechnic (TP) in Singapore offers 36 diploma courses, equivalent to EQF level 5, across six schools. TP is a leading school when it comes to integrating sustainability into the content of the education programme and students’ projects and may therefore be an inspiration to other vocational education providers.

Institut de Formation aux Métiers des Energies Renouvelables et de l’Efficacité Énergétique Tangier (IFMEREER), Morocco. The IFMEREER is a leading VET institution in Morocco when it comes to providing students with technical and transversal skills with relevance to the green transition. The IFMEREER produces high-skilled technicians for the energy sector – mainly wind power, solar energy and energy efficiency.

Green Academy, Denmark. A VET institution that focuses on providing education and training in the fields of agriculture and horticulture. The school offers a broad range of education and training programmes in green subject areas such as landscaping, gardening, floristry, foresting, farming, farm machinery operation and animal care.

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

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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 and contribute to regional development and growth. Their excellence derives from the extended scope of their activities and their capacity to meet the needs of stakeholders.

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MAIN RESULTS

We have summarised the key findings below, grouped under the main themes of the study.

MANAGEMENT OF THE GREEN TRANSITION

National green policy strategies are important for guiding CoVEs' green transition.

Green transition management is driven forward by national policies and strategies, which are translated into green goals and actions at institutional level by the government. At the institutional level, national policies and strategies are used as a reference for developing green programmes and skills that address green needs.

National strategies, green policies and regulations constitute an important driver for developing skills for the green transition of the economy, as businesses are encouraged or obliged to adopt sustainable practices.

CoVEs adopt different strategic approaches to the green transition.

The management of the CoVEs 'translates' national/regional strategies into green goals and action plans to be achieved/implemented. However, there are differences among the CoVEs in terms of the extent to which they have put in place an overall systematic strategy with precisely formulated goals and objectives.

Some of the CoVEs prefer a 'simple', flexible approach where industry-relevance is the key criteria for skills provision, allowing for disruptive innovation. These CoVEs avoid developing elaborate long-term strategies with multiple detailed goals. The rationale of this approach is that green technologies, practices and skills needs in businesses are continuously evolving. Setting exact targets for the future direction of the green transition entails the risk of the goals later becoming obsolete.

In contrast, other CoVEs establish elaborate strategies with comprehensive lists of goals and action plans to achieve them, along with evaluation systems to follow up on progress

in implementing them. Furthermore, organisational units are established with the responsibility of managing the implementation of sustainability.

CoVEs co-develop skills demand of the green transition in collaborative partnerships with external stakeholders.

Addressing the skills needs of the green transition at regional/local level, the CoVE is part of an expanded 'skills ecosystem', where skills provision is based on a collaborative partnership with industry, trade associations, government agencies and research institutions. According to some theories, once skills are available the economy will grow. The case of the CoVEs shows that, on the contrary, under the expanded ecosystem concept, it is economic growth and industry developments that are driving skills demand, with the VET institution able to be an active partner that supports this development process. Governmental action plans for expected industry developments at sectoral level or regional/local level are used as guidelines by VET institutions in partnership with the ecosystem

The green transition is not only a subject on the curriculum but also a way of living.

CoVE management is proceeding with the 'greening' of campuses, buildings, daily life and educational facilities,

transforming them into green learning spaces. This contributes to a 'culture of sustainability'. All CoVEs have adopted systematic action plans for campus greening and conduct regular assessments to follow up on the implementation of this. Accreditation is used to document the green transition and its progress. Management, staff and students consider campus greening to be important for strengthening environmental awareness and enhancing the values of sustainability.

Greening the campus and the functions of daily life make sustainable practices more concrete and present for everyone. This provides an opportunity for informal learning about environmental issues as the campus and buildings become a 'live laboratory' of sustainability. The culture of sustainability implies that teachers and trainers are expected to be role models who reflect on their own behaviour and continuously support students in acquiring a sustainability mindset. This creates a 'trickle-down effect', where students in workplaces inspire others to reflect on and adopt more sustainable practices.





SUSTAINABILITY WITHIN CONTENT AND PROGRAMMES

CoVEs integrate sustainability and green content into a large part of their education programmes.

