

OECD/CERI STUDY OF SYSTEMIC INNOVATION IN VET
SYSTEMIC INNOVATION IN THE SWISS VET SYSTEM
COUNTRY CASE STUDY REPORT

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SYSTEMIC INNOVATION IN THE SWISS VOCATIONAL AND PROFESSIONAL EDUCATION AND TRAINING SYSTEM: COUNTRY CASE STUDY REPORT

Introduction

This is the fourth in a series of six country case study reports on systemic innovation in Vocational Education and Training (VET), which here in view of the Swiss official nomenclature will be referred to as Vocational and Professional Education and Training (VET/PET). The main objective of this series is to provide the empirical component to the analysis of the processes involved in systemic innovation in VET/PET by highlighting:

- how the country goes about innovation in VET/PET;
- the processes involved, leadership and the relationships between the main actors;
- the knowledge base from which this is drawn; and
- the procedures and criteria for assessing progress and outcomes.

In this report, three cases of systemic innovation in the Swiss VET/PET system are analysed. The three cases were suggested by the Federal Office of Professional Education and Technology (OPET), the contracting authority for this study, on the basis of the criteria laid down by the project, and agreed upon by the CERI Secretariat. The visits took place from April 28 to April 30 in different locations in Switzerland. The review team consisted of Henri de Navacelle (BIAC), and three CERI analysts, Tracey Burns, Katerina Ananiadou, and Francesc Pedró. The team wishes to express gratitude towards the national coordinator, Adrian Wuest (OPET), and to all the interviewees who generously devoted time and effort to share their views on the cases with the reviewers¹.

The report consists of several sections. The first section summarizes the aspects of the Swiss VET/PET system most relevant to this project, and, particularly, the policy environment regarding systemic innovation. A second section is devoted to the three cases, paying particular attention to the ways in which each innovation was designed and initiated, what use was made of the existing knowledge base, and how the innovation was implemented, monitored and evaluated. Finally, three more sections introduce the main conclusions drawn from the three cases, the recommendations that the reviewers would like to suggest, and the potential implications of the lessons learnt from the Swiss cases for the investigation of systemic innovation in VET/PET.

1. For a complete list of the interviewees and institutions and organisations visited see annex 1.

The VET/PET system in Switzerland

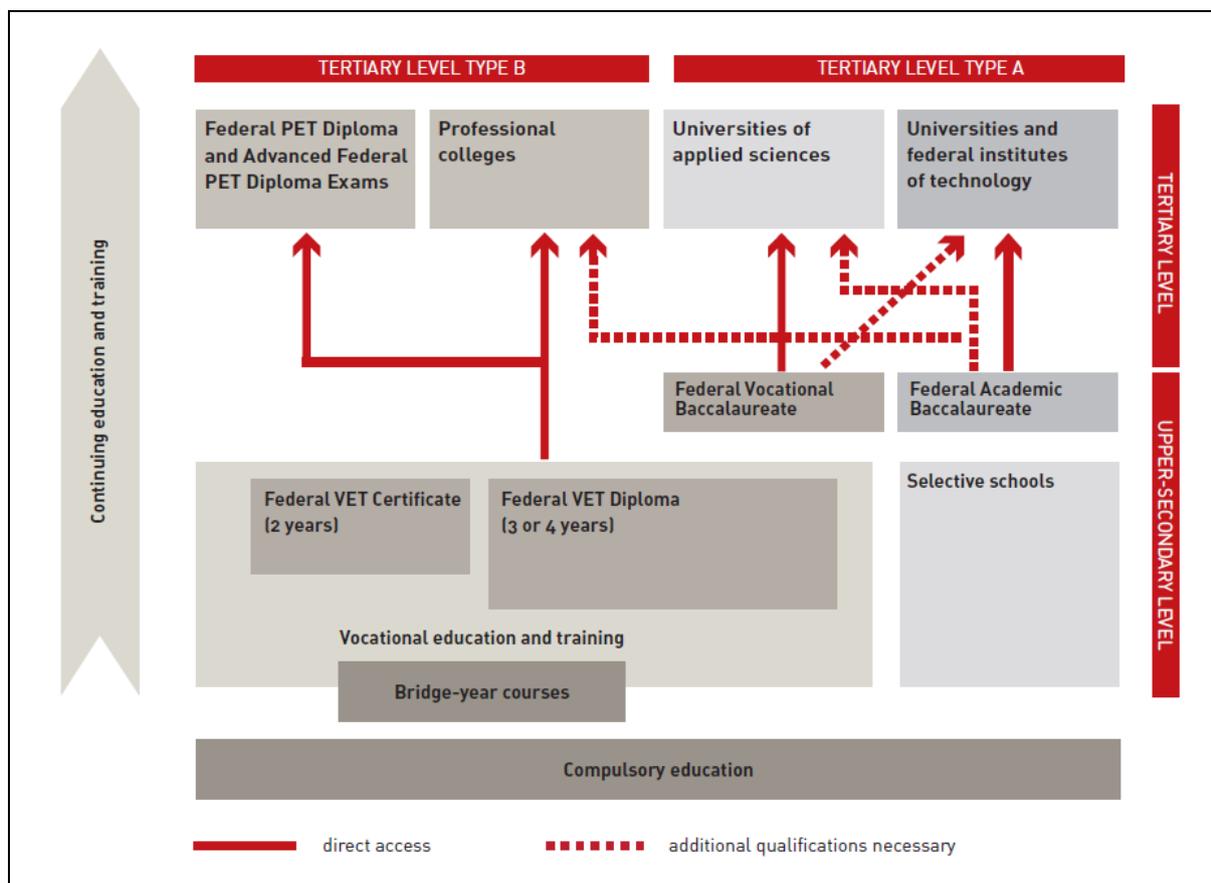
Context

The Swiss vocational and professional education and training system, as shown in Figure 1, is divided into two parts: vocational education and training (upper secondary level) and professional education (tertiary level type B).

Vocational education and training (VET) imparts the skills and knowledge necessary to practice a specific trade at the upper secondary level. A two-year period of vocational education and training leads to a Federal VET Certificate, and a three or four-year period of training ends with a Federal VET Diploma. Supplementary to a three or four-year course of VET programme, young people can study for the Federal Vocational Baccalaureate. Vocational education and training is also open to adults enabling them to obtain an appropriate certificate or diploma.

Professional education and training takes place at the tertiary level (tertiary level type B). Such provision combines both practical skills and theoretical expertise in preparation for managerial functions. Examinations for the Federal PET Diploma and the Advanced Federal PET diploma are directed to experienced professionals who wish to gain a deeper knowledge of their subject. Those who pass the examination are awarded a federally recognized diploma (Federal PET Diploma or Advanced Federal PET Diploma). OPET supervises federal exams. Courses offered by professional colleges lead to a federally recognized degree. Such courses are based on minimum requirements set by the state and the stipulations of OPET derived from these, keeping in mind the framework curricula and qualification procedures.

Figure 1. The Swiss VET/PET system.



Source : OPET, 2008

It is in this context that every year around two-thirds of young people in Switzerland enter the job market via the VET/PET pathway. The Swiss educational system compares well with other OECD countries in terms of graduation rates in upper secondary education – 90% of the population receives a diploma at this level. It must be recognised, however, that this is mainly due to the attractiveness of vocational education since 59% of all diplomas awarded are in the sector of vocational education – a situation comparable with that in Germany. The table below compares enrolment in upper secondary programmes in public and private institutions by programme orientation in Switzerland with the OECD average.

Table 1. Enrolment in upper secondary programmes in public and private institutions by programme orientation (2006)

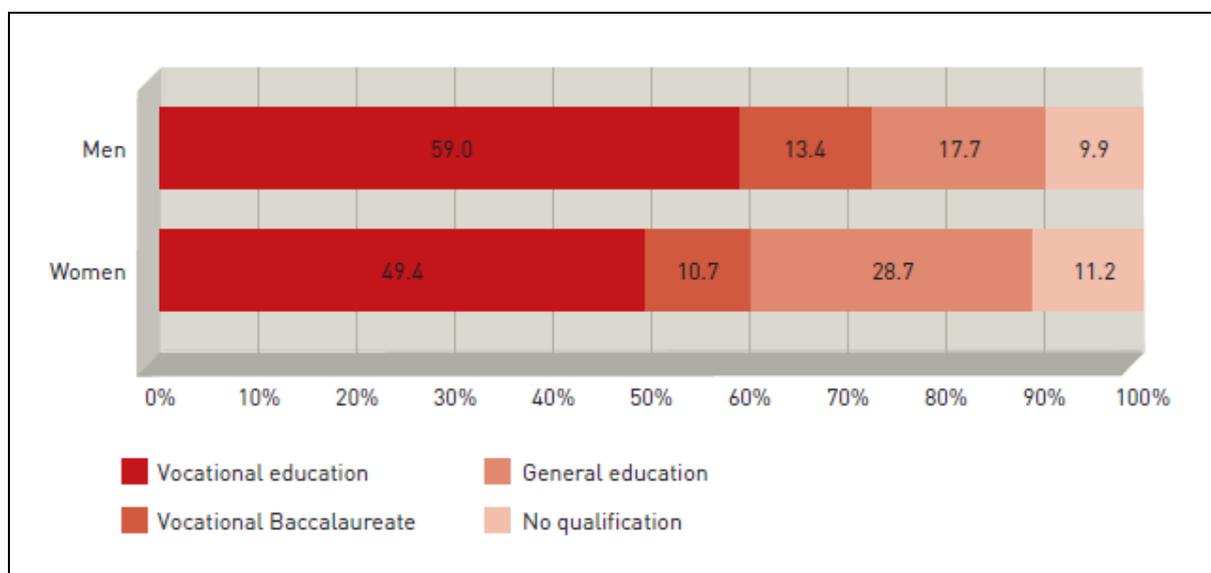
	General	Pre-vocational	Vocational	Combined school and work-based
Switzerland	35.8	n	64.2	57.8
OECD average	55.8	4.1	44.0	15.2

Source: OECD, 2008

VET/PET is, therefore, the preferred choice for further education after the compulsory phase –a characteristic matched only by a small number of OECD countries, and particularly by those where, historically, a dual system has been the dominant characteristic of the VET/PET provision, such as Austria or Germany. Many reasons combine to make this offer particularly attractive to young people and the fact that enrolment in VET/PET usually involves the status of apprenticeship –which means the possibility of some earnings and, more particularly, a true work-related experience which in fact situates apprentices already in the labour market.

