

## *Chapter 10*

### **Conclusions and Policy Implications**

*This chapter presents overall findings for enhancing the innovation capacity of the VET systems. First, it elaborates the overarching conclusions obtained throughout both the theoretical and the empirical phases. These conclusions complement those covered in the different empirical chapters, which focused on analysing specific aspects of the innovation process. Second, implications for policies that can better support and foster the development of systemic innovation in VET can be drawn from these conclusions and will be presented here. In addition, a final section in this chapter discusses the opportunities for transferring the main findings of this project to other education sectors and the benefits of doing so.*

It is important to remember the exploratory nature of the analysis carried out throughout the project and the limited range of variance contained, both in terms of countries involved and the nature of the cases examined. Therefore, both the conclusions and the policy recommendations should be handled with care and should be regarded as a starting point for discussion that would benefit from further research. As the evidence base on systemic innovation grows, it will be important to refine these conclusions and policy recommendations and possibly transfer them, at least in part, to other sectors in education.

### **What are the lessons learnt?**

This project takes the view that a better understanding of how innovation works in VET requires a focus on the processes from a systemic and knowledge management perspective. Understanding these processes is crucial to the design of policies that facilitate or enable innovations.

For this purpose, the project has intended to bridge the existing gap between innovation studies and public policy formulation, particularly apparent in education. Most innovation studies in the public sector do not analyse the processes, and those that do, tend to replicate existing approaches (mostly drawing on the model of innovation in a scientific-technological framework) to identify environments that could be conducive to innovations, usually bottom-up initiatives. However, this project has shown that many of the most deep-impact innovations (*i.e.* changes aiming to add value) follow a top-down approach, in which the innovation models that draw on the literature about policy reform seem to fail to explain processes.

In addition, this project shows that this field is in its infancy and that although there are widely claimed assumptions of innovations in VET (and education more broadly), it is difficult to show how they are diffusing across the system. In other words, there may be a high rate of invention but a low rate of diffusion or uptake of knowledge or the innovation itself, reducing overall innovation. A systemic approach, as it will be argued below, may contribute both to identifying what prevents innovation from having a system-wide effect in VET and to drawing clear policy implications from this analysis.

In this respect, there are five major areas in which this project has improved the understanding of how systemic innovation works in the VET sector. The first one highlights the validation of systemic innovation as a powerful conceptual and analytical framework for examining how countries approach innovation in this particular education sector. The second area of interest concerns the identification of a number of drivers and barriers that operate in the process of systemic innovation. Similarly, the third area includes lessons on the different phases of the process of systemic innovation,

ranging from design to evaluation, from which important policy implications are to be drawn. The limited but promising role of the knowledge base in regard to systemic innovation constitutes the fourth area. Finally, alternative government roles and policy approaches have been explored. These broad areas of conclusions, which are presented below, help to identify the pieces of the puzzle that constitute VET innovation systems and explain their innovation capacity.

### ***Systemic innovation is a useful analytical framework for assessing innovation policies in VET***

In the VET sector, as in other education sectors and in certain other areas of public service provision, the concept of innovation is difficult to concretise and is used most often to refer to discrete changes at local or institutional level. As a result, there is a very limited knowledge regarding the process of innovation, particularly in those cases in which system-wide changes are envisaged.

This is where a systemic and comprehensive approach to innovation in VET can make an important difference. When looking at innovations in VET through the analytical lens of systemic innovation, a number of issues that go beyond discrete innovations can be brought into the picture, particularly how countries initiate innovation, the processes involved, the role of drivers and barriers, the relationships between main actors, the knowledge base drawn on, and the procedures and criteria for assessing progress and outcomes.

All these areas have been explored empirically in this project, using a number of case studies chosen under the assumption that they were developed to have a system-wide impact. As initially defined in the project proposal, the cases were considered *examples of dynamic system-wide change that is intended to add value to the educational processes*. This proved to be a difficult strategy. However, it was the only one appropriate for investigating the behaviour of the VET system when a scalable innovation occurs, identifying which drivers are most relevant and which barriers emerge, and determining, overall, how the concerned stakeholders operate in the system when an innovation with the potential or ambition to introduce system-wide change challenges the existing equilibrium. The dynamic and reiterative nature of the ongoing cycles of the innovation process blurs conceptual distinctions between, for example, top-down and bottom-up initiation, and adds complexity to the analysis.

