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Zusammenfassung

Diese Untersuchung der Berufsbildungssysteme der wichtigsten mit der EU konkurrierenden Länder basiert auf den überarbeiteten Zielen der Lissabon-Agenda, die Europa auf der Grundlage wissensbasierter Produktionssysteme zum wettbewerbsfähigsten und dynamischsten Wirtschaftsraum in der Welt entwickeln will, der zugleich sozialer Gerechtigkeit verpflichtet ist. Die vorgelegte Studie zielt darauf ab, mit Hilfe von Expertenmeinungen und durch Literaturrecherchen die Berufsbildungspolitik in Australien, Kanada, Japan und den U.S.A. zu analysieren und die Lernchancen für europäische Länder aufzuzeigen. Dabei werden fünf Felder identifiziert, die für das Verständnis der aktuellen Leistungsfähigkeit und der Entwicklungspotenziale von Berufsbildungssystemen von ausschlaggebender Bedeutung sind:

- Grundlagen und Struktur der Bildungssysteme,
- Aktuelle allgemeine Trends in der Berufsbildungspolitik,
- Image und Attraktivität von beruflicher Bildung,
- Finanzierung beruflicher Bildung,
- Früherkennung von Qualifikationsbedarf.

Die Untersuchung schließt mit Empfehlungen für die EU und deren Mitgliedsstaaten, was von den Wettbewerberländern zu lernen wäre, um die Ziele der Lissabon-Agenda – erhöhte globale Wettbewerbsfähigkeit, verbesserte Innovationsfähigkeit, die zusätzliche und bessere Arbeitsplätze schafft und eine größere soziale Gerechtigkeit in den kommenden Jahrzehnten ermöglicht – umzusetzen.

Abstract

The study on VET systems of major EU competitor countries is based on the objective of the (revised) Lisbon agenda to become the most competitive region of the world based on a knowledge driven production and social cohesion. Building on experts opinion and literature research this study aims at monitoring VET policies in Australia, Canada, the U.S. and Japan. The study analyses five themes which are assumed to be of outstanding importance for understanding the current performance and the developing potentials of VET systems. The addressed thematic fields are

- background and structure of the education systems,
- current general policies in VET,
- image and attractiveness,
- financing of VET,
- early skills recognition.

The study ends up with a set of conclusions emphasising possible recommendations that might be formulated for European countries and the European Union in order to support their struggle for achieving the Lisbon goals, i.e. achievieng a good position in the global economy, innovation with more and better jobs and social cohesion during the coming decades.

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Mr. Tom Dumbrell for Australia

Dr. Antje Barabasch for the United States of America

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1. Executive Summary

The goal of this executive summary is to present the project 'Vocational Education and Training Policies in the EU Competitor Countries – Australia, Canada, the United States of America, and Japan' its aims and scope and its results.

Aim and scope of the study

The project was carried out by ITB, University of Bremen on behalf of CEDEFOP. The project is analysing the VET policies of the mentioned countries because they constitute major economic competitors to the European Union and its member states. There is a complimentary project with the same focus but looking at China, India, Korea and Russia.

For the EU, the underlying objective of the (revised) Lisbon agenda to become the most competitive region of the world based on a knowledge driven production and social cohesion forms the rationale for the decision to look at the major competitor countries' VET policies.

Five themes have been covered in the monitoring process, i.e. the topics:

- image and attractiveness,
- financing of VET,
- early skills recognition,
- two background themes.

In order to rightly interpret and evaluate the findings on those topics an overview is provided on structures and organisational differentiation and specific social and cultural configurations of VET and current general policies and policy developments in VET.

The research process

The monitoring concept in this study was based on a research process that included the following steps:

- development of a monitoring grid (covering the mentioned five aspects),
- collection of materials and data in cooperation with national experts UNESCO UNEVOC and the German Institute for International Educational Research (DIPF),
- drafting of four preliminary country profiles,
- feedback and revision of country profiles by four national experts,
- drafting of an interim report including a preliminary comparative analysis,
- identification of gaps and white spots,
- gathering of additional data,
- completion of the country profiles,
- comparative analysis between the four countries, drafting a comparative final report,
- second feedback and validation round among a larger circle of ten high-level experts on the respective countries.

Limitations of available data

The countries assessed provide extremely heterogeneous Gross Enrolment Ratios (GER) in VET and graduation rates as measures of VET completion are generally of limited value because of the huge variety of programmes and programme sequences. There are large deficiencies regarding the availability of adequate and sufficient data on various aspects of VET. Therefore it is difficult to exactly assess the contribution of VET to broader economic and social goals.

A largely complete and comparable set of statistics, as far as economic data, demographic and general education data are concerned, is available. Indicators based on these statistics have a relatively high level of validity and international comparability. However, when it comes to educational data we find that indicators might be appropriate for general education but often less adequate and even less comparable for VET.

General conclusions for European VET policies

For the four countries monitored in this report it seems as if the close look at them can mainly serve a mirroring function. The look at their VET landscapes and the three thematic areas helps to unveil and profile certain distinct features of European VET. In future studies it might be worthwhile to take a more focused look at the identification of exemplary practices on the institutional level or be-low.

Image and attractiveness of VET in Europe compares well to the monitored countries that are all putting in enormous efforts into trying to raise the image of VET. This can be seen as an asset to VET policies in Europe. However, it could also be argued that Europe is set on a specific future idiosyncratic track that brings about its own risks and challenges.

General direction of VET policies

The monitored countries are belonging to the most advanced economies with wealthy populations. Similarly as Europe they are challenged by the catch-up economies in Asia. To survive in the global competition and to cope with the pressure exerted through the challenges of a knowledge-based production it seems inevitable to transform the national skill formation systems. This is seen as one adequate reaction to the emerging transitions in production and service sectors across all the countries.

Two countries, Australia and Canada, have switched their national human resources and skill provision policy from an immigration-based solution towards aiming at an endogenous, self-sustainable path of skill formation. This has lead to a clear addressing of an active national skill formation policy.

Graduates from the general education track, which is the dominant educational pathway, in all the four countries do often not show the skills and practical knowledge required on the labour market. The lack of fit between the graduates' qualifications, skills and competences and the labour market demands and job requirements has led to the establishment of specific institutions on the one hand and backward routes of educational mobility on the other hand.

VET provision

The provision of practical skills and competences through work-based learning is a weak point in all systems monitored but is tackled through a variety of policies.

Increasingly young people after graduating from college extend their educational pathways through enrolling in specific courses aiming at increasing practical vocational skills and competences in all the observed countries. China has put up specific institutions serving this purpose. Unfortunately accurate data about this phenomenon is scarcely available.

Involving multiple stakeholders – a particular challenge

A major issue across all the countries is employer involvement. It concerns different levels of VET such as provision as well as governance.

Even though there exists a rich tradition of cooperation between business and industry (co-operative education) and high schools and community colleges, this has not been converted into a feature of the national policies of skill formation and vocational education. Due to the stronger roots of corporatism and social partnerships countries in Europe might be better placed in that regard.

Raising quality and attractiveness

Another issue that is targeted in the monitored countries is the quality of vocational education. It can be learned especially from the example of the U.S.A. and Canada that attempts to raise the quality of VET through nation and statewide testing are always in danger of favouring classical academic content. For the level of practice this can potentially lead to classical ways of instruction at the cost of providing more authentic curricular delivery modes in VET.