227,000 students were enrolled in VET programmes in the year 2007 (upper secondary level) and around 60,000 federal certificates and diplomas of VET are awarded each year. At the professional education and training level (tertiary level type B), around 30,000 diplomas and advanced diplomas of professional education and training are awarded annually including professional college degrees as well. Figure 2 shows the spread of different qualifications at upper secondary level among the Swiss population, with a majority of VET/PET-based qualifications.

Figure 2. Education and training completed at Upper secondary level. Switzerland, 2006



Source : OPET, 2008.

The existence of very close links with the labour market is the distinguishing feature and strength of the Swiss VET/PET system. As it happens in some other European countries such as Germany or Denmark, Switzerland’s VET/PET system subscribes to a dual system model, which can be defined as a combination of in-company training and in-school education. Accordingly, young people in a VET programme can be considered as being enrolled in post-compulsory education. These students hold an apprenticeship contract with a participation host company and attend training courses at a vocational school. This is both a right and an obligation. Apprentices have a choice of 250 specialist occupations. At tertiary level, professional education and training also offers a wide range of practice-oriented study programmes that provide students with the necessary skills to undertake specialist or managerial roles.

There is a sharp contrast between the way in which the responsibility for education is shared among different government levels and the particular case of VET/PET, where the Swiss system can be said to have a nationally centralized approach. The responsibility for the educational sector in Switzerland is divided between the confederation, the cantons and the municipalities. There is no ministry for education at

the national level. The main responsibility for education lies with the cantons. There is a Swiss Conference of the 26 Cantonal Ministers of Education, Culture and Sports (EDK/CDIP/CDIP) that is responsible for the national coordination of educational and cultural policies. This cooperation is based on a combination of state treaties (concordats), however, the responsibility for vocational and professional education, both at secondary and tertiary level as well as for the universities of applied sciences (UAS), is assigned to the confederation through the OPET.

The Federal administration, whose expenditure on VET/PET is about one fourth of the total public expenditure in this sector, has a major role in the strategic management of the VET/PET system. The OPET in particular is responsible for:

- Quality assurance and further development of the overall system;
- Comparability and transparency of courses throughout Switzerland;
- Enactment of over 250 VET ordinances and recognition of PET programmes and
- Promotion of innovation.

The 26 cantonal governments and around 600 professional organisations also have an important role in the VET/PET system. While the latter are mostly responsible for the design and regular updating of the VET/PET curricula, the former manage the actual provision, implementing the regulations issued by OPET, and supervise the quality of the provision in their territories.

Policy climate for systemic innovation in the Swiss VET/PET system

Innovation in Switzerland

Switzerland is well known for its outstanding position in knowledge-intensive industries, attracting many foreign people trained in science and engineering. The country's gross domestic expenditure on R&D as a percentage of GDP is equivalent to that of the United States or Germany, currently at about 2.57%. The number of triadic patent families² per million population, an indicator of R&D performance, is double the OECD average. However, since the beginning of the 90s, the level of expenditure on R&D has weakened and the record of innovation is now facing a slowdown (Arvanitis & Wörter, 2005). To some extent, this is a result of the protracted economic slump.

Since private companies directly finance much of the R&D activity the actual level of the government's direct involvement in R&D funding is extremely low compared with other countries with an equivalent performance. More than two thirds of the R&D spending is provided by the private sector. However, most of the private funds flow abroad. Only about 7% of these funds are directed to Swiss universities. Nevertheless, the role played by the higher education sector in R&D, in terms of conducting research, is outstanding, clearly outperforming most OECD countries (OECD, 2006).

2. A patent family is defined as a set of patents taken in various countries (*i.e.* patent offices) to protect the same invention. Triadic patent families are a set of patents taken at all three of these major patent offices – the European Patent Office (EPO), the Japanese Patent Office (JPO) and the United States Patent and Trademark Office (USPTO).

Policy responsibilities for innovation in VET/PET

As regards innovation in education, the contrast between the level of federal involvement in VET/PET and the sovereignty of cantons in the rest of the educational sector has important implications not only in terms of national coordination of the educational provision but also for the ability to promote both educational research and innovation. A recent OECD review of educational R&D in Switzerland (OECD, 2007) precisely pointed to the lack of a true national strategy –with the only exception of the VET/PET sector thanks to the major role played in this by OPET, which was created in 1998. The federal law on VET/PET which went into force in 2004 passed in 2003 strengthened the role of OPET, resulting in a national strategy for VET/PET, with an important role assigned to the creation of a research network and a knowledge base. This research strategy has been built up since year 2000, with funding from the CTI (Commission for Technology and Innovation). The creation of the Leading Houses³ also began that year. Since 2004 the funds for the research programmes come from the OPET, to which the CTI now belongs.

OPET has used its role as mediator *vis-à-vis* cantonal and local governments, professional organisations and the labour market to create the conditions for promoting and sustaining innovation in VET/PET. In essence, these conditions, which do not exist in the schools sector, are the following:

- the regulatory capacity to endorse the renewal of VET/PET programmes as a result of a continuous dialogue with professional organisations; the renewal of the programmes can be seen in this context as a major systemic innovation occurring every four years or so in each of the 250 regulated professions;
- a national strategy to promote research in VET/PET, both as a means to assist in policy-making and to improve the quality of the VET/PET provision; and
- a dedicated programme to sustain bottom-up innovations on the basis of a yearly open call.

The last point deserves some more detail insofar as it clearly demonstrates that the Swiss system leaves plenty of room for bottom-up innovations within the VET/PET system. This is an important point because it exemplifies how a comprehensive policy towards innovation can sustain both systemic innovations and discrete innovations, thus creating the right atmosphere by way of rewarding innovation.

Synergies between research and development in VET/PET

Although policies to sustain local developments and discrete innovations are not considered in this report, it is worth to mention that the Federal Administration provides project grants aimed at promoting them. As it can see in the table below, the budget for VET development projects and other activities that serve the public interest totalled CHF 200 million for the period running from 2004 to 2007⁴. Payments amounted to nearly CHF 129 million, which roughly corresponds to 65% of the total budget allotted. Unfortunately, there are no comparable figures from other OECD countries but in view of the size of the Swiss VET/PET system this level of financial commitment appears to be rather high.

3. See the section of this report devoted to Case Study 3. The Leading Houses.

4. For examples of funded projects see:
<http://www.bbt.admin.ch/themen/berufsbildung/00102/00526/index.html?lang=de>

Table 2. Budget for project development and other activities 2004-2007

	2004	2005	2006	2007	Total
Budget in CHF	49,250,000	45,000,000	57,000,000	48,510,000	199,760,000
Payments in CHF	20,500,000	31,600,000	39,800,000	36,700,000	128,600,000
Usage of budget in CHF %	42%	70%	70%	76%	64.4%

Source : OPET, 2008

On the whole it can be said that the policy context for promoting systemic innovation in the Swiss VET/PET system is sharply different from the one found in the schools sector, because two important pieces are in place: a policy body with nationwide responsibilities and coverage, the OPET, and a dedicated national budget, which allows OPET to lay down a set of national priorities in VET/PET research and innovation and development.

In this respect, what makes the Swiss system somehow unique in its approach to innovation in VET/PET is the simultaneous emphasis on research and development. Both research, mostly carried out in the Leading Houses (see Case 3 below), and development activities are expected to provide answers to critical questions either related to policy-making or to practice. These critical or fundamental questions correspond to the policy priorities which emerge from the analysis of the country's current and emerging needs in VET/PET. The accompanying Box enumerates the basic questions addressed throughout 2004-2007.

Box 1. Basic questions for VET/PET research and development (2004-2007). (Source: OPET, 2008.)

1. Measures to correct imbalances on the apprenticeship market

- How are the various private and public sector initiatives coordinated?
- How are last-minute initiatives on the apprenticeship market handled?
- How can the various career fairs be taken into account?
- How can we encourage greater acceptance of young people with difficulties in VET programmes?

2. Use of education models in VET programmes

- What funding can be given to the cantons to help them in their efforts to plan basic VET programmes?
- How do you ensure that students finishing lower secondary level education are prepared to handle course subjects taught in upper secondary level education? What tools are used to assess individual skills and performance?
- How can competitive distortions be avoided on the apprenticeship market?
- Should special training courses be set up for people with disabilities?

3. Higher VET programmes

- Are subsidised translations in the area of higher VET programmes justified?

4. Support given to associated partners

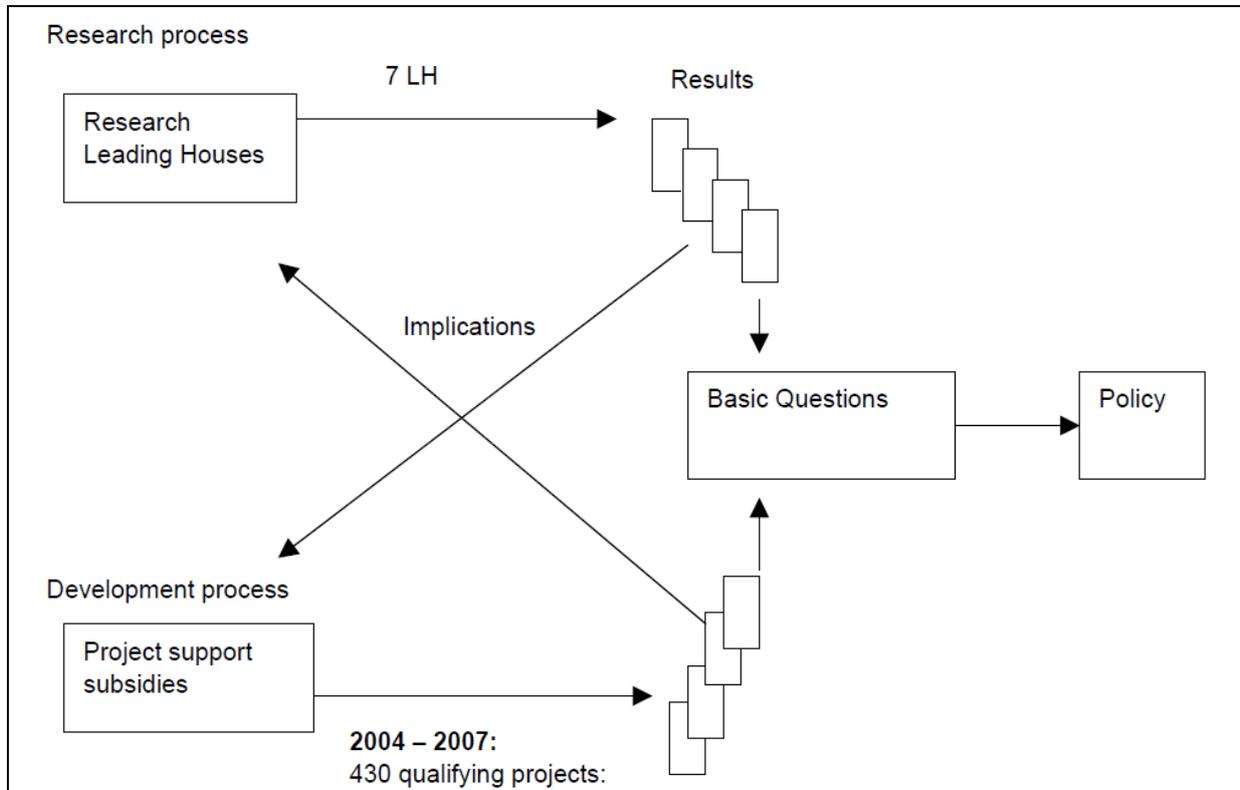
- What amount of funding should be used to create sustainable structures in new VET branches?