Moreover, this project has highlighted the importance of taking into account the policy process cycle when dealing with systemic innovation. Many of the profound changes introduced into the system may have deep effects on a number of stakeholders, whose support of proposed innovations

must be won to guarantee successful implementation. This report also analyses the process of stakeholder involvement, including when various stakeholders may or may not be involved as well as the resulting implications of this involvement (or lack thereof).

The main benefit of the systemic innovation approach is that it can help governments and other stakeholders to have a comprehensive evaluation of how the system works and how they can enhance their innovation capacity. It is thus relevant from a policy perspective because it elucidates both existing information gaps and points in the lifecycle of the innovation at which a good evidence base might be more useful. In the end, the systemic approach to innovation contributes to the assessment of how the innovation system works and to the identification of policies that are capable of boosting the innovative potential of the VET system.

### ***A coherent targeted system to promote and support innovations***

The need to respond in a timely manner to the socio-economic challenges that all VET systems are facing in an increasingly globalised and rapidly changing world seems to be driving most of the systemic innovations that this project analysed. Political leadership and capacity to steer and manage the innovation, the availability of resources, and/or the existence of regulatory mechanisms supporting the process seem to play a crucial enabling role in most systemic innovations. Equally, the availability of evidence and a good level of consensus among stakeholders also seem to play a crucial role during the design and implementation of the innovations. A coherent targeted system should be in place to promote and support innovations that would develop successfully in VET and induce system-wide change. Such a system is still infrequent at country level.

Nevertheless, innovation enablers and barriers are not universal but rather context specific. While it is true that their presence or absence will facilitate or hinder the innovation processes in any VET system, their importance seems to vary depending on the case and the context. This is particularly true of the role of consensus among stakeholders, of evidence, and of political leadership. In particular, evidence can facilitate the adoption of innovation and inform the process – although the evidence from the case studies suggests that innovations are mostly drawing on tacit knowledge and beliefs or a sense of urgency to change the *status quo*. Moreover, in some cases, some factors may have unintended implications for innovation, e.g. inappropriate accountability mechanisms that may hinder innovations.

Although efforts to develop a systemic approach to innovation in VET are still rare, they have the potential to develop better processes and contribute to an incremental improvement of the VET system. In the context of this

limited investigation, countries with a well developed systemic approach to innovation in VET are the exception. It was difficult to find indications of it, such as a formalised structure to promote and support innovation, capacity building to enable it, and a coherent set of knowledge management mechanisms linking innovation with research, in both directions. Only Switzerland and, to a lesser extent, Australia, can be said to have designed a systemic approach to innovation in VET.

### ***The need for a formalised, coherent, well-sustained and up-to-date knowledge base***

VET systems need a formalised, coherent, well-sustained and up-to-date knowledge base to increase their innovation capacity, to address knowledge gaps, and to benefit fully from systemic innovations. Unfortunately, decisions to introduce changes in the VET system are not always based on solid empirical evidence but rather on a sense of urgency to modify a *status quo* perceived as unsatisfactory. Innovations are seldom the result of an embodied set of knowledge or empirical evidence accumulated over the years from which stakeholders nourish their decisions and to which they contribute with their feedback. Moreover, countries do not seem to pay enough attention to monitoring and evaluating how innovations, particularly those whose realisation requires a large amount of policy commitment and financial investment, evolve in the context of the VET system. In addition, little has been done to assess when a particular innovation can be said to be a success or a failure and what lessons can be learned as a result.

There is clearly a lack of a critical mass of codified, formal, and research-based knowledge on VET, both at national and international levels. Even in the scenario in which a consistent and coherent knowledge base on VET was available to improve systemic innovation, good communication among stakeholders, along with channels for disseminating the knowledge base at stakeholders' request, is critical. Knowledge brokerage institutions supporting the genesis and diffusion of innovations are still scarce, and therefore the necessary knowledge based linkages between stakeholders are weak.

Only in a limited range of cases, and clearly in only a minority of countries, did this project find clear evidence of any use of research-based knowledge in the innovation process. This is not to say that VET research has not been carried out in these countries or contexts, but rather that there are clear problems regarding its relevance and rigour and equally importantly, its dissemination and uptake among stakeholders. All of these elements require a certain degree of capacity – both systemic and individual – and strong links between research producers (universities, academies) and research users (policy makers, practitioners), links and capacities that have been identified as weak or in need of improvement in previous CERI work (OECD, 2004, 2007).