Attempts to improve the image by renaming VET courses and programmes with terms emphasising technology, learning and career advancements were partly successful in raising the image in the different countries.

Surprisingly, none of the observed countries in our study is undergoing major efforts to implement some procedures for recognition of the outcomes of learning forms distinct from learning in formal settings. Australia and Canada are the countries that show the strongest efforts in that regard.

VET policies – Coherent Strategies need integration of different policy domains

A very fundamental but valid question is: »Is there an explicit national VET policy in the monitored countries or not?« This question could be answered roughly with a continuum ranging from the virtual non-existence of concept and practice to explicit and implemented policies of VET marked out by Japan on the one side and Australia on the other. Of course the Japanese economy needs a skills and competency base just as any other industrialised state. This provides clear evidence that there are other policy domains that serve the function of the reproduction and innovation of the skilled workforce. Such policy domains – labour market policies, social policies and educational policies – need to be integrated by explicit

VET policies because as opposed to general education, VET usually does not form a clear-cut societal VET system as such.

VET financing – VET provision between supply and demand

Based on general data on educational expenditures we can assume that there is no direct relation between certain types of VET policies, policy formation and VET provision and the amount of resources spent. However, detailed comparisons of VET expenditures would require more differentiated and comparable data sets that are difficult to rise because of the systemic differences and complexities.

So-called demand-led funding schemes are an innovation that can be observed across competitor countries on the basis of pilots. Assessments on sustainability and effects are still difficult because of the premature status of those arrangements.

2. Introduction

The goal of this report is to present the results of the project 'Vocational education and training policies in the EU competitor countries – Lot 1: Australia, Canada, the United States of America, and Japan'. This project is analysing the VET policies of some of the European Union's major competitor countries. The general idea of the study lies in examining the competitor countries' VET policies and to investigate in selected areas that affect VET. This is done through analysing the structural, economic and social contexts as well as the historical genesis of the prevailing VET systems. This study is corresponding with a second study (Lot 2) which applies the same concept of analysis to a different set of competitor countries, namely Russia, China, Korea and India.

The countries observed with this study share a number of general economic characteristics, but they are also quite distinct regarding other attributes. Australia and Canada, for example, can be assumed to have some similarities in their general economic structure in so far as they used to have (and still are biased towards) an economic basis founded on the exploitation of natural resources and agricultural production. Both countries share the attempts to overcome these deficiencies during the last decade. In the case of Canada, this led to an expansion of innovative sectors like biotechnology and ICT. Japan on the other hand is characterised by a scarcity of natural resources; the economy used to have a strong manufacturing basis with special strengths in electronics, robotics, semiconductors and emerging nano-technologies. The U.S.A., eventually, face Health Services, Computer and Data Processing Services as the fastest growing sectors. Common to all countries is a high share of services as part of GDP as well as by labour force by occupation. While Australia's and Canada's economies grew steadily since the mid-1990, Japan's recovery from the »Bubble Burst« was not before the Millenniums turn and displays a moderate growth since 2000.

This sketch provides enough indications to have a closer look at these countries – particularly regarding their specific modes of linking vocational education and training with their economic performance. Especially the question of the contribution of VET to economic and technological competitiveness is at issue: Besides the assumption that improving and extending the VET systems is increasing the competitiveness of nations as well, other paths towards improved competitiveness can be observed that emphasise general education and neglect VET as far as possible. With the study underlying this report it was not intended to verify the hypothesis that pushing VET is the only (or best) way to improve competitiveness, but rather look at the examples of other countries that follow different paths. This openness refers to the still missing theoretically and conceptually proof that a high-level VET system is a precondition for a high degree of competitiveness.

It is important to get a clear picture of the VET systems' functioning, their structural peculiarities, their embedding into policy and society and their performance levels. These issues can be expected to differ among the countries observed. But besides all differences and peculiarities of the national VET systems, there are also some striking similarities. A look at the two northern American countries, for example, is also worthwhile because they share highly federalised governance structures that might serve as reference cases for European policies.

Thus, the analyses of the differences and commonalities will generate insights that might contribute to improving policies and the performance of European countries' VET systems, and support to make them more sustainable. But since Europe is too heterogeneous regarding the organisation of national VET systems we cannot take Europe as a frame of reference for interpreting and evaluating the four monitored countries. However, what can be done is defining some points of reference and indicators that allow evaluating major aspects and elements of the national VET systems regarding their contributions to qualification, skill formation and education, and other societal spheres, such as economic competitiveness or social inclusion.

This study was conducted in the tensional field of two focal points that serve as references and frame of analyses: the Maastricht study »Achieving the Lisbon goal: the contribution of VET« (Leney et al. 2004) and the CEDEFOP study »Zooming in on 2010« (Lipinska et al. 2007). The first point of reference for the comparison with the situation in Europe and its member states are the results of the Maastricht study »Achieving the Lisbon goal: the contribution of VET«. This provides a comprehensive account of the status and progress of Vocational Education and Training systems in the European Member states and relates those situations to the explicit policy objectives in European co-operation such as the Bruges-Copenhagen Process and the programme Education 2010. The messages of the Maastricht study addressed, among others, IVET and CVET as important action fields of the EU member states and the thematic fields of analysis in this study were also including the topics *image and attractiveness, financing of VET and early skills recognition*. The underlying objective of the (revised) Lisbon agenda to become the most competitive region of the world based on a knowledge driven production and social cohesion form the rationale for the decision to look at the major competitor countries' VET policies. Therefore, the results of the Maastricht study can be taken as one pillar of a reference frame and, second, the »Maastricht results« are compared with the results of this study. This will be an aid to be able to identify what looking at the competitor countries could teach us.

Similarly, the second point of reference, the CEDEFOP study »Zooming in on 2010« is picking up the thread of the Maastricht study by continuing the line from Copenhagen via Maastricht to the Helsinki Communiqué 2006 in which, besides others, the priorities of improving image, status and attractiveness of VET, the need for good governance, developing, implementing and testing common tools, a more systematic mutual policy learning and a broader inclusion of stakeholders »on board« to put Copenhagen into place. These priority fields give the frame of reference for the CEDEFOP study which collected evidence that allow to reassess the progress achieved so far and to develop prospects of VET policy pathways until 2010. Particularly the Helsinki priorities are serving as the reference frame for this study and are operationalised in five thematic fields structuring the analyses.

2.1 Five thematic fields

Five thematic fields have been chosen as a reference frame for analysing the VET systems of the monitored countries. These fields can be assumed to mark important cornerstones for understanding the current performance and the developing potentials of VET systems: First, a characterisation of the background, structures and organisational differentiation of VET in

the respective countries is given. This includes especially cultural and social configurations that influence the learners' and employers' choices pro or contra VET streams. Second, the current policies and policy developments in VET are presented; this addresses mainly the relationships and repercussions of VET and the economy or the production sphere, respectively. The third thematic field addresses image and attractiveness of VET in contrast to the academic pathway. This includes the social sustainability of the vocational paths and their potentials for coping with future challenges. Theme four focuses on the financing structures. The main focus here is not on the *status quo* or the prevailing traditional structures of financing, but rather on innovative schemes for financing that might e.g. foster attractiveness of VET paths. Eventually, theme five pinpoints the measures and concepts developed for skill forecasting (anticipation of future skill needs), which is very important for avoiding mismatches of skill supply and skill demand or to evade technologically outdated skill structures among the work force.