5. Additional topics:

- How can sustainable growth of the VET system be assured?
- To what extent do efforts to develop basic skills and qualifications of adults fall under the scope of application of the VET Act?
- How can the sustainability of projects be assured?

The figure below depicts the Swiss model of innovation policy in VET/PET and the assumed interactions between its components. At least in theory it is expected that the simultaneous emphasis on research on the one hand and development on the other will generate synergies and will influence each other. In a different way, it is also expected that the model will contribute to foster the links between the research and the practitioner communities in VET/PET.

Figure 3. The Swiss model of research and development in VET/PET



Source : OPET, 2008.

THE CASE STUDIES

This section separately presents the background information as well as the assessment of the conditions regarding systemic innovation that were found in the three case studies. The structure of each of the case study reports is the same. First, it presents a minimum amount of background information intended to describe the case to an external reader. Second, the importance of each particular case in relation to the Swiss VET/PET context is highlighted. Third, the report addresses these main research questions:

- What was the process for identifying key areas for innovation and who was involved?
- How were bridges between stakeholders brokered to allow for exchange of knowledge and practice?
- What were the principal knowledge sources and types drawn on in preparing the innovation?
- How was the process of innovation development implemented?
- How was the process scaled up (e.g. from local to national/regional level)?
- What were the criteria used for evaluating the innovation, and how were these applied?
- What were the positive and negative lessons learned, with respect to both process and outcomes?

Finally, the case studies lead to some lessons learned particularly in the domain of the processes of innovation in VET/PET and its systemic implications.

Case Study 1: VET Case Management

Background

VET Case Management is a new Swiss initiative targeting young people at risk of dropping out of school and/or becoming unemployed. The project consists in the introduction of a case management model to aid the transition of academically weak or socially disadvantaged young people from lower to upper secondary education. The intervention will target students during their second year of Lower secondary level and continue until completion of their VET programme (Upper secondary level). There are two characteristics of this particular application of a Case Management model that distinguish it from other projects using a similar approach: i) it applies to the transition period from Lower to Upper secondary Level 2, and ii) it is preventive rather than reactive in its aims. The goal is to identify the young people at risk and support them during their transition to VET before they drop-out or become unemployed. This distinguishes it from other examples of Case management projects, in sectors such as health, which intervene only when problems arise.

The VET Case Management model will not be introducing any new administrative structures. Rather, one of its main innovative features is that it is designed to make better and more efficient use of existing services and structures by ensuring that there is better co-ordination among them. As soon as a young person is identified as being at risk of dropping out of school the service will be activated; this will consist in appointing a case manager to work with the young person, who will ensure that appropriate measures are taken, in collaboration with all relevant services – career guidance, mentoring, counselling, housing services, etc - and the young person him/ or herself. It is important therefore to emphasise that the case manager does not work directly with a student in a ‘mentoring’ or ‘coaching’ capacity; their role is rather that of a manager or co-ordinator of the whole process.

Importance in the context of national VET/PET Policy

As said, this innovation is intended to deal with young people finishing their compulsory education who, according to pre-established criteria, may be at risk of not entering either the labour market or the VET/PET system. The precise criteria vary from canton to canton, however they include indicators such as absenteeism levels, health problems, drug-related issues etc. It is currently estimated that every year a cohort of 2000 to 2500 students coming out of Lower secondary level education (i.e., end of compulsory education) fall into this category. This amounts to approximately 2.5% to 3% of all students who have reached the age when compulsory education is completed

The Process of initiating/designing the innovation

The process of introducing the Case Management model started in November 2006 following an initiative by the Federal Office for Professional Education and Technology (OPET), in collaboration with the cantons. The National Apprenticeship Conference, a political body that meets annually and consists of the Head of the Federal Department of Economic Affairs and the chief representatives from other VET/PET and social partners, drew up a policy document on the implementation of the VET Case Management model. This was subsequently agreed upon in early 2007. The cantons then had to submit their implementation plans to OPET by mid-2007. 25 out of 26 cantons submitted appropriate plans and agreed to move forward with the implementation of the project; the 26th canton decided not to introduce the project because, due to its small size and low number of potentially eligible young people, it did not consider it cost-efficient. It is expected that Case Management will be operational in several cantons at the end of 2008.

Funding for the initiative is provided jointly by the Confederation and the cantons. The annual costs for the whole country are estimated to be CHF 14 million. The Confederation will provide CHF 8 million during the first year, and its contribution will progressively decrease over a four-year period; it is expected that at the end of this period the cantons will bear the full financial costs of the project.

It is clear from the description above that this was a top-down driven process with OPET playing a central role in its conception and design, although there was of course consultation with other stakeholders. Interestingly, the reform of Basic Commercial Training⁵ reflects a bottom-up approach which is in itself a true indication of how OPET pays attention to initiatives urged by stakeholders. The issue is also further discussed in the final sections in overall conclusions and recommendations.

Use of the knowledge base

The question of how to ensure an adequate and sufficient flow of information during the process of policy reform is extremely challenging. There are questions concerning who is considered qualified and reliable enough to provide the information, and the types of information which are considered useful and

5. See below the section of this report devoted to Case Study 2.

relevant to decision makers. The role of different knowledge sources (*e.g.* formal/academic, semi-formal, popular/media knowledge, general tacit knowledge) in identifying and developing innovation policy is an essential component to the understanding of the processes underlying systemic innovation.

Both formal and informal types of knowledge were used during the initial phases of designing the project. In the spring of 2006 OPET commissioned a study to analyse cantonal strategies, responsibilities and processes in relation to transition from Lower to Upper secondary level education as well as to provide recommendations on how the situation could be improved. The study found that between 2.5 and 3% of young people finishing compulsory education each year find it difficult to make this transition to Upper secondary level. The 2.5% cut-off point for those eligible for the Case Management service is therefore based on the results of this survey. This piece of commissioned research and the formal knowledge it generated therefore contributed to the decision to introduce a scheme that would address the issue of young people dropping out at Lower secondary level.

However, according to the stakeholders at cantonal level that the team met during the country visit, it appears that to a large extent the development of the Case Management project was not based on any formal, systematic research either on the situation and needs of these young people in transition or on effective ways of tackling their problems. Instead, the origins of the project lay partly in the well-known facts regarding the rising welfare costs as a result of the rising number of young unemployed people and ideas and knowledge shared by practitioners in the field, notably regarding the fact that a better co-ordination of different services, such as career, housing or drug-use advice or counselling could have a positive impact on their educational outcomes. To some extent, therefore, the initiative could be seen as a response to informal knowledge of the situation shared by professionals and practitioners in the field.

Two conferences were organised to assist cantons with drafting their implementation plans. They also provided good opportunities for exchanging knowledge and experience in the area, thus maximising the impact of informal professional knowledge already existing on the ground. An internet platform was also created where cantonal implementation plans were uploaded and could therefore be consulted by and shared between all interested stakeholders.

The concept of Case Management itself has already been in use in the health and social welfare sector for some time; there also exist higher education courses in this discipline. This is the first time, however, that it was decided to apply it in the domain of education, and particularly VET. Cantons could therefore also draw on this body of knowledge when preparing and drafting their implementation plans. However, it is not clear to what extent this happened and whether it was done in any systematic fashion (for example through formal literature reviews or seminars with academics or practitioners in the field). Our view is that this may have happened in a number of cantons, but in an unsystematic way. In fact, a canton official involved in the implementation of the project mentioned that there were no available resources for this kind of work. It is therefore difficult to assess to what extent such academic knowledge that exists in the field actually informed the drafting of the cantonal implementation plans. In addition, we did not find any evidence of relevant international research being used to inform the implementation plans of the cantons.

Implementation

Cantons are responsible for their own implementation strategies of Case Management and so the project may differ from canton to canton. For example, different cantons will have different systems in place regarding the profile of people undertaking the role of case managers: bigger cantons will probably create new, designated case manager roles; in smaller ones the role may be undertaken by other professionals, such as career advisers.

Despite the fact that cantons have a certain degree of independence regarding the implementation of the project, they have to fulfil a certain set of criteria established by the federal authorities of OPET. In

fact, receiving OPET's annual funding contribution for the project –as described above- is subject to the cantons' fulfilment of four criteria or milestones which are described in some detail in the next section.

The latter feature also acts as an incentive to stakeholders in individual cantons for ensuring the successful implementation of the system, not only because funding is subject to outcomes, but also because it creates a certain degree of competition between cantons. In other words, each canton is more likely to try to implement the project successfully and to fulfil the federally-set criteria so as not to appear to be lagging behind other cantons in the country. Another incentive pointed out by cantonal officials is the knowledge that, if successful, the scheme will reduce welfare costs due to high drop-out levels in the long term and therefore save money, time and resources.

A challenge regarding the successful implementation of the project raised by stakeholders was that of data protection issues: at the moment, cantonal authorities are not allowed to use young people's personal data unless they have received explicit authorisation from the young person him/herself. This will make it difficult to communicate with the young people who drop-out of the system if the latter have not given their permission for their data to be accessed and used. It was not clear to the expert team how cantons and/or the Confederation are proposing to deal with this potential risk.

Another challenge mentioned by stakeholders is the risk of resistance to the project by professionals in the field. This could be a result of two factors: i) concern regarding their own role and responsibilities given a new context and ii) general innovation fatigue. It is especially difficult for us to comment on this aspect in particular, as we did not have the opportunity to meet and talk with representatives of these professional groups during the visits.