This integration includes 'non-green programmes' as well as 'inherently green programmes'. 'Non-green education programmes' do not explicitly have green objectives or concern green technologies. The integration of green content into such programmes means that vocational practices and problem-solving must take environmental considerations into account to optimise the use of resources and the environmental impact. In contrast, 'inherently green programmes' are programmes which, through their title and content, explicitly address green objectives and technologies and usually prepare students for work in a green profession or job.

The five cases offer a fine spectrum of centres: the Green Academies in Denmark and Kansas, and IFMERE in Morocco, offer explicitly green programmes, while the Robina Campus in Australia does not offer genuine green programmes. Here, the

focus is instead on anchoring sustainability goals in non-green programmes. Temasek Polytechnic offers both non-green and green programmes. In some VET systems, for example in Denmark, the integration of green content into educational programmes is mandatory under national legislation

Green curricula changes involve detailed consultation with stakeholders.

The CoVEs responding to the green transition through curricula changes do this with a high degree of involvement from external stakeholders. Consultations with those stakeholders are built into the organisation of the VET system at national and local level. Responsiveness is thus built into VET institutions' organisational operation, which adapts to labour market needs and policy priorities.

The integration of green content into education programmes is done in close collaboration with industry partners to ensure the industry relevance of the skills provision. Collaboration with industry at institutional level is formalised through the set up and regular involvement of boards and committees, which develop syllabi and curricula in detail. Research institutions may also be involved in updating content on green technologies and practices. The collaboration between educational institutions and industry partners has mutual benefits: the VET institution receives expert advice and thereby ensures the content is up to date, while industrial partners ensure the future provision of industry-relevant skills, including through continuing education and training for adult employees.

EXTERNAL STAKEHOLDERS

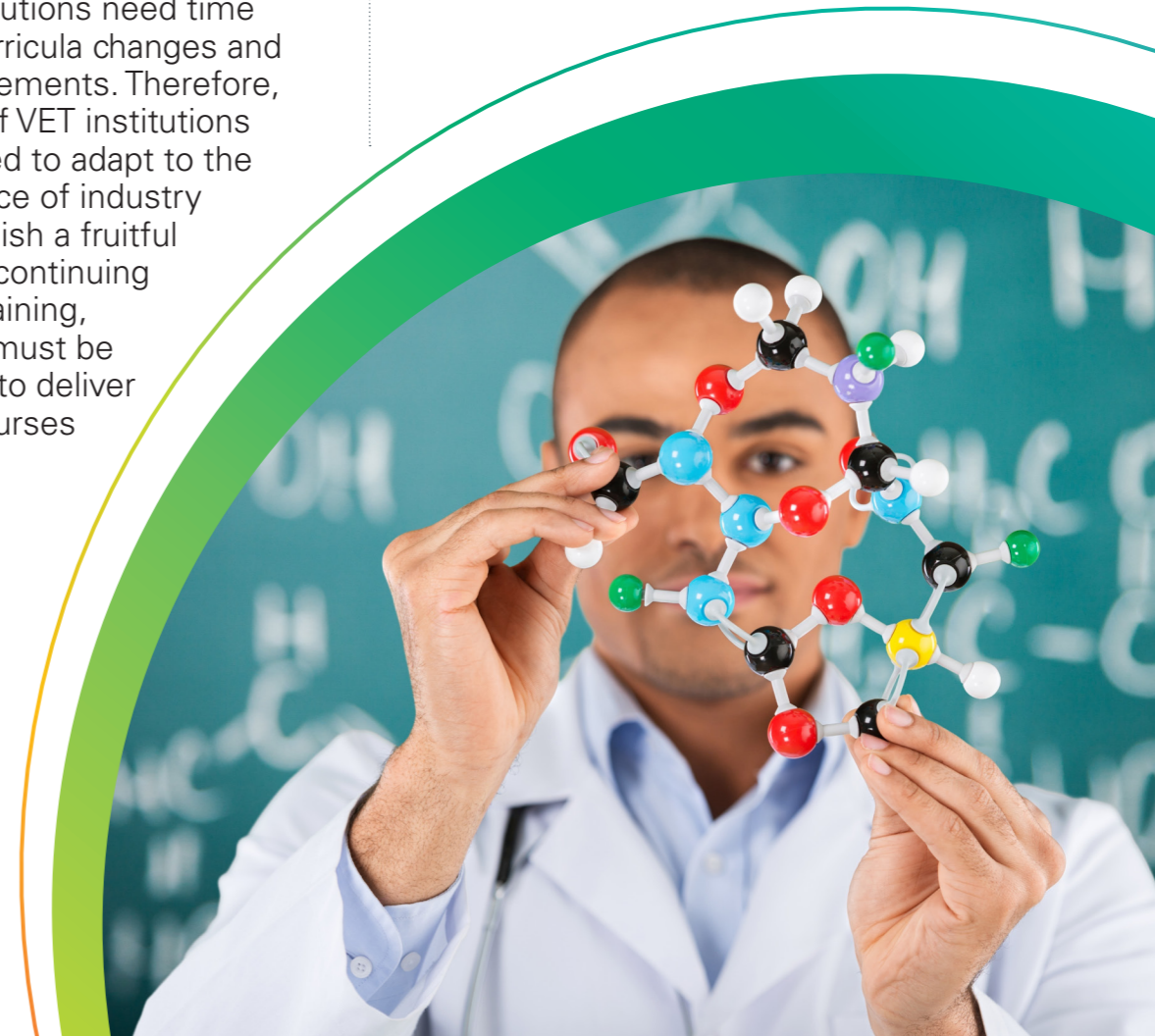
CoVEs' involvement with external stakeholders is formal and continuous.