Even in the scenario in which a consistent and coherent knowledge base on VET was available to improve systemic innovation, good communication among stakeholders, along with channels for disseminating the knowledge base at stakeholders' request, is critical (see the capacity and links argument above). Knowledge brokerage institutions supporting the genesis and diffusion of innovations are still scarce, and therefore the necessary knowledge based linkages between stakeholders are weak.

Moreover, VET systems tend to be relatively closed and inward-looking. Open innovation models that encourage linkages with other VET systems could generate valuable knowledge that could be fed into the system. The transformation of the relatively unconnected communities of VET practice, institutions of education and training, research, and local agents of innovation into a coherent and dynamic learning ecology would be an important step in the development of a truly systemic innovation system. Part of creating this ecology would be a strong connection to more effectively harness the innovative capacity of the private sector (firms, employers).

Although our case studies have not empirically validated the assumption that a better knowledge base results in more successful innovations (due to the lack of both empirical evidence and evaluations of the innovations), the existing paucity of links between research and innovation efforts in VET is remarkable. This is reflected mostly at government level, with a general lack of attention to the issue of bringing together both activities to result in a coherent knowledge base. However, it is also clear that innovation and research seem to appeal to different profiles of professionals in education. In the case of VET and its strong connection to the private sector, this dichotomy is further emphasised.

Finally, it is particularly perplexing to see both a lack of research evidence and halts in the feedback loop of the evaluation process in conjunction with the push for greater accountability and increased assessment of the system, teachers, and students. This is a clear incoherence in the system that needs to be addressed.

### ***Why VET systems may be losing innovation opportunities***

Despite its potential, the evaluation of innovations seems to be a missing feature of VET systems. This applies equally to local and discrete innovations as to top-down innovations, including those aiming to have a system-wide impact. VET systems may be losing innovation opportunities due to a lack of evaluations and knowledge feedback into the system. A number of reasons may explain this, including the lack of sustained VET research efforts, the disconnection among practitioners, researchers, and policy makers, the lack of mechanisms dedicated to gathering relevant information, and even the prevalent culture of the sector.

A particular situation in which the relevance of evaluation becomes even clearer is piloting. Pilots fulfil a very important role in those systemic innovations that aim to have a deep impact on the system. While they are costly in terms of time and resources, they play an important role in the prevention of implementation gaps and innovation fatigue. Piloting may be useful for technical and organisational purposes, but unless a monitoring and evaluation procedure is carefully implemented, its benefits may be lost.

Investing in VET innovations without carefully planning their evaluation should not be an option. To increase the innovation capacity of a system is a function not only of the level of investment but also of the importance attached to assessing the results obtained. Informed, and eventually evidence-based, decisions about sustainability or scaling up of innovations cannot be made if mechanisms intended to assess their effects are not in place. The innovation-related policies aiming to foster innovations in VET cannot be assessed in the absence of feedback. Whether a given policy is successful at promoting innovation in VET cannot be determined if the evidence about the results obtained is missing. The same applies to opportunities for international peer learning.

Furthermore, without such mechanisms it is virtually impossible to generate any lessons of general interest, avoid repetition of mistakes, and accumulate knowledge. If a system lacks them, it becomes unclear who will benefit from increased investments in VET innovation.

## Policy implications

Drawing on the previous conclusions, it is possible to develop a set of policy implications whose aim is to create the conditions for the emergence of a real system of innovation in VET. As much of the analytical framework and country visits took place in 2008, the analysis and findings do not have as a central focus the role and impact of economic crisis. However, it is a topic that in the current climate cannot be ignored because in times of economic crisis, the capital and margin of risk required to fund innovation and systemic change often lead to such projects being considered disposable luxuries. Funds earmarked for innovative projects or funds set aside to enhance and support innovative processes often find themselves radically trimmed in leaner budgets. In the VET system, the dual contribution of public sector (education) and the private sector (employers, firms) increases the risk that systemic innovation in VET will get cut because both sides may seek to rein in expenditures. Moreover, during financial crisis, a number of enabling factors can start disappearing due to financial constraints and can therefore become limiting barriers for innovation.