Monitoring and evaluation

As explained above, ongoing monitoring of the implementation process will be carried out by the Confederation, who will only continue to fund the cantons if certain criteria have been met. Funding will be released in four instalments, subject to the cantons' fulfilment of each of the following four criteria or milestones, set by OPET:

1. All cantons are required to issue a Cantonal Council Decree and a Statement of Commitment formalising their political resolve that departments and institutions will work together on the VET Case Management Programme. The Statement of Commitment must also indicate how cooperation between departments and institutions is to be organised, with all agencies working with 13-24 year-olds involved. Once the Cantonal Council Decree and Statement of Commitment have been issued, the OPET project manager will meet with the person in charge of case management in each Canton. This will be a kick-off meeting where information and knowledge is exchanged and decisions are reached regarding implementation.
2. The second milestone involves the establishment of a detailed implementation plan as well as the minimum requirements for implementation. Decisions must be reached concerning who will be responsible for the VET Case Management Programme. Case managers and coaches must be given job specifications describing their respective tasks and competences. The responsibilities of the various agencies must also be established. Cooperation between the various institutions must take place through a coordination platform and cooperative ties must be formalised on the basis of a cooperation agreement, coordination processes, operational processes, etc. Decisions must also be reached regarding what key data will be used for subsequent assessment and how these data will be gathered. Finally, a detailed estimation of costs must also be submitted.
3. The third milestone concerns data collection and management. All institutions involved in the VET Case Management Programme must use the same tool to identify high-risk groups and must

decide what diagnostic processes will be implemented. Continuous monitoring and assistance must be provided to young people placed on the VET Case Management Programme. Process cycles, coordination and cooperation between specialists will begin to emerge at this stage. A progress report must be drafted describing how data are gathered and how high-risk groups are diagnosed, monitored and helped, together with an estimation of costs.

4. The final milestone involves the completion of an impact study which will determine whether (i) the VET Case Management Programme handles actual cases, (ii) information can be gathered concerning high-risk groups, (iii) the agreement on objectives and the case-specific measures taken have actually improved the situation of the young people concerned, (iv) services are coordinated and coherent with one another. Initially, cantonal concepts and implementation variants should be submitted for assessment at the national level. An assessment of both output and impact will then be carried out. This assessment should be carried out primarily by the Cantons. Finally, each of the Cantons must submit final accounts showing the actual costs incurred.

Five working groups have been established to deal with five issues related to the implementation and monitoring process: software for data management; profile of the case managers; training for case managers; financing; and evaluation. It is thought that this approach to monitoring gives all stakeholders the opportunity to be actively involved in the project throughout the process rather than creating the feeling that OPET is the main driving and decision-making agent in the scheme.

In addition to this ongoing monitoring process, an overall evaluation of the whole scheme has been planned to take place in four years time by an external agency and following a tendering exercise. It is anticipated that the evaluation will assess the effectiveness and impact of the scheme, although precise criteria for this have not yet been formulated. It is possible that the evaluation project may be undertaken by one of the Leading Houses – see Case Study 3 below.

Lessons learned

The Case Management model is an interesting new approach to addressing the issue of young people making the transition from lower to upper secondary education. This is particularly impressive in the current context of a booming economy in Switzerland, demonstrating the Swiss government's commitment to improving the education and employment chances of all young people, including the most disadvantaged or at risk ones. Despite the fact that the Case Management model as such is not new, this is the first time that is being applied in the educational sector in Switzerland. In addition, the approach here is rather different, in the sense that it aims at being preventive rather than reactive in its focus, an innovative feature that distinguishes it from applications of the model in other areas of the public sector.

As outlined above, the programme made use of one specially commissioned research study in order to establish the percentage of young people that would mostly benefit from it. Informal knowledge, mostly shared by networks of professionals on the ground, was also used during its design and is still being used as implementation of the project is underway. We think, however, that the use of relevant research in a more systematic way may have benefited the design and implementation of the project. In particular, we thought that the project may have benefited from drawing on non-VET/PET/employment-related research, by taking into account relevant research and findings from the fields of, for example, education or psychology. For instance, why was the end of lower secondary education chosen as the time to start the interventions, rather than an earlier stage of the young person's development and school career? Examining the relevant literature in the field of child development for example may have helped to answer this question and establish the optimal age for what is meant to be a preventive intervention.

Related to the point above, it was not always obvious to the team why VET/PET -related experts and policy makers were the main drivers of the project. We understand that a number of risk factors will be considered when assessing and identifying the young people to be assigned a case manager, including family-related ones, drug or alcohol problems, or housing problems. These are all very important and may certainly affect a young person's educational performance and outcomes; however, their link to VET/PET -related policies is not immediately clear. Once more, we think that the project could have benefited from engaging a more diverse range of stakeholders during its design phase.

Two important stakeholders that have had so far minimal engagement with the project are the social partners and the trade unions. We believe that early engagement of employer and trade union representatives is crucial, as they are the ones who are going to work with the young people having experienced the Case Management approach. Although their specific role in the design and implementation phases of the project may not be particularly obvious – as little of it has to do with employment or training issues as such, as discussed above – their involvement is still important for two reasons: i) in order to raise awareness of the project and ensure their understanding of and support for it and ii) in order to ensure that their own experiences, knowledge and points of use are being used as far as possible. We therefore recommend that they are invited to participate more actively in subsequent stages of the project.

It was mentioned above, that the team did not have the opportunity to meet with all relevant stakeholders during the visit – this was partly due to the very tight schedule. We think we would have gained from talking to professionals such as social workers, teachers or career advisers who have direct, first-hand experience of the young people in question and would be involved directly in the Case Management programme once it is implemented. One particular aspect that would have been interesting to explore with these professionals is their view of how their role may change as a result, as well as their expectations or concerns regarding the programme. This is particularly so since we heard from cantonal officials that some of them have already voiced concerns and demonstrated a certain amount of resistance to it.

Case Study 2: The reform of Basic Commercial Training

Background

Basic commercial training is a vocational pathway that annually prepares 30.000 young people to enter the job market in trade and commerce related occupations. This training lasts for 3 years and is a “sandwich” or dual pathway consisting of in-company training in a company (three to four days a week) as well as school attendance (one to two days a week). It takes place just after compulsory schooling.

The decision to reform basic commercial training was initiated at the demand of companies which perceived previous teaching methods to be too scholastic and deemed that students were not being trained according to their professional needs. Even if the reform itself was formalized by the government, it can be considered as a bottom-up approach since it was required by companies. More specifically, companies believed that the following had to be done:

- Companies wanted to be more involved in defining the type of training needed in order to improve the employability of students.
- The link between companies and schools had to be strengthened
- What the students learn at school should be truly applied (and applicable) to their work in companies
- More weight should be given to what the students actually learn in the company itself.

The new basic commercial training programme -which is now more “competence oriented”-allows apprentices to understand the complexity of working processes in their companies and encourages a business process thinking as well as the networking approach. The knowledge and skills which apprentices acquire should promote lifelong learning as well as a flexible understanding of occupations in the commercial sector. The new system applies a digressive school model, according to which during the first two years of their curriculum students must spend 3 days in a company and two days in school per week. Then, the third year the students must spend 4 days a week in a company and 1 day in school. This will largely improve the students’ productivity in the workplace. Through a digressive school model, productivity in the workplace can be improved year by year.

Basic commercial training covers 23 different areas of specialisation, or “sectors” which include banks, retail, and public administration. In addition to sector-specific attribution outcomes, apprentices acquire the basic skills and knowledge to enable them to be highly efficient in their professional field. The 23 different sectors agree upon performance targets for every learning site and have thus defined the core syllabus for the training and its specificities, clarifying the objectives to be obtained in school and in the work place and also the programmes to be followed on the different sites. As a result, the mobility of trained commercial staff within their given field should be significantly increased.

As a result of this reform, the most important part of the commercial sector have joined forces to form the interest group *basic commercial training (Interessengemeinschaft Kaufmännische Grundbildung-IGKG)* which represents the interests of companies which do not belong to any specific economic sector. The various parties involved in the reform are integrated in the process from the outset. As previously outlined, the responsibility for VET/PET is jointly shared by the Confederation, Cantons and professional organisations. During the six-year pilot phase these partners met several times a year to exchange information, provide updates and introduce any necessary changes.

The OPET was in charge of coordinating and managing the basic commercial training reform project. Cantonal and social representatives were also involved in the project management, offering advice and assistance during the decision-making process.

The reform of basic commercial training was funded jointly by the VET/PET partners (Confederation, Cantons and professional organisations). The Confederation primarily covered development and project management costs. The other partners covered the costs arising from the pilot admission of apprentices, sector-specific adjustments and the nationwide implementation of the reform.

Importance in the context of national VET/PET Policy

Representatives from the business world were the initiators of the new design of the Swiss basic commercial training programme. Specialists from several companies defined the standards which should be met by future commercial employees, while academic experts identified the influencing factors highlighted in the research and developed corresponding treatments. Because scientists and practitioners did not always agree on the theoretical bases and practical feasibility, both sides reached a negotiated agreement in an inclusive manner.

Following the reform, performance targets for both the theoretical training and the training in the firms are established. It is thus clear to apprentices which part will be taught by the company and which part by the vocational school. The acquisition of technical, social and method-related skills, which are inter-related, ensures that basic commercial training graduates can adequately meet the needs of today’s job market and work productively in this occupational field. Knowledge and skills are based on lifelong learning as well as willingness to approach commercial employees’ tasks from a flexible angle.

The Process of initiating/designing the innovation

Business process thinking – and the associated networked thinking – is systematically integrated in school lessons and in-company training. By being aware of and recognising and understanding business processes, apprentices receive practical training which will be instrumental in the future success of any type of business. This is an innovative way of implementing this process in that it features:

- a “bottom-up” approach (since the reform has been initiated by firms themselves) and, a top – down approach (since the project was formalised by the OPET);
- a quality process – analysis, shared objectives, tests, experimentation, constant ameliorations, consultation, generalization; and
- a shared project managed by companies, schools, universities, cantons, and the federal level.

The new commercial training programme includes several learning innovations carried out in all learning places, at the company level and at the vocational school level with the following goals:

- to promote working processes based on target agreements (working and learning situations),
- to promote autonomy and “process thinking “ or “process–driven thinking”,
- to encourage self-reflection thanks to the course journal,
- to introduce knowledge and skills in companies and in sectoral training centres thanks to inter-company courses),
- to put learning into action from the start of the training of apprentices thanks to the basic courses,
- to help to interlink and continue individual aspects of the learning material thanks to the training units,
- to promote the use of the technical, social and methodological skills acquired during training thanks to the development of independent work.

As already mentioned, the new basic commercial training programme is built around a digressive model, i.e. the number of courses carried out by the vocational school will be gradually reduced over the three years’ training. For this reason the apprentices are “most valuable” for their company (highest productivity) in their third year of training.