CoVEs organisations are part of VET systems that have a built-in responsiveness to development trends and industry needs at national, regional and local levels. The involvement of external stakeholders from industry and of businesses in developing curricula at institutional level has been formalised and takes place within the framework of committees and boards. Although collaboration between education and private companies is beneficial to both parties, it can be a challenge due to cultural differences.

The pace of change in the educational world is often slower than the pace of change in private enterprises because educational institutions need time to implement curricula changes and admission requirements. Therefore, the experience of VET institutions is a constant need to adapt to the workflow and pace of industry in order to establish a fruitful collaboration. In continuing education and training, VET institutions must be flexible and able to deliver materials and courses quickly.

CoVEs have a global mindset and seek inspiration abroad.

CoVEs enhance their development and dissemination of excellence by seeking inspiration abroad. Looking for new technologies and ideas requires an innovative, global mindset, looking beyond the local business community. Students are also encouraged to adopt a global mindset and seek inspiration abroad through internships and project work.





PEDAGOGICAL APPROACHES

CoVEs emphasise a learner-centred approach where students develop practical experiences.

The CoVEs have a strong focus on developing skills based on practical, hands-on experience, and students are encouraged to develop their own insights based on experiments and creative thinking. Some CoVEs motivate students by letting them develop projects and initiatives to be used by actual clients. Sustainability and green content are not only taught as theoretical subjects but must have a practical application in the given vocational field of learning. For example, How can hairdressers make their business greener and more sustainable? How can facility managers do the same?

Sustainability issues are open-ended problems that require critical, independent thinking from students.

Sustainability issues are open-ended problems without definite solutions, and green technologies and solutions are constantly evolving. Tomorrow's solutions to sustainability problems are not known today. Consequently, the development of green skills



is not based on a fixed syllabus or the content of textbooks. Instead, the development of green skills puts a high priority on problem-based learning. This means tasks and project assignments are presented as open-ended problems, and students must develop independent and critical thinking, being able to reflect on the advantages and disadvantages of given technologies and solutions. The involvement of representatives from industry/companies in student projects/assignments can help students to develop critical, independent and creative thinking skills. It is regarded as beneficial to learning that the students go beyond the curriculum and develop independent thinking by trying out their own ideas.

Digitally-enabled, collaborative learning is important to students' work on green projects.

The CoVEs regard digitally-enabled learning spaces and collaborative, multi-disciplinary learning as important pedagogical elements of students' work on green projects and assignments. Collaborative and multidisciplinary learning provide an important approach to skills for the green transition as they induce students to see different perspectives on environmental problems.

Digitally-enabled learning spaces are inclusive and enable blended learning and student interaction in the form of group work, where the teacher plays a consultant role. Videoconferencing in learning spaces enables visual demonstrations of work processes and the remote participation of students.