With these themes we can get a comprehensive view on the basic structures of VET systems, their embeddedness (and cultural contexts), their current strengths and weaknesses as well as their potentials for development. Especially the question for innovative financing concepts and the attempts to improve the attractiveness of VET can be seen as major characteristics to be used for evaluating the prospects of the VET systems and their supportive or detrimental influences on economy and society. Furthermore, the attempts for anticipating future skill needs (skill foresight) and considering the re-percussions with curriculum development become important means for re-adjusting the VET curricula to emerging technological developments or changing requirements of companies. At the same time qualifications and skills of the young population are an important input factor into future production and economic competitiveness.

2.2 Sequence of chapters

The sequence of chapters in this report follows these thematic fields. Chapter 2 gives an overview on the data collection approach and the essentials of the applied approach to comparative analyses. This section also includes basic underlying definitions of key terms and concepts. In chapter 3 the background information for the VET systems in the monitored countries are provided. This comprises key economic indicators as well as the structural and institutional framework of the national VET systems, the historical development of national VET systems, and it includes a differentiated analysis of initial and continuing VET. Chapter 4 focuses its analyses on the four countries' attempts of improving image and attractiveness of their VET systems. The subject of chapter 5 is the financing details of VET. Special emphasis is laid upon (possibly) emerging innovative funding schemes. Methodologies and systems of identifying future skill needs are subject of chapter 6. Approaches and methods to anticipate skill and qualification needs in the four countries are presented. When available, results of such skill foresights are unveiled. In section 7 the current policy developments regarding VET are outlined emphasising possible newly arising policy measures. Chapter 8 is summarising conclusions and provides some recommendations. The major underpinning question is: »What can be learned from the analyses of the VET systems of major global competitors for Europe?« In a subsequent step some recommendations are formulated that might help to improve or re-direct VET policies of European countries.

Each chapter commences with an opening section on the underlying concepts providing brief, but comprehensive clarifications, definitions and questions and then gives a short summary on the findings that can be drawn from the analysis of the country profiles.

This synthesis report is based on the information provided by national experts of the four countries under observation. This information is not emphasised as quotations, because this would have aggravated the readability. If not set apart the arguments brought forward in this report are based on these experts' information. Direct quotes are marked as such. Any other sources and information are quoted according to common scientific rules.

Nevertheless full responsibility for this report is with the authors.

3. Data collection and approach to comparative analyses

3.1 Data collection – first phase

In the first stage, which mainly focused on data collection, the following twofold approach had been adopted. On the one hand, searches have been undertaken by the research team via internet (international sites like OECD, UNESCO, UNESCO-UNEVOC, World Bank, as well as national sites, e.g. national (federal) Ministries of Education, national (federal) Ministries of Labour, national (Research) Institutes for Vocational Education and Training) to obtain relevant data sources and policy documents. Approximately 200 documents and statistical reports have been gathered. In addition, a data collection and country profile grid was developed, which was sent to national experts in the field of VET, with the question to indicate for each of the (sub) topics whether and to what extent data sources (statistical data, policy documents, research reports or other relevant literature) are available for these (sub) topics. In addition to this, the national experts were asked to give some further information about the content, scope and relevance of the available data sources. The table below gives an overview of the national experts involved and their background.

Australia	Prof. Erica Smith, Charles Sturt University, Wagga Wagga Tom Dumbrell, Dumbrell Consulting Phil Loveder, NCVER
Canada	Prof. Peter Sawchuk, Ontario Insititute for Studies in Education, Toronto Satya Brink, Human Resources and Social development Canada
U.S.A.	Dr. Antje Barabasch, Ohio State University Dr. Morgan V. Lewis, Ohio State University Prof. James R Stone, National Research Center for Career & Technical Education, University of Louisville
Japan	Dr. Kaori Okumoto, Faculty of Policy and Society, Institute of Education, University of London

Table 1: National experts involved in the study.

3.2 Data collection and analysis – second phase

The main activities in the second phase of the study consisted of:

a) compiling draft 'country profiles' on the basis of the materials thus far collected (own internet search and completed data identification grid of the national experts). These country profiles (approx. 25 pages) give a concise overview of the developments in the national VET systems, VET policies in general and VET policies in particular with regard to 'image and attractiveness of VET', 'financing of VET' and 'identification and anticipation of skill needs'. The country profiles serve as input for the comparative analysis between the four countries concerned, which forms the basis of the this final report. Where applicable, more detailed information on certain (sub) topics in the draft country profiles was asked for (based on individual requests and searches);

b) feedback from national experts. The country profiles were sent back to the national experts with the request to provide additional data (sources) with regard to the gaps and white spots in the draft country profiles and with the request to verify the presentation and description of the information and data included in the draft country profile (for this the feedback of CEDEFOP, which we received during a meeting at Thessaloniki in August 2007, was of significant importance);
c) completion of the country profiles;
d) comparative data analysis across the four countries included in the study.

The procedure described above follows the logic of the 'within-site' – 'cross-site' analysis (Miles & Huberman 1994). It does not represent a linear approach in the sense that the research team has not commenced with step 2, 3 or 4 before the previous step(s) has been concluded. It is rather a cyclical process in which the comparative data analysis started once draft country profiles were more or less concluded; the feedback of the national experts were integrated in the comparative analysis 'while working'. The concepts used in this study are different between cultures and depending on the individual case. The delimitation of VET and all related concepts might be a straightforward or more complex task from country to country.

The comparative analysis will focus on similarities and differences between countries. Even though the aim of the study is not to provide separate case studies per country (the country profiles are in that sense a 'by-product' of the study), it will be clear that the specific national contexts of VET policies and systems as well as related policy areas have to be taken into account. This implicates that some (basic) descriptive elements cannot be avoided in this report.

3.3 The role of indicators in this study

The countries assessed by this part of the study in general, do provide a largely complete and comparable set of statistics as far as economic data, demographic and general education data are concerned (nevertheless different definitions and survey methods need to be considered). These data are collected and compiled primarily by OECD, the Organisation for Economic Co-operation and Development, and UIS/UNESCO, the United Nations Educational, Scientific, and Cultural Organisation Institute for Statistics (and of course by EUROSTAT, the Statistical Office of the European Union, which is important as a reference). Indicators based on these statistics have a relatively high level of validity and international comparability. However, when it comes to educational data we find that indicators might be appropriate for general education but often less adequate and even less comparable for VET. Gross Enrolment Ratios (GER) in VET are extremely heterogeneous among different countries and graduation rates as a measure of VET completion are generally of limited value, because of the huge variety of programmes and programme sequences (cf. UNEVOC 2006). On the side of output measures for VET programmes and systems there are rarely any international comparable studies, which allow the assessment of VET outcomes. This stands in contrast to outcome measures in general education such as TIMMS and PISA. Adult population's performance measures like IALS and ALL do not allow for the identification of the

contribution of VET in comparison to the contribution of general education to adult's competencies (cf. Behringer & Pfeiffer 2004).

Especially in this study's sections on »VET systems' image and attractiveness« and on the »anticipation of future skill needs« there is a lack of adequate indicators based on statistical data, which requires the designation of qualitative »descriptors« based on qualitative analyses rather than quantitative data. Therefore, especially these topics do suffer from inconsistencies of indicators.