Use of the knowledge base

By the end of the 1990s regulations governing basic commercial training (developed in 1986) were out-dated, at least according to the views expressed by professional organisations and companies during the visits. A study commissioned in 1994 analysed three main problem areas: the education and training attendance at school, new qualification requirements as well as the organisation of professional in-company training, and the divergence between actual training and labour market requirements. In 1997, companies felt that VET programmes for commercial professionals needed to be reformed:

- to improve apprentice employability;
- to improve coordination between vocational schools and host companies;

- to implement more effectively the training from vocational schools in the companies; and
- to give greater weight to skills acquired in the companies.

A study by the University of Zurich in 1998 also highlighted the inadequacy of basic commercial training. As the result of sweeping globalisation, technological change and a modern knowledge-driven society, vocational education and training, particularly in the service sector, needed to be adapted.

Implementation

The reform was implemented according to a simultaneous engineering process. This meant that new training provisions were simultaneously developed and put to test as part of a broad-based, scientifically monitored pilot trial involving two cohorts. Participants included 12 cantons, 16 vocational schools, and 15 different commerce sectors. Overall, around 2,000 people took part in the pilot process, including apprentices.

In 1996, the OPET implemented a task force to draw up initial reform proposals based on the findings of a qualitative survey of basic commercial training. In 1997, the VET/PET partners (Confederation, Cantons and professional organisations) agreed on what would constitute the cornerstones of any future reform of basic commercial training. In 1998, as part of the test pilot, the first cohort (consisting of around 150 apprentices and their training host companies, four commercial training schools and the relevant cantonal VET/PET offices) embarked on the new basic commercial training programme. The first apprentice cohort finished the training in 2001. In 1999, thanks to the solid foundations laid by its predecessor, the second cohort (1999-2002) which consisted of around 750 apprentices in 400 companies, embarked on the new basic vocational training programme. The project management team held several seminars to gradually introduce participants to the new features of basic commercial training. In autumn 2001, the findings from the pilot phase were collected and evaluated. On that basis, the provisional enacting decree, the catalogue of performance targets as well the various implementation rules and codes of practice were adapted.

The complex preliminary work prior to nationwide implementation (2003) was undertaken at all levels to ensure that the relevant cantonal parties, host companies and vocational schools were ready for the introduction of the new programme. The project was subject to federal consultation in early 2002. Finally, in January 2003, the basic commercial training reform entered into force, and by late summer, all first-year commercial courses throughout the country had adopted the programme.

Due to implementation difficulties with the nationwide introduction of the reform, mainly because of unrealistically high expectations of certain schools and companies, a task force was created that included representatives from the Confederation, the cantons, and the professional organisations, as well as a number of common interest groups. This task force, governed by OPET, proposed measures to companies regarding training obligations towards their apprentices, while still ensuring that the training given to apprentices was of the highest quality. These measures came into force in September 2006.

Before that year, thousands of vocational trainers at host companies as well as vocational teachers at vocational schools had to receive the necessary training to become prepared for the change-over to a new basic commercial training design. All in all, around 100,000 people were involved in the implementation of basic commercial training: vocational trainers, apprentices, vocational teachers, school directors, cantonal representatives, sector representatives, and instructors for inter-company training courses, examination commission experts as well as those responsible of the management of this reform.

Managing such a reform was particularly challenging because not only the general conditions specific to each of the sectors and to the host companies (from the smallest to the largest) had to be taken into

account, but also the three linguistic and culturally distinct regions of Switzerland and the autonomy of the 26 cantons. The implementation project also had to include all apprenticeship sub-processes –the actual training of apprentices, apprentice masters, vocational school teaching staff, inter-company training course leaders, examination experts, and professional association leaders.

Monitoring

The evaluation of the pilot phase was conducted by the *Zentrum für Emprische Pädagogische Forschung* of the University of Koblenz-Landau (Germany) in cooperation with the *Service de la Recherche en Education* in Geneva/Switzerland (SRED) at the request of OPET. Evaluations of the pilot cohorts and of a control group were conducted at several different time intervals, through a survey done with trainers, training managers in companies and apprentices.

Several evaluation priorities were defined and addressed with the aid of the corresponding content and recognised methods: evaluation of needs and expectations, a review of how well the reform requirements were met, and a study of its impact and acceptance. It should be noted that the evaluation always examined the reform as a whole as well as its individual innovative features. As a result, the weaknesses and strengths of the new basic commercial training were identified. The resulting adjustments were made before the reform was fully implemented.

To ensure that the evaluation was properly conducted, various groups of stakeholders were included, in particular, vocational school apprentices, vocational trainers at host companies, as well as representatives from professional organisations and from the cantons.

The performance targets for the host companies, vocational schools and inter-company courses were harmonised and formulated according to the same rules. Thus, these were clear for all partners involved. With the introduction of new VET/PET legislation, these principles are now being applied across the board to all professions.

Evaluation

The main evaluation of this report dealt with three central fields, namely the acceptance, feasibility and effectiveness of the individual innovation and processes that form the backbone of this reform. Those responsible for vocational training in companies and in schools, the vocational schools and apprentices consider that the new basic commercial training programme prepares apprentices adequately for their future professional life by promoting lifelong learning, the acceptance of responsibility and the handling of complex tasks.

In addition in 2007 a cost-benefit analysis was published based on 2004 data. The analysis was carried out by the University of Bern, one of the Leading Houses⁶. This study also looked at the economic impact of the reform, especially for the firms involved in apprenticeship. Apparently, it showed that the reform led to a rise in the costs for the first two years of training, but the overall evaluation was positive since the benefits finally outweighed the costs. Indeed, according to projected data on the third year of training, firms could expect greater benefits, which would largely compensate for the higher training costs they incurred earlier due to the reform. The main reason for this is that, as mentioned earlier, the productivity of the apprentices rises during the third year of the apprenticeship pathway.

6. See below the section devoted to Case Study 3. The Leading Houses.

Lessons learned

Every 3 to 5 years a quality and professional development commission will review the relevance of the performance targets and will recommend any necessary changes in order for the educational content of the training programme to better match the requirements expected in the companies.

Cooperation between “partners” (Confederation, cantons and professional organisations) has been strengthened and now follows a set of standardised rules. The interest group basic commercial training (IGKG) was the first professional organisation to be specially set up to safeguard basic training interests.

The reform of basic commercial training has had an important impact on all vocational training decrees and on the steering of the VET/PET system as a whole (new VET/PET legislation). Its principles are now applied across all professions after the setting up of the new VET/PET legislation.

For the first time, the evaluation procedure was conducted throughout the duration of both the apprenticeship at host companies and the classes taught at vocational schools. The aim was to report the progress made by the apprentice and to ensure that the principle of “day-to-day work pays” would become an integral element of the test procedure. The combination of apprenticeship (skills) and school exams (knowledge) has now been adopted by most other professions.

Since it constituted a pilot project on the simultaneous engineering of vocational reforms, the entire process, including the evaluation, was reported for the benefit of the public.

Implementation of such a reform goes against multiple opposition in the companies particularly in SMEs (evaluation of apprentices, etc.) and in the schools, especially amongst teachers. It is advisable to associate various stakeholders (vocational education and training, seminars, working groups) throughout the process and to communicate a lot at all levels.

The next step towards to further improve the basic commercial training could be the development of greater individualization of vocational training using, for instance, more intensive e-learning opportunities. Furthermore, greater emphasis needs to be put on the valuable experience gained in the workplace, as well as on the link between the initial training of young people and the continuous training of adults.

Case Study 3: The Leading Houses

The Swiss Leading Houses represent a unique and innovative approach to coordinating at a national level the research efforts on VET/PET and making them responsive to the country’s needs and priorities in this domain. They are designated centres of expertise, located in universities, whose main mission is to build a competence network to conduct research on their own account, grant research contracts and promote young research talent, while being well connected internationally. Their priorities come from OPET, their principal funder, which sets them according to the perceived needs of the VET/PET system, mostly as an input to mid and long-term policy making in this sector.

Background

Leading Houses are in charge of the OPET programme to promote VET/PET research in a sustainable way and with a mid and long-term horizon. The aim of the programme is to examine the major issues in relation to the needs of the VET/PET system and to provide research evidence in order to facilitate policy making and improve the overall quality of the system.

Leading houses develop a thematic area of relevance for vocational education and training. Aside from conducting research, their main tasks are the promotion of young researchers, keeping abreast of the

state-of-the-art in the field, and networking with other national or international institutions or researchers active in the same area. Every VET/PET research priority is linked to one or several chairs at Swiss third-level institutions, and defined by a temporary service agreement with the OPET. The holder of the chair is responsible for the content and scientific quality of his or her research priority. The aim is to fill conceptual gaps and meet the needs of VET/PET policy and practice.

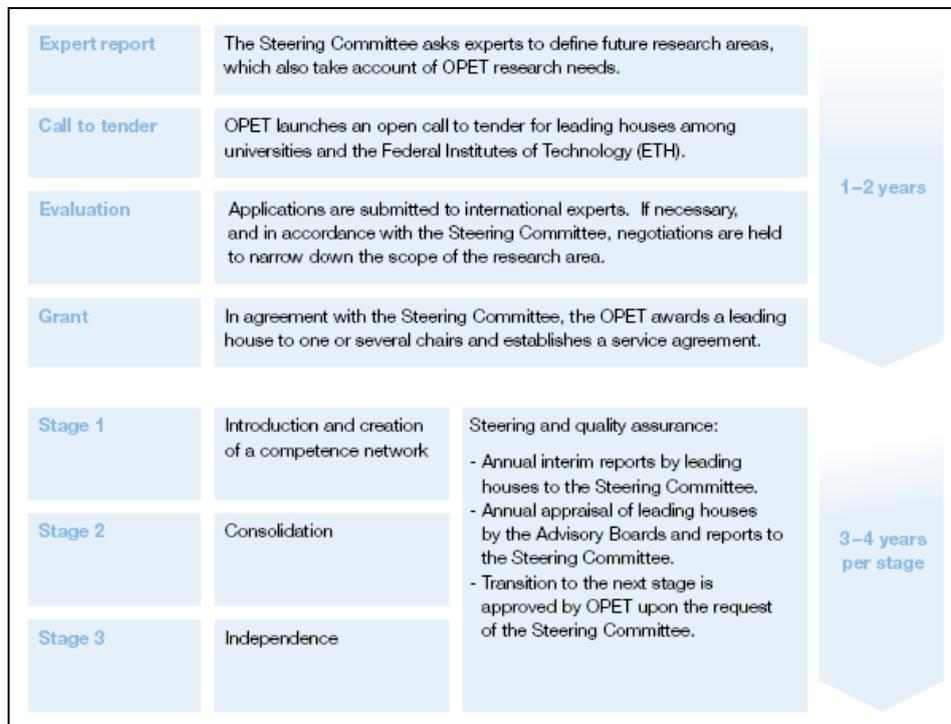
The research projects also serve to promote young researchers. For this reason, only third-level institutions which confer doctorates can be given leading house status. Conferences and doctoral student programmes provide young researchers with valuable opportunities to discuss questions and findings with experts. The long-term aim of leading houses is to develop sustainable VET/PET research and thus boost existing research capabilities. By achieving a critical mass, the intention is that a research tradition should firmly take root. Leading houses should also provide incentives for the creation of lectureships as well as serve as a stepping stone in the creation of research posts within the Swiss Federal Institute for Vocational Education and Training (*Eidgenössisches Hochschulinstitut für Berufsbildung*, EHB) and other VET/PET institutions.