Precisely in times of economic crisis, a systemic approach to innovation in VET is even more urgent. Most countries are now facing difficult times and OECD member states are no exception. The immediate programs launched, sometimes in a co-ordinated way, by many governments seeking to face the financial crisis have also been coupled – in many cases – with an in-depth reflection about how our economies work and strategies to promote longer-term development and vision. In the context of this reflection, it becomes apparent that in the medium and long-term, innovation will increasingly be a key factor not only to economic growth but also to social welfare. The VET sector should be no exception. Two particular issues need to be addressed:

- While in the current economic climate there might be a general pressure to cut or reign in expenditures, innovation should not be considered an unnecessary expenditure but rather the essential ingredient that would differentiate resistant VET systems from those hardest hit by the crisis. Therefore, innovation should be protected to the extent possible.
- Using the elements of the innovation process (e.g. planning, monitoring, evaluation) as a cost-effective mechanism for guiding product and process development could, in the long run, save money. Having effective feedback mechanisms indicating what worked and what did not is crucial for both continuing innovative development and transferring innovation across VET systems (or across firms). The role of systemic innovation in developing a long-term strategy for VET (or business, as the case may be) was argued to be an essential element in the crisis response and a necessary component in accompanying immediate, short-term cuts/stimulus packages. A long-term strategy would also be necessary for getting the system (or firm) back on track after the initial shock of the crisis has passed.

To set up the conditions for such a system, governments in particular, with the support of the remaining stakeholders in VET, may need to:

***Develop a systemic approach to innovation in VET as a guiding principle for innovation-related policies***

Such a systemic approach includes at least five basic elements:

- A clear policy intended to support VET research in the light of national priorities, both at policy and practitioners levels;
- An evolving framework for sustaining both top-down and bottom-up innovations in VET, including monitoring and evaluation mechanisms, which can contribute to the generation of new knowledge about VET policies and practices;



- A unified knowledge-base that includes both VET research evidence and the new knowledge emerging from the assessment of innovations, including links to international knowledge bases on these topics; and
- Regular efforts to synthesise and disseminate new knowledge on effective VET policies and practices to challenge the *status quo* of the system, set new horizons and contribute to incremental change.
- Capacity building (structural, personal) to enable all the elements above.

***Promote a continuous and evidence-informed dialogue about innovation with the stakeholders in VET***

Often, VET policy discussions are particularly prone to biased uses of the knowledge base, particularly in view of the absence of solid empirical evidence. However, engaging stakeholders in policy dialogue to reach consensus is a pre-requisite for successful policy interventions in VET. It is therefore of the highest importance to inform the policy debate with evidence, provided that all stakeholders share a minimal capacity level to benefit from it. This would include the creation or support of brokerage agencies designed to provide the required links between research and practice as well as build relevant capacity both in the system and among stakeholders.

This type of dialogue would serve to build trust and firm up networks among the various key stakeholders. It could also act as an important mechanism for encouraging local innovation and supporting bottom-up innovations to percolate up from the field. Transforming the relatively unconnected communities of VET practice, institutions of education and training, research, and local agents of innovation into a coherent and dynamic learning ecology would be an important step in the development of a truly systemic innovation system.

***Build a well-organised, formalised, easy to access, and updated knowledge base about VET as a prerequisite for successfully internalising the benefits of innovation***

In many countries, the usual mechanisms (such as dedicated journals, academic journals, conferences, national reference and research centres, etc.) that would contribute to the articulation of a knowledge base are not in place. Some countries may want to address this need by using existing facilities or mechanisms, while others may prefer to set up new measures as an indication of the increased priority allotted to innovation in VET, such as the creation of dedicated research centres, networks, or prioritised calls. Irrespective of

the situation, countries should certainly make an effort to generate a one-stop shop or window for accessing the existing knowledge base about VET.

The benefits of investments made in VET innovations will hardly be recognised and of any relevant use unless the appropriate tools for knowledge management are in place to gather knowledge that might be usually dispersed (for instance, in different stakeholders but also from diverse sources of innovation), cumulate it in a consistent and coherent way, articulate it to generate clear messages, and finally to disseminate results in decision-oriented terms both for practitioners and policy makers.

### ***Supplement investments in VET innovations with the necessary efforts in monitoring and evaluation***

It is in the best interest of public governance and accountability to generate the mechanisms and procedures required to approach critically both bottom-up and top-down innovations. An empirical assessment can contribute decisively to:

- Inform decisions about scaling up or diffusion of innovations.
- Instil in the main actors involved the culture of output-oriented innovation – innovations aimed at measurable improvements that can help to cope with innovation fatigue or resistance.
- Get value for money.
- Obtain feedback on the results of particular policy measures intended to foster innovation.