3.4 The problem of comparison

Comparing is sometimes labelled as the essence of research. Following this assumption, every research, not only the explicitly comparative approaches, are comparing, either different models, or theoretical concepts with empirical phenomena or empirical phenomena in different contexts (e.g. cultures or countries). A review of the literature relevant to the given case of international comparisons in vocational education and training research reveals two main research strands, which involve:

a) research that explicitly targets at questions of VET in connection with the respective cultural, national or societal context;
b) research dealing with issues related to vocational training which stems from the broader sphere of international comparative socio-economic research.

Research of the first type includes descriptive accounts of VET systems as well as historiographic studies on the development of the VET function in different educational traditions or more focussed empirical or systematic studies on certain aspects of VET systems.

In studies of the latter type VET or the relation between education and the labour market often play the role of one explanatory factor for the subject researched. Examples would be studies on the school-to-work-transition or – as is the case with this study – the relationship between VET and competitiveness.

In addition, another distinction can be made between different epistemic orientations. Studies can seek for the identification of *universal characteristics* of VET through comparison, e.g. trends in curriculum development at the global level. This quest for the universal can be identified as a nomothetical *orientation* (cf. Windelband 1894), while aiming at the identification of cultural or *national peculiarities* is labelled as an *ideographic orientation* – i.e. the special features of VET in a certain country or region or culture.

With this monitoring study, both goals are followed: Looking for global trends in vocational education and training (e.g. regards financing) and at the same time check the peculiarities of national developments in the field of VET. The aim of monitoring EU competitor countries is explicitly not to carry out a ranking of education systems. For such a purpose a set of indicators would be needed that might serve as criteria for good or bad VET, which is not at all available (cf. Lauterbach 2007).

The purpose of this study rather is to identify possible learning fields, especially for EU's VET policy by comprehensively describing, analysing and interpreting the VET policies of

the competitor countries. This procedure requires two major steps, first to develop a comprehensive understanding of the respective country's VET system, its embeddedness and its interactions with policy, administration and institutions. Secondly, we carry out a comparison by identifying similarities, functional equivalents (homologous phenomena) or distinct differences. For conducting international comparisons indicators can play an important role in supporting the analyses and interpretations, but they need to be grounded in the cultural and social contexts and circumstances, which gives them meaning (indicators as such rarely have a meaning for international comparisons). In this study we use indicators carefully, mainly because they are not suitable to support value judgements without considering in-depth context knowledge, and because very often their construct validity is insufficient (see section 2.3). In fact, sometimes it might well be that exactly the non-existence of an international indicator makes a practice or policy interesting because it represents a genuine innovation that has not found its way across the world, yet.

3.5 Definitions and concepts of VET

The usage and understanding of the terms Vocational Education and Training (VET), Technical and Vocational Education and Training (TVET), Initial Vocational Education and Training (IVET) and Continuing Vocational Education and Training (CVET) is not identical in the four countries under observation. For our purpose of comparing we prefer broader definitions of the main terms. The definition given in this conceptual introduction is intended to serve as a reference point for understandings prevailing in the countries monitored.

This study builds on a comprehensive conceptualisation of Vocational Education and Training (VET) that is comprehensive enough to provide the possibility of integrating diverse national VET systems and policies. In this study we adopted a definition of Technical and Vocational Education and Training (TVET) provided by UNEVOC. This definition is widely congruent with others such as the clarification given by Descy and Tessaring (2001: 7). Although Descey and Tessaring (2001) use the term vocational education and training their understanding is very close to the definitions using TVET: Even though VET does not explicitely refer to »technical« it nevertheless includes it and refers to it since most of the contemporary workplaces incorporate technology. In the end any selection of a favourite definition appears arbitrary. The choice in favour of the definition presented was made, because the chosen UNEVOC definition of TVET is better known among the experts of the countries monitored by this study – but in the course of this study the acronym VET is used, keeping in mind that the meaning and usage of VET and TVET are almost the same.

Technical and Vocational Education and Training is defined as referring

> »to a range of learning experiences which are relevant to the world of work and which may occur in a variety of learning contexts, including educational institutions and the workplace. It includes learning designed to develop the skills for practising particular occupations, as well as learning designed to prepare for entry or re-entry into the world of work in general« (UNESCO-UNEVOC 2006: 15).

TVET is assumed to cover both, the initial vocational education and training that enables younger people to enter the labour market for the first time, and the continuing vocational education and training, which is done by adults during subsequent periods of their working life. While the former is a development of initial skills, the latter serves the purpose of

upgrading, expanding or intensifying skills or sometimes re-skilling for a different pathway on the labour market.

In its basic meaning TVET embraces formal learning, which is an organised and structured activity whose outcomes are accredited. Nowadays it also encompasses non-formal and informal learning. Non-formal learning is a result of organised action and might take place within or outside work, and, most important, is not accredited. Informal learning in most cases takes place outside the working life or educational institutions and is often not structured and not accredited. Evidently, existing classification schemes such as ISCED (UNESCO-UIS 2006) are severely underestimating these forms of learning and thus are ruling out/neglecting a large portion of qualification and skill formation. Considerable attempts are being undertaken in Europe to cope with the issue since some years and it is tried to develop measure that allow the assessment and recognition of these not accredited forms of learning (cf. Bjørnåvold 2001, OECD 2003).

Excursus: Learning outside VET

At this point it seems to be important to acknowledge that a lot of learning takes place outside the formally established mechanisms designated to the learning of the workforce. In a recent report for the European Commission among others the following features of workplaces have been identified as advantageous for providing learning opportunities:

> the completeness of a job, the variety of tasks in a job, difficulty (or problem solving opportunities) of a job, autonomy, social contact opportunities, organisational tasks and information supply (Huys et al. 2005: 5).

Other studies come to similar conclusions with regard to learning in work processes (Boreham et al. 2002, Eraut 2004, Skule & Reichborn 2002). Competence-building processes are often highly contextualised and vary with sectors, business processes and use of technologies. In this respect, the contribution of VET to the development of competencies in the workplace is highly context dependent. VET can be seen as a partly independent variable that has to be taken into account as a variable shaping work processes. On the other hand the way work is being organised is a crucial feature, which needs to be taken into account when looking at the possibilities of development of competencies within work processes. In addition the research of a Danish group of researchers has found that there is a close connection between how people work and learn in a country and the way firms' innovate. Discretion in organising individual work and job profiles and work that involves problem-solving and learning correlates positively with a type of innovation labelled as 'endogenous' innovation. Interestingly, other forms of work enrichment do not correlate positively with this type of innovation, but are rather associated with incremental innovation, such as for example in Japan (Arundel et al. 2006).

VET as a Working Concept

With the given brief definitions it shall be feasible to analyse and understand the competitor countries' VET concepts. Particularly, the question of the relationship between IVET and CVET is important as it allows for the assessment of transitions between education and

work. Another crucial dimension is the coherence of education and training measures on the polarity between scattered modules and the systematic coverage of a vocation or career.

One question at stake for the European Countries is in how far the findings suggest an extension or re-formulation of the understanding of VET, IVET and CVET including non-formal and informal learning: Do the practices of the rapidly developing competitor countries particularly challenge European VET systems and can we develop some paths of VET policy learning?

4. Background information on VET and its contexts

4.1 Structural and economic contexts

The present and up-to-date key sectors of the economic developments in the countries under investigation are – as indicated in the section on the conceptual framework of this study – those that show:

a) the best (global) economic performance,
b) best competitiveness,
c) highest net creation of jobs,
d) the greatest demand on skills and qualifications.