Organisationally, Leading Houses are grouped into research priorities which are then subject to scientific investigation carried out by one or several academic chairs. There are currently six research priorities, which have led to the establishment of five Leading Houses throughout the country since 2003. The six priorities are:

- Quality of vocational education
- Social competences
- Learning strategies
- Technologies for vocational education
- Economics of vocational education
- VET/PET systems and processes –although this one has not yet been created due to the lack of quality in the tenders received by OPET thus far.

The attached figure describes the process used to create a Leading House, from the definition of the research priorities to the consolidation phase. On the whole the entire process is expected to take around ten to fifteen years, if not more.

Figure 4. The process of creating a Leading House.



Source : OPET, 2008.

Importance in the context of national VET/PET policy

The importance of the Leading Houses has to be seen against the assumption, taken for granted by OPET, that research can make a significant contribution to the improvement of the VET/PET system, mostly by informing the policy process and also educational practices. On the whole, the initial idea was to establish a broader scientific foundation for VET/PET policies in the medium term. In the long term the objective was to consolidate and expand national and structural research capabilities.

The resulting model is viewed by many actors as an example of effective knowledge management in education at a national level. This is particularly relevant in a country where most of the responsibilities in education lie in the hands of the cantons and where the Federation has been struggling to foster better coordination in this domain to cope with the challenges posed by internationalisation. The Leading Houses in VET/PET research represent an interesting innovation intended to have a system-wide effect. The pending evaluation of the role played by the Leading Houses should be able to show how effective this model is and how it is influencing basic and applied research in this particular educational field.

As an indication of the political importance attached to Leading Houses, a budget of CHF 20 million has been set for VET/PET research for the 2008–2011 period. Around three quarters is earmarked for the research priorities covered by the leading houses. The remaining quarter will go to individual projects and studies which are loosely linked to the leading house or independent of it.

The Process of initiating/designing the innovation

Shortly after its creation, OPET set up a commission to review the state of the art of research on VET/PET. The conclusions, published in 2000, pointed to the fact that until then VET/PET research had

contributed little to related policies, and tended to focus only on implementation and development issues at institutional level. The commission suggested that the main reason for this was that VET/PET -related issues had not been subject to systematic and comprehensive study at university level, while the studies which had been conducted failed to take account of the importance of the practical aspects of VET/PET. Moreover, the commission found that funding instruments such as the research programmes of the Swiss National Science Foundation and of scientific education research associations did not generate coherent and sustainable VET/PET research projects. The fostering of young researchers was also overlooked.

In this context, OPET decided to define up to twelve national research priorities on VET/PET. The overriding aim was to provide answers to research queries and to examine the content of VET/PET from an interdisciplinary point of view. In 2000, as a first step towards the implementation of the newly defined research strategy, the OPET established a team of scientific experts. Between 2000 and 2003 it was answerable to the Commission for Technology and Innovation (CTI) according to a traditional bottom-up approach. But it soon became apparent that the goal of identifying twelve research priorities was too ambitious, owing to a lack of institutional, financial and human resources. On the one hand the number of project proposals was disappointing. On the other hand and in addition, several proposals were refused on quality grounds. The Steering Committee thus undertook a new assessment, in which six major research priorities were established, based on the findings of the commission. These are the ones still in force (see previous section on the background of this case).

Use of the Knowledge Base

The realisation of the need for a research-based knowledge base can be seen as the starting point of this innovation. It was precisely the lack of an appropriate knowledge base that made OPET aware of the need for a nation-wide strategy to research VET/PET, with the aim of building a solid knowledge base, by means of engaging universities and federal institutes of technology in a prioritised and coordinated research strategy. One crucial element in all this was the expectation that the research conducted at national level would comply with standards set by the international research community in social sciences and be connected to the main international research centres and focus.

As mentioned above, the commission set up by OPET in 2000 made an assessment of the existing knowledge base which was considered at that time to be insufficient and partly unsuitable to the needs of the continuous development of the Swiss VET/PET system, particularly, but not only, from a policy perspective.

However, although it was very clear from the outset that Leading Houses were expected to fill the research gaps, respond to national needs and even explore new issues with a forward looking perspective, it remains to be seen whether a substantive and formalised knowledge base is finally built. Certainly, most Leading Houses have already produced a number of interesting research reports and publications, which can all be available through the corresponding websites. On the other hand, a series of books has been published under the title of *Swiss research on vocational education and training*, and a new international journal dedicated to research on VET/PET (Empirical Research in Vocational Education and Training) has recently been launched, thus allowing for increased opportunities for dissemination. Finally, the Swiss Federal Institute for Vocational Education and Training is expected to play a relevant role in the dissemination of the knowledge base arising from the work done in the Leading Houses.

At least in principle the Swiss Federal Institute for Vocational Education and Training (SFIVET), whose main responsibility is the training of VET/PET teachers with sites in Lausanne, Lugano and Zollikofen, is expected to forge links between research and practice. As an institution in charge of training VET/PET professionals, the Institute is primarily concerned with the dissemination of research findings and ensuring their practical application but has also a small research and development unit of its own. In 2007, the EHB was awarded university status. However, since it does not have the right to grant doctorates,

it can never become a Leading House. Research is undertaken as part of its Masters programme or by in-house researchers in collaboration with research units in the Leading Houses or other universities.

Implementation

The OPET together with its VET/PET Research Steering Committee defines the research priorities. However, the detailed formulation of research areas as well as project management is the responsibility of the individual Leading Houses.

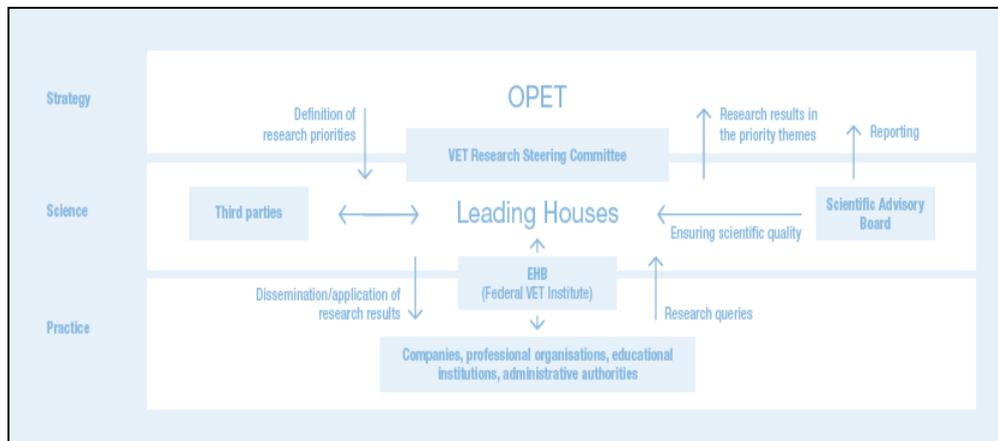
Monitoring

Monitoring of the Leading Houses is a continuous process run under the authority of the VET/PET Research Steering Committee. The OPET's VET/PET Research Steering Committee is an advisory body made up of experts from Switzerland and abroad and representatives of the administration. Its task is to ensure that the research being developed by each Leading House adheres to the defined research strategy and priorities. It also evaluates and monitors Leading Houses and other strategically relevant projects.

Also, in order to ensure the relevance and scientific quality of the research, an international advisory board is appointed to each Leading House. Its members are selected by the VET/PET Research Steering Committee based on proposals from the Leading Houses. The international advisory boards report on the quality of the research of each individual Leading House to the VET/PET Research Steering Committee.

As the attached figure shows, the network of the Leading Houses operates with a number of participants. First, OPET and its Research Steering Committee establish the research priorities. Once a particular Leading House has been designated its research plan and activities must be approved by its own Scientific Committee whose members will be appointed by OPET, on the basis of the suggestions made by the Leading Houses. The system also includes, under a compulsory mandate, third parties, whose role is to work closely with the Leading House either by providing research sites or opportunities, or additional funding. Finally, the Swiss Federal Institute for Vocational Education and Training, whose main role vis à vis the Leading Houses concerns the dissemination of results can also express views about the relevance of the work done and pose additional research questions.

Figure 5. Priority setting and monitoring of the Leading Houses.



Source : OPET, 2008.

The fact that one of the first Leading Houses was closed based on the appraisal made by the VET/PET Research Steering Committee could be seen as an indication of the relevance and importance of this monitoring process.

Evaluation

Individual leading houses must pass through three stages: Introduction – Consolidation – Independence. Each stage lasts three to four years. Before passing on to the next stage, an evaluation of present and future research activities must be undertaken. Also at this point, thought is given to whether a shift in focus within the given research priority is required as the result of possible recent developments or trends.

Having said this, no evaluation of the overall network of Leading Houses has taken place yet. So, the main question regarding their real impact, in terms of providing the required responses to national priorities, remains to be seen.

Lessons learned

A number of lessons emerge from this case study regarding research prioritisation, incentives for active stakeholder involvement, the connections between research and innovation, and the difficulties linked to the analysis of the impact of a systemic innovation such as the Leading Houses.

OPET is the main funder of research in VET/PET in Switzerland and, unlike other research funding instances in the country also operating in the education sector, it has been able to set up a coherent set of research priorities and to create a potentially successful strategy to generate an empirically-based knowledge base. In general terms, this position could raise some criticisms particularly of voices advocating for an absolute freedom for researchers. This position, which is perfectly valid in general terms, has its limits in the particular case of research on VET/PET in Switzerland, because it was found that no research on VET/PET was available at all –or, at least, research complying with the quality and relevance

criteria issued by OPET and its scientific committee. So, a first lesson is that research on VET/PET can be focused on national priorities, and this can be done in a way that is sustainable in the future by not only using seed money but by putting in place a number of operational requirements ranging from a clear networking vocation to an investment in the training of the younger generations of researchers.