### ***Support relevant research on VET according to national priorities and link these efforts to innovation***

VET research needs an additional impulse. VET research is scarce in some countries. In others, there is much development work that is identified as research but has trouble accumulating relevant evidence in a meaningful way. Still in others, VET research is mostly a domain for economists and policy makers, and less for educationalists. But whatever the situation, there exists a need for both practitioners and policy makers to address common challenges regarding the relevance of (sometimes dubious) research, the dissemination of results to stakeholders, and the actual use of those results by them.

VET systems could greatly benefit from a national system of VET research that combines the following elements:

- Funding opportunities for researchers according to national priorities with international standards of quality;

- Capacity building with the co-operation of research centres and universities, if possible, in view of cooperation with international networks;
- Dissemination activities, particularly by means of tailored publications, intended to engage a large range of stakeholders, who in some cases may require some additional capacity building, in the discussion of the implications of research evidence;
- Mechanisms for the involvement of those institutions or programmes responsible for initial and continuous VET teacher training.

### **The way ahead: can all this be transferred to other education sectors?**

There are no particular theoretical reasons that the systemic approach to innovation developed throughout this project and applied to the VET sector cannot be eventually explored and refined in the context of other education sectors. Different sectors have different structural characteristics that, in many respects, can be said to be systems on their own. Particularly when it comes to innovation, the principle that the schools sector, the higher education sector, and even the sector of distance education can be examined as systems in which innovation can be approached holistically, in a systemic way seems plausible.

Less clear is whether the main findings of this project can be transferred to other education sectors. There are at least three characteristics that make VET systems unique in relation to innovation: a) the comparatively high importance that three groups of stakeholders have in relation to other sectors: private companies, professional organisations, and social partners; b) the closest interaction and interdependence with the labour market (particularly, but not exclusively, with young people); and c) the nuances specific to apprenticeship models, where they exist, and the financial implications both for public and private providers. All these factors can make VET systems more conducive to certain innovations and to developing particular dynamics among stakeholders that can hardly occur in other education sectors.

When analysing processes of innovation in education, context matters. Therefore, the transfer of lessons learnt from one particular context to others may not be immediate or automatic. On the whole, however, and drawing on previous CERI work on innovation in education, it appears that many of the conclusions and their corresponding policy implications presented here may be of interest to other education sectors. One example is that the issue of the evaluation of innovations would have to be completely revisited both in the schools and in the higher education sectors. In the former, many OECD countries have developed well structured assessment systems, which would certainly need to be considered when setting up any mechanism or procedure to evaluate the effects of innovations. However, the meaning of innovation in higher

education is often completely different, as it includes the possible range of innovations (for instance, in teaching and learning) and the degree of institutional autonomy and competition among institutions, which in some countries would make it unrealistic to consider top-down, government-led innovations but would certainly welcome opportunities for discrete innovations.

Finally, it is worth saying that for those interested in innovation in education, whether from a practitioner, researcher, or policy maker perspective, the systemic approach to innovation offers a good starting point for examining how a particular educational sector, and also a given institution or organisation, approaches innovation.

### Key messages

There are four major lessons learnt:

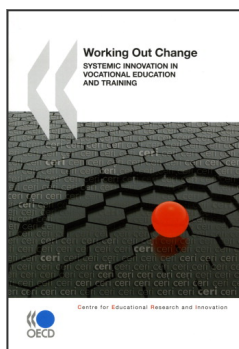
- Systemic innovation is a useful analytical framework for assessing innovation policies in VET;
- A coherent and targeted system should be in place to promote and support successful innovations in VET and to induce system-wide change. Such systems are still infrequent at country level;
- VET systems need a formalised, coherent, well-sustained and up-to-date knowledge base to increase their innovation capacity, to address knowledge gaps and to benefit fully from systemic innovations; and
- VET systems may be losing innovation opportunities due to a lack of evaluations and knowledge feedback into the system.

In times of economic crisis, a systemic approach to innovation in VET is even more urgent. To set up the conditions for such a system, governments in particular, with the support of the remaining stakeholders in VET, may need to:

- Develop a systemic approach to innovation in VET as a guiding principle for innovation-related policies.
- Promote a continuous and evidence-informed dialogue about innovation with the stakeholders in VET.
- Build a well-organised, formalised, easy to access and updated knowledge base about VET, as a prerequisite for successfully internalising the benefits of innovation.
- Supplement investments in VET innovations with the necessary efforts in monitoring and evaluation.
- Support relevant research on VET according to national priorities and link these efforts to innovation.

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