Obviously, the observed countries are not newcomers in the global economy such as China (refer to the related Lot 2 Report covering China, India, Russia and Korea). With the U.S.A. the most powerful economy, dominating global markets over decades, is part of the sample. With Japan the first serious global economic challenger of the U.S.A. since the post-World War II era is also part of this lot. While Australia and Canada are mature developed economies they nevertheless share a bias in their economic structure, particularly their export structure: with a high share of natural resources and agricultural goods in their portfolio of export goods.

Comparative Findings

Australia and Canada can be assumed to have some similarities in their general economic structure. Both used to have (and still are biased towards) an economic basis that are founded on the exploitation of natural resources and agricultural production. Both countries share the attempts to overcome these structural biases during the last decade. In the case of Canada this lead to an expansion of innovative sectors like biotechnology and ICT. Japan on the other hand is characterised by a scarcity of natural resources; the economy used to have a strong manufacturing basis with special strengths in electronics, robotics, semiconductors and emerging nano-technologies. In the U.S.A., eventually, Health, and Computer and Data Processing Services are the fastest growing sectors. Common to all countries is a high share of services as part of GDP (U.S.A. 73%, Australia 75%, Canada 69%) and a corresponding high share of service occupations in the employed workforce. While Australia's and Canada's economies grew steadily since the mid-1990, Japan's recovery from the »Bubble Burst« was not before around the Millennium turn and displays a moderate growth (between 0.6 and 2%) since 2000. All countries have comparatively low unemployment rates ranging from 4% (Japan, Australia and the U.S.A.) to 6.3% in Canada (in 2006).

Country	Age group:15-24	Age group: 25-54	Age group: 55-64
Australia	63.79	79.24	55.57
Canada	58.70	81.65	55.64
Japan	41.40	79.62	64.73
U.S.A.	54.25	79.81	61.79

Data retrieved from: OECD.StatExtracts http://webnet.oecd.org/wbos/index.aspx (29.9.2008)

Table 2: Employment rates by age group (2006)

Country	Employment rates: total	Employment rates: men	Employment rates: women
Australia	72.15	78.78	65.50
Canada	72.94	76.84	69.03
Japan	69.96	81.00	58.83
U.S.A.	72.00	78.10	66.05

Data retrieved from: OECD.StatExtracts http://webnet.oecd.org/wbos/index.aspx (29.9.2008)

Table 3: Employment rates by gender (2006)

Australia

The Commonwealth of Australia (independent of the British Empire since 1901) has an estimated population of 21 million people (in 2007; last census in 2006 revealed 19.9 million).

Since World War II the Australian economy went through a period of economic prosperity that lasted until the 1970s. Labelled as the »long boom« this phase brought about a boost in GDP per capita but failed to increase productivity in the manufacturing industries after some initial expansion during the post-war period. During the post-war decades the developing mining industry was the growth pole of Australian economy, which compensated for the relative weakness of the manufacturing sector.

The Australian economy has enjoyed strong growth in GDP in recent years, recording 4.4% in the year to June 2007. The main driver of the Australian economy has been its natural resource exporting sector, with strong growth in Asia seeing rising prices for mining and agricultural products. The major challenge for Australia's economic development is the absence of an export-oriented manufacturing industry.

Despite the strong growth in GDP and reported labour shortages, especially in resource-related industries in remote areas, Australia's inflation rate has remained stable around 3-4% per annum in recent years. While the main driver of the economy in terms of GDP growth were resource exporting industries the key sectors of the economy in terms of employment are retail trade, property and business services, health and community services, and manufacturing. During the 1990s the Australian economy and labour market was affected by rapid far-reaching changes. The main changes included:

a) an increased number of »non-standard« types of employment such as part time or contract work, to the extent that full time permanent employment no longer constitutes the majority of employment;

b) the breakdown of the centralised industrial relations model and its replacement with a mixed system, including remnants of the centralised system, enterprise and certified agreements and individual contracts;
c) a changed industry structure, with very strong growth in the business services and a decline in electricity, gas, water, mining and manufacturing (see Table 4).

The drastic shift in employment modes is best exemplified by the following statistical data: Since the early 1990s the average annual employment growth was 2%. Almost half of this growth represents part-time employment. Approximately 70% of the part-time jobs are occupied by women, and for certain age cohorts of the working population this figure is even higher. In the year 2000 only 37% of the persons aged 15-19 were employed full time, while in 1990 60% of the given cohort had a full time job. During the decade the total employment of the 15-19-cohort had decreased slightly (3%) whereas part time employment for the 15-19 year old increased by 50%.

The strongest employment growth during the 1990s (and lasting until today) occurred in the property and business services (61.6 %; cf. Table 4), cultural and recreational services (46.3%); accommodation, cafés and restaurants (37.7%). These sectors belong to those that are traditionally associated with part time employment.

Industry Division	Employed (000s) Nov-90	Employed (000s) Nov-99	Percentage change
Agriculture, forestry and fishing	445.5	432.3	-2.96
Mining	95.1	78.8	-17.14
Manufacturing	1164.5	1091.1	-6.30
Electricity, gas and water	104.5	64.9	-37.89
Construction	587.5	704.7	19.95
Wholesale trade	506	526.9	4.13
Retail	1114.6	1327.1	19.07
Accommodation, cafés and restaurants	320	440.6	37.69
Transport and storage	378.2	398.2	5.29
Communication services	155.2	166.3	7.15
Finance and insurance	352.7	321.6	-8.82
Property and business services	605.5	978.5	61.60
Government administration and defence	362.8	345.6	-4.74
Education	525.8	621.8	18.26
Health & community services	679.8	826.6	21.59
Cultural and recreational services	147	214.7	46.25
Personal & other services	272.2	353.3	29.79
Total	7816.7	8893.0	13.77

Source: ABS Labour Force Survey, various years

Table 4: Changes in industry structure, Australia November 1990 to November 1999

The boost in demand for labour since the early 1990s was concentrated in jobs requiring tertiary education – at the same time this group bore only little unemployment risks.

When we look at the general sectors of economy, we identify the typical structure of mature industrial societies with a high share of GDP (67.8%) and labour force (70%)in the tertiary sector, a moderate share of the secondary sector (GDP share around 30% and labour force share of 27%. The primary sector is of marginal importance (see Table 5).

Agriculture		Manufacturing		Service	
GDP % (2006)	Labour force % (2005)	GDP % (2006)	Labour force % (2005)	GDP % (2006)	Labour force % (2005)
16%	3%	30%	27%	67%	70%

Source: https://www.cia.gov/library/publications/the-world-factbook/geos/au.html (12.12.2007)

Table 5: Sector-wise distribution of GDP and Employment Australia

The Australian labour market has a size of 10.9 million persons (in mid-2007) which implies that labour participation rate is 65%. Male employment accounts for approximately 6 million and females account for almost 5 million persons. In recent years unemployment rate has been going down to 4.3% in 2007, male unemployment rate is 3.9% while female unemployment rate is at 4.7%. Young people (aged 15-19) are more strongly affected by unemployment with an overall rate of 13.8% (male 14.4% and female 13.2%).

Generally, the economic sectors with the most significant growth (in employment and in GDP) were those which predominantly offer part time employment and which do *not* have a pronounced VET or training culture. In the mid 1990s a survey revealed that in the accommodations, cafés and restaurants sector only 24% of the employers provided structured training, while in the utilities sector it were 83%.