A second lesson is that, even in a sector such as VET/PET which lacks a research tradition, adequate incentives attract relevant partners. In this case, two powerful incentives were used to get an adequate response from the universities: financing and international visibility. Needless to say, the amount of funding opportunities available for the Leading Houses is impressive enough to motivate Swiss university chairs to enter, sometimes for the first time, the domain of VET/PET research. Second, the structure of the Leading Houses system also provides excellent opportunities for international networking, both for the dissemination of the results and for obtaining advice from the most prestigious academics in the field worldwide. Attracting the universities is the very first step, but the question is how to engage professional organisations, which are relevant and active in the field, to actively participate in the Leading Houses system. It can be argued that their expressions of interest are in fact channelled through the OPET, but, even so, the importance of professional organisations and social partners in VET/PET is such, particularly in a country with a dual system, that they should be invited to play a relevant role in the research system.

An issue which remains unclear, in Switzerland as in many other countries in the field of VET/PET and in education in general, is the connection between research efforts and actual innovation. The lesson here is precisely how difficult such a connection seems to be. The Swiss approach to research on VET/PET certainly deserves international attention, but it would be advisable to also explore ways in which nationally funded research can have an impact on educational innovations, particularly in areas related to teaching and learning. It is true that this is the aspiration of two Leading Houses, “Learning strategies” and “Quality of vocational education”, which focus on improving the quality of teaching and learning situations as well as on implementing cognitive learning theory in the VET/PET system. However, it remains to be seen whether the assessment of the quality of their research work includes an evaluation of their impact on practice, by instance through dissemination efforts, or not.

Finally, there is an open issue regarding the ways in which the impact or the success of an innovation which is intended to foster research in VET/PET have to be assessed. Naturally, a political and financial effort intended to improve the research knowledge base would have to be evaluated in terms of scientific production –as in any other domain, by looking at the productivity and the relevance of the outputs. In this respect, most Leading Houses seem to be successful, although at different speeds, if they are to be judged by the scientific criteria set by the corresponding international scientific committees. Again, in addition to conducting research, Leading Houses are expected to serve as an indirect means of innovation transfer by training over a half a dozen junior or senior assistants (Masters or PhD level), who work in various educational institutions. Whether by this indirect means Leading Houses are actually successful or not in fostering innovation, remains an open question but certainly the effort goes in the right direction. However, this innovation was intended to create both a knowledge base on VET/PET and to improve either a) the policy making process in this sector (by using evidence to inform the process and stakeholders views); or b) the quality of the provision (through improved learning processes or technologies and/or by raising the employability of VET apprentices or PET trainees and their productivity). In light of this, it is not clear that Leading Houses can be deemed to have been entirely successful at this point. Inevitably, OPET will have to prove that the knowledge base created has had an important causal impact on the VET/PET sector and this might be a real challenge. As a matter of fact, there are good indications of this. The cost/benefit analysis carried out by the Leading House “Economics of education” is part of the economic advisory services provided by SFIVET. Ex ante cost/benefit simulations are conducted to determine what impact planned reforms will have on the cost/benefit ratio for individual occupations. It is reasonable to expect that similar spinoffs will emerge from other Leading Houses.

OVERALL CONCLUSIONS

In light of the three cases, what are the main conclusions regarding the Swiss approach to systemic innovation in VET/PET? The following paragraphs are intended to answer this question by looking back at the initial research questions and presenting what emerges as a result of the transversal analysis of the three cases presented above.

First of all, in regards to the process for identifying key areas for innovation and who was involved, two central themes emerge. On one hand, the leadership role exerted by the federal government through OPET is a key factor in the processes of systemic innovation in Switzerland. This leadership works well not only because of the centralised nature of the VET/PET system, especially compared to the rest of the education and training system, but also because the size of the country allows for leadership based also on proximity. On the other hand, it works smoothly also because all involved stakeholders have been able to build a relationship based on consensus –one of the best assets of the Swiss system. As a result, it can be said that in the Swiss system the main promoter of systemic innovation is OPET, which puts a lot of effort into generating consensus throughout the process of decision-making and implementation. Having said this, there are some instances where a more inclusive approach would have probably been welcome, as it has been signalled in the analysis of the VET Case Management or in the reform of basic commercial training.

The second issue is whether there were bridges between stakeholders to allow for the exchange of knowledge and practice in the development of these innovations. Switzerland has a longstanding tradition of devoting efforts to incorporate different stakeholders, be that levels of public government or social partners, in the policy process from design to evaluation. In this context it is no surprise that in all three cases coordination mechanisms were in place so that the follow-up of innovations, particularly during the piloting phase, could be discussed. This was particularly true in the case of the reform of basic commercial training, which entailed a number of assessments prior to scaling up.

The third issue points to the use of different types and sources of knowledge in preparing these innovations. The three Swiss cases show a similar approach to this. First there is OPET political willingness to investigate a particular issue for which there seems to be a shared concern. Who the real initiator of the process is remains unclear, but the point is that in all three cases OPET can be seen as the leading actor. Needless to say, the three case studies presented here cannot be expected to provide a complete picture of innovation dynamics within Switzerland's VET/PET system, but when it comes to systemic innovation it is clear that OPET is a crucial stakeholder and a powerful driver. With the exception of the case management, which as it has already been said could have benefitted from a more systematic research from the outset, usually what comes after is a commissioned study or research intended to provide empirical evidence or at least to provide a mapping exercise of the dimensions involved in the issue. Then it comes time for policy design and consensus building. Therefore, there is a clear interplay between some forms of tacit knowledge, even in the form of political appreciations, and different types of research-based knowledge. As a matter of fact, the use of research-based knowledge appears to be poorer than it could be except in the case of the Leading Houses which could be seen in several ways as a model for other countries in their aspiration to enlarge the evidence base while at the same time nurturing innovation. At the same time, it has to be emphasised that in this respect Switzerland hardly could benefit from the inspiration from other countries. The fact that there are very few dual systems around the world and that the existing VET systems in other countries bear little similarity with Switzerland's VET/PET system make particularly difficult for Switzerland to engage in any kind of policy-borrowing.

The fourth issue concerns the implementation of the innovation and the political willingness to empirically document any follow-up or monitoring exercise. Once again the role played by OPET is

crucial, especially given the decentralised nature of the implementation of any VET/PET policy as cantonal governments are solely responsible for this.

The whole issue of scaling up also emerges clearly and deserves some attention. The Swiss system is, in this respect, a bit complicated as the implementation of any VET/PET policy lies in the hands of the cantonal governments, thus allowing for a certain degree of internal variation in terms of rhythms and efforts devoted. However, nothing seems to indicate that the complexity of this situation acts as a barrier when scaling up an innovation in Switzerland which has been promoted centrally. In fact, in the context of the Case Management study at least, the cantonal structure seems to act as an incentive to individual cantons to implement and manage the scheme successfully.

Finally, a sixth issue refers to the criteria used for evaluating the innovation and how these were applied. With the exception of the reform of commercial training, it is too early to say anything about it. In the particular case of commercial training there are mainly two criteria used for evaluating the innovation: on one hand, the use of independent researchers and consultants to get field data in a systematic way, and on the other a trend towards reaching a consensus with the stakeholders involved throughout the process. It is also worth mentioning how these criteria differ depending on the nature of the innovation. For instance, they are formally set by OPET in the VET Case Management system but come from the international research community in the case of the Leading Houses. Such a variety of approaches and criteria seems appropriate.

Recommendations

The Swiss VET/PET system is one of the most appreciated worldwide, partly because of its traditional roots and partly because of its share and, thus, popularity among the young population. In such a context, it becomes difficult to suggest policy recommendations that could be seen as intended to promote better innovation capacity in a system which is proud of its current results –as the old saying states, if it works, don't change it. Why a VET/PET system which works well should be interested in promoting more systemic innovation is a legitimate question. A number of reasons seem to demand such an improved innovation capacity. First and foremost, the growing internationalisation of the Swiss economy and the increasing importance of technology should be considered heavy pressures for better adaptability of the VET/PET system. Second, the extremely regulated nature of the Swiss VET/PET system may impose some constraints to this adaptability, at least in terms of the speed of change, that may not be compatible at all with the requirements of the new economy. In short, if the Swiss VET/PET system does not continue to prepare well for change, by way of supporting systemic innovation and promoting VET/PET research, the mid and long-term effects may be disastrous as a system whose roots lie in the Middle Ages, which worked well under the industrial model, might not be as proficient in the context of the networked economy. Finally, the educational component of the Swiss VET/PET system could also benefit from an increased capacity to mobilise change, especially with regards to teaching methods and strategies.

Having said this, the following recommendations can be suggested:

- 1. Continue working for a consensus in VET/PET policy, but avoid it preventing risk taking.** Consensus among all Swiss VET/PET policy stakeholders is the key principle which guides policy design and development. It is a capital that Switzerland needs to secure for the future. Inevitably, however, working for a consensus may entail the peril of discarding new avenues which may be perceived as a risk or a threat by some stakeholders. Nowadays, the balance between consensus and climate for change seems to favour the former at the expenses of the latter. The future, as said, may require a higher commitment to risk taking as a means of exploration, prior to building consensus. The Case Management is probably a good example of an innovative initiative which is now being piloted, and the consensus about its full development is being slowly built at the same time –and not before it started.

2. **Continue supporting research but promote a better balance between basic and applied research in VET/PET.** The support of VET/PET research under a priority scheme is one of the most attractive characteristics of the Swiss approach to systemic innovation and it has to be maintained in the future. However, although it is clear that the results produced so far not only correspond to the priority areas approved by OPET but also match the international standards for research in the social sciences, it remains to be assessed whether they are relevant and useful for improving VET/PET policy and practice. This raises the issue of the difficult relationships between government agencies and researchers –i.e. between national priorities and public funding, on the one hand, and academic freedom on the other. In the Swiss VET/PET system, the government establishes the priorities and funds them, but the quality control and the responsibility over strategic decisions seem to be almost totally transferred to academia, with an important international component. A close inspection of the works already produced and in progress suggests that probably as a result of this transfer, research results are clearly biased towards basic research. In the long run this may turn out to be a wise choice, provided that sooner than later this basic research feeds more applied research, whose results match better the actual policy and practical needs of the system. Maybe a different model of governance, leaving academic quality control to well recognised international academics, but the practical relevance to the funding agencies or to the concerned stakeholders could lead to a better balance between basic and applied research.
3. **Increase dissemination efforts.** Again, it might be too early to say, but the dissemination efforts both of research results, for which the Swiss Federal Institute for Vocational Education and Training (SFIVET) is responsible, and of bottom-up innovations need further encouragement. During the visits neither representatives from the professional organisations nor from educational institutions seemed to be aware of the research efforts and the eventual relevance they may have for them. Neither of them could mention any bottom-up innovation that might be of interest to them. Instead of concluding that this happened because they are not relevant at all for professional organisations and teachers, it seems to be more plausible that the dissemination channels are not in place or not working well.