These were precisely the substantial changes in the Australian economy and labour market during the 1990s that challenged the VET system to re-direct its structures, contents and modes of delivery.

Canada

Canada occupies most of northern North America. With signing the British North America Act (1867) Canada's colonial status ended *de facto*, and with the Statute of Westminster (1931) Canada was granted independence of Great Britain. Its independent constitution was established in 1982. It has an estimated population of 33 million persons in 2007 (http://www.statcan.ca/menu-en.htm (12.12.2007)). The political structure Canada's is made up of 10 provinces and 2 territories.

Natural resources such as timber, oil, natural gas, agricultural products traditionally constitute a major part of Canada's economy. Major economic developments in Canada after 1945 were the gradually spreading out of US-American economic interests which stimulated all sectors of Canadian economy. Major steps in this process were the (bilateral) Free Trade Agreement of 1989 and the North America Free Trade Agreement (NAFTA) enacted in 1994. The latter agreements had detrimental influences on the labour markets and production structures of Canada, particularly on the industrial sector (dislocation of production to the US and

Mexico). These tendencies, in conjunction with the structural bias towards mineral resources and raw materials, which are the major export goods of Canada, make it increasingly difficult to maintain the status of a self-sustaining industrialised nation.

A glance at the sector-wise distribution of GDP and employment reveals a general composition that is following the structure of developed economies, which are approaching towards a service economy. Table 4 shows that the tertiary sector is producing almost 70% of Canada's GDP and employs three quarter of the work force. The secondary sector contributes 29% to the GDP while the primary sector contributes 2.1% to the GDP by employing 2 % of the work force.[1]

Agriculture		Manufacturing		Service	
GDP % (2006)	Labour force % (2004)	GDP % (2006)	Labour force % (2004)	GDP % (2006)	Labour force % (2004)
2.1%	2%	29%	19%	68.9%	75%

Source: https://www.cia.gov/library/publications/the-world-factbook/geos/ca.html

Table 6: Sector-wise distribution of GDP and Employment Canada

Statistics Canada releases the following employment figures for October 2007[2]: The total population comprises 33 million people, the employment lies at 16.9 million and the labour market participation rate (expressed as the percentage of the population 15 years of age and above) is about 67.6%; male participation is noticeably higher than female labour market participation (73.5% against 62.1% of those aged 25 and above). Statistics Canada releases the following employment figures for October 2007: The total population comprises 33 million people, the employment lies at 16.9 million and the labour market participation rate (expressed as the percentage of the population 15 years of age and over) is about 67.6%; male participation is noticeably higher than female labour market participation (73.5% against 62.1% of those aged 25 and above). With a labour market participation of 66.7% youth (the cohort between 15 and 24 years old) does not display significant deviations from the average.

The role of part time employment is moderate with 18% of total employment. Only 11% of male employees work in part time jobs, while 26% of female employment is part time. For women part time employment is almost equally distributed over all age cohorts, whereas for men part time employment is predominantly a phenomenon of the younger employees (15-24 year old).

The national unemployment rate of October 2007 was at 5.8%. Again, younger employees are affected stronger by unemployment with a rate of about 10.7%.

Japan

After rebuilding the Japanese economy during the first post-war decade the economy entered a period of high economic growth (from the mid-1950s to the second half of the 1970s).

1 We refrain from deriving statements on the three sectors' levels of productivity, because the measures are to coarse-grained, varying reference years and there might be assignment problems.

2 http://www40.statcan.ca/l01/cst01/lfss01a.htm (6.11.2007)

With an average annual real growth rate of over 10 % during this period, Japan has become the world's second largest economy (right after the U.S.A.). Induced by the two oil price shocks (in the mid-1970s and 1980s) the GDP growth declined to an average of 3-5%. During the 1970s Japan became an »exporting superpower«, but from the 1980s onwards trade frictions have intensified. But by means of expanding domestic demand and a »positive easy monetary policy« an economic recovery began in 1986 (the Heisei Boom). Economic growth was building upon private sector demand. Asset prices such as land prices rose sharply – and the »bubble« was born. In the beginning 1990s the rise in interest rates and the implementation of measures to curb land prices launched the collapse of the bubble economy.

With the »Bubble burst« Japan went through »the ten lost years« which were characterised by attempts to solve the three problems of excess (employment, capital stock and debt), the problem of non-performing loans and deflation. It was not before the early years of the new millennium that the adjustments were consolidated and a phase of steady growth was entered. During the restructuring attempts some of the »negative legacies« left by the bubble economy had been solved, namely the stepwise abandoning of the »excessive employment«. In other words, the life-long employment prevailing in larger enterprises was abolished, which evidently had impacts on the labour market as well as on the Human Resources development and on vocational education and training.

A short look at the present structure of the economic sectors (presented in Table 7) shows a configuration typical for economies advancing (or already having entered) the service society: The tertiary sector's share of GDP lies around 73%, while approximately 68% of the employment is in the tertiary sector. The secondary sector contributes around 26% to the GDP and employs 28% of the work force. Similarly to the other advanced economies monitored by this study, the GDP and work force shares of the primary sector are very low with 1.5% and 4.6% respectively. This is a clear indication of Japan's natural resources scarcity (and an indication of the relative inefficiency of the agricultural production).

Primary		Secondary		Tertiary	
GDP % (2006)	Labour force % (2004)	GDP % (2006)	Labour force % (2004)	GDP % (2006)	Labour force % (2004)
1.5%	4.6%	25.6%	27.8%	73%	67.7%

https://www.cia.gov/library/publications/the-world-factbook/geos/ja.html

Table 7: Sector-wise distribution of GDP and Employment Japan

The Japanese labour force consists of some 67 million workers, 40% of whom are female. Due to a low birth-rate the labour force is going to shrink rapidly in the mid-term (2007 is supposed to be the first year with a population decline. Lowering the barriers to immigration would be a possible remedy, but out of various reasons the Japanese government is not taking any necessary action.

The general unemployment rate in 2005 was 4.1% (Labour Forces Survey 2006). Certain age groups show a significantly higher unemployment rate: Among the young people between 15 and 24 years old the unemployment rate was 8.7% in 2005. This is precisely the age cohort of the so-called »freeters«, i.e. underemployed or part-time working young school graduates in

low-qualified service jobs). Their number has risen to approximately 2 million young people. The unemployment and »freeter« figures indicate that there is a considerable number of young people who are not working in qualified jobs or not working at all (and thus do not get any training).[3]

U.S.A.

The U.S.A. economy is the largest national economy in the world, with a nominal 2006 GDP of more than US$13 trillion. In stark contrast to Japan with an absolute scarcity in natural resources, the U.S.A. has abundant natural resources, a well-developed infrastructure and a large population estimated at above 300 million. The private sector constitutes the major part of the economy. The economy has entered the stage of a service economy, with the service sector contributing over 78% of GDP and employing 41.5 % of the work force. The most important job providers in service are wholesale and retail trade while finance and insurance are the top contributors to the GDP. But still the secondary sector remains an important sector contributing approximately 21% to the GDP and employing almost 58% of the workforce (cf. Table 8). The primary sector's share of GDP and workforce is rather marginal (with 0.9% and 0.7% respectively).

Primary		Secondary		Tertiary	
GDP %	Labour force %	GDP %	Labour force %	GDP %	Labour force %
0.9%	0.7%	20.9%	20.1 %	78.2%	79.1%

https://www.cia.gov/library/publications/the-world-factbook/geos/us.html

Table 8: Sector-wise distribution of GDP and Employment U.S.A.

In 2006 the Civilian Labour Force comprised of 151 million and the civilian employment was about 144 million people, of whom 80% worked in full-time jobs (http://www.bls.gov/fls/home.htm#overview). The Civilian Unemployment Rate (2006) was at 4.6%.

4.2 Historical development of VET systems, policies and practices

The monitored countries have a certain history of industrialisation, which in all cases goes back to the beginning 20th century or had its true take-off after World War II (like in Japan). The economic development was in all cases accompanied by the necessity to institutionalise the formation of a skilled work force. Australia, the U.S.A. and Canada could rely on steady streams of skilled immigrants, which weakened the pressure to establish and improve sustainable VET systems. Japan, the fourth monitored country is completely different in this respect: There was never a significant immigration and therefore there was no »skill influx«. This specific situation led to an early institutionalisation of vocational schools already in the mid-1890s. Since then Japan's orientation towards the European, particularly German efforts in VET, was strong and led to the adoption of various institutions of the European/German education system. After World War II when the forced re-structuring of the Japanese

3 For more detailed Information on this, refer to the chapter 7 on current VET policies.

education system took place, with the result of an adoption of the Anglo-Saxon education system, all countries monitored share very similar education systems with strong orientations to school-based VET. Nevertheless, in all countries exists apprenticeship systems, which are consolidated in Australia and Canada, and only marginal in the case of Japan.

Education policy in Australia, Canada and the U.S.A. is characterised by a strong position of the states and territories. This caused and causes some tensions among the states and between states and federal government and inhibits e.g. the nation-wide accreditation of certificates. To deal with this burden of federalism and to increase national skill mobility and flexibility, additional frameworks, programmes, procedures or exams are installed to enable the mutual accreditation of courses or apprenticeships (cf. Red Seal in Canada) – at best within a qualification and skills framework. The situation in Japan is different. Although the prefectures and communities carry the major financial burden, the education system is largely centralised and the standards are set centrally either by the Ministry of Education or by the Labour Ministry.

The subsequent paragraphs will give more detailed sketches of the four countries historical developments of their VET systems.

Australia

The development of vocational education and training in Australia has its roots in the mid- to the end-nineteenth century with the establishment of mechanic's schools, schools of mines and technical and working men's colleges, which were ensuring the skill formation of the Australian working population. For about 100 years these training and education institutions remained responsible for developing the skills of preferably male full-time workers in the mining, manufacturing and agricultural sectors. It was in the 1960s when far-reaching changes were affecting Australian industry and society. The traditional manufacturing industries, mining and agricultural industries started to decline, while new industries and businesses (e.g. communication and financial services) were emerging. On the societal level women increasingly participated at all levels of education and higher education, and the female portion of the work force increased. The *1974 Kangan Report* on the needs in technical and further education defined the tasks and functions of vocational education and training, for which in the following the term *Technical and Further Education* (TAFE) was coined. Since the mid-1970s VET began to become more focused on preparatory and pre-vocational training. The traditional technical training began to loose its importance as the rise of service industries continued during the 1980s. During the 1980s Australia experienced a recession with a following strong employment growth, rapid structural changes in the labour market and significant skill shortages. In these times networks of private training providers, mainly targeting at the service industries, were coming up.

In the early-1990s a couple of reports (e.g. Deveson and Finn Reports) recommended an expansion of the training systems, increasing participation of young people and a consolidated national VET system. A growing awareness of a need for VET reform was emerging, and in 1992 the states, the territories and the Australian Government agreed to establish the Australian National Training Authority (ANTA) and a co-operative federal system of VET with strategic input from industry. In 1994 the Fitzgerald Report supported

the establishment of major components of today's Australian VET system, such as the states' and territories' responsibility for accreditation and standards approval and a stronger industry training advisory. In the end-1990s the Australian National Training Framework was launched. Since 2000 certain emphasis was drawn on increasing quality standards within a national quality VET system and to better respond to industry needs while meeting with the individuals' and communities' needs.

As one of the most current developments in VET the ANTA's functions were transferred to the Australian Government's Department of Education, Science and Training (DEST), which itself has been subsumed under a new »mega-department« DEEWR (Department of Education, Employment and Workplace Relations) with a new government in 2007.

One important issue in the history of the Australian VET system was its reliance on the steady stream of skilled immigrants since World War II. Not least because of changes in the immigration patterns during the 1970s Australian government paid more attention to VET and a turn towards a more pro-active VET policy took place.

Canada

First tracks of formal Vocational Education and Training date back to the late 17th century. However, all in all vocational education and training has never developed the same status and formalisation as it has in central Europe because of the dominant Anglo-Saxon conception of education and achievement. Apart from Quebec the roots of Canadian VET can be traced backed to Scottish and English concepts. In both traditions VET oriented towards the preparation of youth for employment and industrial production is rather a second best option than a genuine educational purpose. The main line of conflict between the two mentioned roots can be seen in a more comprehensive notion of the tasks of the educational system and a more elitist academic concept. Those two roots still influence the notions about Canadian secondary schooling, in which VET does not play a significant role.

At the end of 19th century the public interest in education grew and increasingly industrial stakeholders had to look at secondary education. Increasingly VET was demanded through those groups as a service that should be provided through public education. The unclear foundation for Vocational Education and Training in the British North America Act (1867) was seen as a hindrance to the development of a competitive workforce. A major player in this debate was the Canadian Manufacturers Association (CMA). One of the main arguments was that in order to be competitive with other industrialised states a better skilled workforce was needed. Those efforts finally led to the first attempt of inter-provincial and federal range for establishing the Royal Commission on Industrial Training and Technical Education (1910) as a counterbalance to Section 93 of the Canadian Constitution that provides provincial governments with exclusive responsibility for education.

The demand for a national vocational education and training policy during both World Wars as the inadequacies of the Canadian industry became apparent through economic booms. This has led to several incidents of establishing VET on the federal and the provincial level. In 1942 the Vocational Training Act was passed and in 1945 the Vocational Schools Assistance Agreement (1945) was established that was providing federal, shared-cost assistance to create provincial composite high schools.

During this time another typical pillar of skills policy in Canada has developed: skill gaps were increasingly filled through immigration during that time. This way of recruiting skills has become a fundamental part of Canadian skills policies, exemplified in the fact that for a long time the responsible ministry in Canada was called Employment and Immigration Canada, nowadays Human Resources Development Canada (since the late 1980s).

The next major period of development for vocational education and training in Canada were the 1960s and 1970s with a first step of introducing the Technical and Vocational Training Assistance Act (1960) (later continued as Vocational Training Coordination Act). In the 1960s there was a major campaign that tried to keep adolescents to remain in school (through creating alternatives to academic high school programs). This was also the time when an expansion of the famous Canadian Community Colleges could be attested.

As regards to training and qualifications research and a better match between training and labour market needs, the federal government replaced the Adult Occupational Training Act through the National Training Act in 1982. This also meant increased federal control. This program targeted specific occupations to meet employers' anticipated needs. A few years later, in 1985, the Canadian Jobs Strategy was put in place that focused on building international competitiveness through investment into human resources. Major orientations of the strategy were the direction especially to the low qualified and the provision of resources to the most local unit, such as regional authorities, local colleges and the like.