Implications for the study of systemic innovation in VET systems

What issues and questions related to the analysis of systemic innovation in VET systems arise from the Swiss case studies? The peculiar approach that OPET has in relation to the promotion of systemic innovation raises some interesting points that will have to be addressed in the final report of this project. These are, broadly speaking, related to a) the ambivalence of the consensus in relation to systemic innovation, b) the dynamics of centralisation-decentralisation in relation to innovation, c) the relevance of the size of the system for the processes of implementing systemic innovations, d) financial issues, and e) the role of research in the whole process.

It is commonly taken for granted that building a consensus is the best strategy for promoting change in any complex system. This is indeed the case of the Swiss VET/PET system, where OPET has played a crucial and central role in the processes of consensus scaffolding in relation to VET/PET policies. As a matter of fact, this can be said to be a common characteristic of all dual systems, where the continuous and formalised dialogue between government, professional organisations, companies, and educational institutions is so important in keeping the system operating smoothly. In principle the same should apply to systemic innovation, as it can be considered to be a particular modality of system change. However, the Swiss experience, particularly through the cases of the commercial training and case management reform, seems to show that such a consensus is crucial for the implementation of any systemic innovation and, once a consensus has been reached regarding a particular innovation or reform, the speed of change can be very fast. But at the same time it is undeniable that a consensus can be, to some extent, if not a barrier for systemic innovation, at least a factor that can work in favour of risk avoidance. The point is that in dual

VET systems additional efforts may be required to incubate innovations and avoid consensus to act as a constraint for the development of new, risky ideas that can bring in innovations. Here is where the ambivalence of consensus lies.

In connection with this need of preserving a free ride area for innovations, the Swiss national context adds a further complication with the dynamics of centralisation and decentralisation which are deeply rooted in the political traditions and system of the country. At this point it is worth remembering that VET/PET is the only part of the education and training system where the distribution of responsibilities between the different levels of government leave the federation with the most relevant voice in terms of policy making. Obviously OPET has taken advantage of this higher level of central responsibility – compared to the rest of the Swiss education and training system although not necessarily to other countries. It has done so by way of creating, among other things, a set of public policies and instruments intended to foster systemic innovation. Since this is not always the case in other countries where central governments do have the main responsibility for the VET/PET system, the OPET can be said to have an important advocacy role for systemic innovation which works well because of the centralised nature of the VET/PET system at policy level and also because of the consensus that is so helpful for the implementation of innovations. But it could be argued that such a centralised approach may experience difficulties when dealing with bottom-up innovations. The fact is that the OPET policies to systemic innovation seem, in the light of this review, to favour centrally designed and advocated innovations rather than those which may eventually be emerging here and there, particularly in local educational institutions. Therefore the interactions between models of government and pre-eminence of types of innovation can be seen also as a topic for further investigation.

Implicitly this points to a third issue of interest, which is the relevance of the size of the country. Needless to say, in the OECD context, and even in Europe, Switzerland is comparatively a small country. It is clear in respect to systemic innovation that size matters, especially when coupled with a centralised model of VET/PET governance which is able to build a consensus. Under these circumstances and from a merely rational perspective, it can be argued that the smaller the country the faster the process of deciding and implementing a systemic innovation. The extent to which this has to be considered another reason to advocate for regional VET/PET systems in large countries may constitute an additional topic for discussion.

In innovation, money matters. Even acknowledging the lack of information about the financial efforts made by OECD countries to promote innovation in education, the amount put into play by Switzerland seems to be impressive. What really matters, though, is the way in which the flux of money is connected to a very detailed set of criteria, drawing on national priorities and focusing on results. This can be clearly seen in the way in which Leading Houses are funded as well as in the clear procedures established for financial transfers to cantons for the implementation of the VET Case Management system.

An extremely interesting and probably unique feature of the Swiss VET/PET system in relation to systemic innovation is the importance attached to research. This can be clearly seen in the case of the Leading Houses, for which it would be very difficult to find an equivalent counterpart –at least in the rest of the countries participating in this project. Even if their real impact is still confined to a very limited number of domains and in some cases its practical relevance, either for policy making or for improving the quality of the educational processes, remains to be seen no doubt they are contributing to raise the standards of VET/PET research and also to send a clear message to all the stakeholders in the VET/PET system regarding the potential of research and how a relevant evidence-based knowledge base could be of use. Other than the Leading Houses, the case of the reform of commercial training also unveils the relevance of research, and more in general of empirical evidence, in the process of monitoring and evaluating a reform. However, the case management innovation reflects precisely the contrary, because not enough use of the existing research base seems to have been made although there are indications that its

evaluation might be in the hands of a Leading House; if so, this would be a good way of introducing some degree of cooperation between very distinct, but parallel, kinds of systemic innovation.

In addition to this, the Swiss praise of VET/PET research raises the issue of the overall links between research, on the one hand, and innovation, on the other. The Swiss cases certainly constitute a clear showcase of possible uses of research in terms of informing VET/PET policy and practice –although to a lesser extent. Also, the role played by research during the monitoring and the assessment of reforms, such as in the case of commercial training, is also relevant. But on the whole, the Swiss situation points once more to the lack of consistent relationships between systemic innovations and research. Although from a rational point of view, it could be expected that research results would be inspirational for further innovations in a rather linear way, such a link does not seem to work in practice and has to be explored in a wider context taking into consideration the rest of the cases studied throughout this project. Be that as it may, overall the Swiss context for systemic innovation in VET/PET does highlight the potential of VET/PET research and that a national strategy, even considering the natural time constraints of long-term investments, as usual in research, pays off.

**ANNEX:
VISITS AND INTERVIEWS CONDUCTED**

Day Program Monday, 28 April 2008

Location	Time	Meeting
OPET Berne Room 3.01	08.30 – 10.00 h	<i>Kick-off meeting</i> Serge Imboden , Deputy Director OPET Alain Garnier , Vice President Swiss Conference of VET offices (SBBK) Christine Davatz , Deputy Director the Trade Association of industrial firms (SGV-USAM) Bruno Weber , Trade Union Travail Suisse Peter Sigerist , Swiss Federation of Trade Unions
Room 3.01	20 minutes	Coffee break
OPET Berne Room 3.01	10.20 – 11.40 h	<i>Concept VET Case Management</i> Serge Imboden , Deputy Director OPET Gerda Lüthi , Project Manager OPET Christoph Marbach , Head of Cantonal VET Office
	11.45 h	Walk to station
Train to Aarau	12.04 – 12.44 h	IR 1923, platform no. 7 Serge Imboden , Deputy Director OPET Adrian Wüest , Project Manager OPET
Aarau	13.00 – 14.15 h	Lunch Serge Imboden , Deputy Director OPET Adrian Wüest , Project Manager OPET Kathrin Hunziker , Head of Cantonal VET Office
Cantonal VET Office Aarau	14.30 – 16.00 h	<i>Implementing Case Management Individual adopted measures</i> Kathrin Hunziker , Head of Cantonal VET Office Lukas Landolt , Cantonal Apprenticeship Promoter Eva Schaffner , Responsible for adopted measures
	16.00 – 16.30 h	Film clip with discussion
	16.30 h	Walk to station

Day Program Tuesday, 29 April 2008

Location	Time	Meeting
OPET Berne Room 3.07	09.00 – 10.30 h	<i>Reforming Commercial Apprenticeships and the measures taken</i> Kathrin Frei , Project Manager OPET Christine Davatz , Deputy Director Trade Association of industrial firms (SGV-USAM) Roland Hohl , Director, Interest group basic commercial training (IGKG)
	15 minutes	Walk to VET College of Commerce
Vocational College	15 minutes	Coffe Break
Vocational College of Commerce	11.00 – 12.15 h	<i>Implementing (1)</i> Christian Vifian , Director VET College of commerce Giusep Bass , Responsible for implementing the reform in the VET college Franz Hellmüller , Teacher Christine Davatz , Deputy Director Trade Association of industrial firms (SGV-USAM)
Restaurant Don Camillo	12.30 – 13.45 h	Lunch Christian Vifian , Director VET College of commerce Giusep Bass , Responsible for implementing the reform in the VET college Christine Davatz , Deputy Director Trade Association of industrial firms (SGV-USAM) Adrian Wüest , Project Manager OPET
Vocational College of Commerce	14.00 – 14.30 h	<i>Implementing (2)</i> Apprentices
	14.30 – 15.00 h	<i>Visit of commercial class</i>
	30 minutes	Transfer to BEKB
BEKB Schwarzenburgstr. 160	15.45 – 17.15 h	<i>Implementing (3)</i> Maximilian Haselbach , Head training staff BEKB Stefan Stucki , Head junior staff training BEKB Michael Köhli , Head IT training BEKB

Day Program Wednesday, 30 April 2008

Location	Time	Meeting
Berne Station Meeting Point	07.50 h	Serge Imboden , Deputy Director OPET Adrian Wüest , Project Manager OPET
Train to Zürich	08.02 – 08.58 h	IC 815, platform no. 3
Zurich University, Plattenstr. 14 Room 423 Comitee	09.15 – 10.30 h	Concept Leading Houses Serge Imboden , Deputy Director OPET Professor Fritz Oser , Head of the VET Research Steering Professor Frank Achtenhagen , VET Research Steering Comitee
	15 minutes	Coffee Break
Zurich University, Room 423	10.45 – 12.00 h	Leading House Zurich Professor Uschi Backes-Gellner , Zurich University Professor Stefan Wolter , Berne University Berno Stoffel , Delegate of the Swiss Federal Institute for Vocational Education (SFIVET) Johannes Mure , Zurich University
	12.15 – 13.45 h	Lunch Professor Uschi Backes-Gellner , Zurich University Professor Stefan Wolter , Berne University Berno Stoffel , Delegate of the Swiss Federal Institute for Vocational Education (SFIVET) Serge Imboden , Deputy Director OPET Adrian Wüest , Project Manager OPET
	14.00 – 14.45 h	Meeting with Ph.D. Students and researchers Samuel Mühlemann , Ph.D. Student Berne University Donata Bessey , Ph.D. Student Zurich University Simone Tuor , Ph.D. Student Zurich University
	14.45 – 15.15 h	Coffee Break
Zurich University, Room 423	15.15 – 16.00 h	Concluding Meeting Ursula Renold , Head of OPET Serge Imboden , Deputy Director OPET Josef Widmer , President of the Swiss Conference of VET Offices (SBBK) Christine Davatz , Deputy Director Trade Association of industrial firms (SGV-USAM) Peter Sigerist , Swiss Federation of Trade Unions