Not only provision of VET is heavily influenced throughout Canadian history through discussions on and interventions from the federal level, but also standardisation and formalisation of apprenticeship training and qualifications took place at various times. However, a lack of uniform standards for training and certification has made it impossible until today to fully integrate the provincial systems into one national system. A major step was done in 1952, when there was a national conference on apprenticeship. Outcome was a recommendation for federal-provincial co-operation that resulted in an Inter-provincial Standards Program, called the Red Seal Programme. Over the years 376.046 Canadian workers have qualified for inter-provincial certification in 49 trades.[4]

U.S.A.

On the ideological level of Vocational Education and Training a division can be observed throughout the American history between an agenda that is, roughly speaking, associated with social preservation and reproductive needs and an agenda that is building social and economic innovation and democratisation. This is exemplified in the positions of different thinkers in American vocational education history. The American educational philosopher John Dewey had an integrative conception of vocational education that coined the term »education through occupations«, seeing vocational education and work as a way to participate in community and society and leading to individual and collective change. At the same time a major step in the development of the VET system in the U.S.A. was the Smith-Hughes Act of 1917. One of the historical backgrounds of this initiative was the perceived superiority of the German vocational education system. It was the first vocational education

4 See http://www.red-seal.ca (10.12.2007)

act on the federal level in the U.S.A., and it provided federal funding for the states. This was criticised by Dewey for being too narrowly focused (job-specific) on education for occupations and not sufficiently flexible to accommodate integrative concepts and programmes of VET that integrate occupational and academic content. His intellectual opponent during that time was Charles S. Prosser, who had a concept of vocational education and vocational knowledge that is referred to as »essentialist«. Prosser promoted 16 theorems of VET, which illustrate vividly this essentialist notion of vocational knowledge and education. In the following a selection of these theorems is quoted:

> »1. Vocational education should occur in the most realistic setting that replicates the work environment.
>
> 2. Vocational education should only be given where the training jobs are carried on in the same way, with the same tools, and the same machines as in the occupation itself.
>
> 3. Vocational education should provide students with thinking habits, technical knowledge and scientific problem-solving skills and the manipulative skills required in the occupation itself.
>
> 4. Vocational education should be planned and delivered in a manner that capitalizes the student's interest, aptitudes, and intrinsic intelligence to the highest degree.
>
> 5. Vocational education is not for everyone, but for those individuals who need it, want it, and are able to profit from it.
>
> 6. Vocational education should provide opportunities for students to repeat operations of thinking and manipulative skills until habits are formed characteristic of those required for gainful employment.
>
> 7. Vocational education should be taught by instructors who have successful experience in the application of skills and knowledge required of competent workers.
>
> 8. For every occupation there is a minimum of productive ability which an individual must possess in order to secure or retain employment in that occupation.
>
> 9. Vocational education should prepare individuals for the occupations as they currently exist in the workforce and for future labour markets as a secondary concern.
>
> 10. Vocational education should provide opportunities for students to perform operations and actual jobs and not only simulated work tasks.
>
> 11. The only reliable source of content for specific training in an occupation is in the experiences of masters of the occupation. […]« (cf. Gordon 1999)

Prosser eventually became the first federal director of vocational education, a position that has bee created through the Smith-Hughes Act. The states were required to establish boards for vocational education asides the boards for general education, which fostered a separation of the vocational and the general (academic) education. Besides supporting vocational education the Smith-Hughes Act had a long lasting effect on the segregation of general and vocational education. There was a history of various Acts following this important step in U.S.A. development of a vocational education, which cannot be examined detail here (cf. e.g. Gordon 1999). However, a few milestones in the development of the U.S.A. VET system since the Smith-Hughes Act need to be mentioned: First, the Vocational Education Act (also known as the Perkins-Morse Bill) of 1963 intended to maintain and improve existing programs of vocational education, and particularly to ensure all persons access to vocational training and re-training under whichever personal circumstances. Thus, this Act is interpreted

as the first vocational act that acknowledged the needs of the students rather than mandating the employment needs of industry. This Act was amended several times. Eventually the Carl D. Perkins Vocational Act of 1984, by replacing previous amendments, aligned the vocational education policy to two major goals, an *economic* and a *social* one. The economic goal was to improve the skills of the labour force and to prepare adults for job opportunities. The social goal focused on the provisions of equal opportunities for adults in vocational education (the latter included an extension to population strata »at risk« due to the report a Nation at Risk).

During the 1980s a period of education reform was set off by studies on the declining global economic competitiveness of the US (e.g. the study »Made in America« by Dertouzos et al. 1989). Important drivers for changes in the U.S.A. education system were the reports 'A Nation at Risk' (NCEE 1983) or international tests on educational achievements. In this stage of reform the improvement of academic standards and the establishment of testing procedures were at issue, while in the second half of the 1980s more attention was given to the improvement of vocational education. Eventually, the enactment of Carl D. Perkins Vocational and Applied Technology Education Act of 1990 indicates a major shift away from the historical separation of vocational teachers, students and curriculum from the rest of the school community. The enactment of »Perkins II« emphasised the integration of academic and vocational education, the connection between segments of education engaged in workforce preparatio(e.g. support for »Tech Prep«, a programme that combines college and job preparation), and the establishment of closer linkages between school and work. Through the School-to-Work Opportunities Act of 1994 the national skills shortage issue was addressed by encouraging and supporting a model to create a highly skilled work force through partnerships between educators and employers. Key elements of this act included, among others, collaborative partnerships, integrated curriculum, comprehensive career guidance and work-based learning.

With the re-authorisation of the Carl D. Perkins Vocational and Applied Technology Education Act in 1998 a new vision of vocational and technical education for the 21st century was developed and an orientation in favour of general and academic education became effective. The latest revision known as Carl D. Perkins Career and Technical Education Act of 2006 shows some relevant changes compared to its predecessor of 1998: The first difference is the replacement of vocational and technical education terminology with »career and technical education« throughout the entire Act. Perkins IV of 2006 adds a specific focus on both academic and technical standards linked to »high skill, high wage, or high demand occupations in current and emerging professions. Further changes comprise that vocational and technical education now incorporates both school-based and work-based learning. Furthermore, the current re-authorisation of the Perkins Act emphasises business education partnerships which should focus on substantive issues and result in real world opportunities for students, as well as meaningful ways for the current workforce to be engaged in the school (via adjunct faculty programs, mentoring, etc.). With reference to the targeted partnerships the criticality of including stake-holders in the planning and implementation of these aspects of the Act are emphasised. Eventually, the Perkins Act calls for attention to the focus on closing the skills gap and keeping the U.S.A. competitive in the global economy.

Japan

The emergence of the Japanese VET system can be traced back to the medieval craftsmanship. These early roots of apprenticeship training are resuming in traditionalist segments of contemporary crafts-oriented production such as tatami making or tofu making. However, in the industrial sector the situation is different. This field is closely linked with the Meiji Restoration of 1867 when Japan was setting out on the path to modernisation. This new orientation did not only expose the traditional craftsmanship to the rest of the world, but also the traditional ways of transferring knowledge and skills by apprenticeships. With the speeding up of the industrialisation the need for an improved and extended education became visible and government initiated means to promote education. Japanese government established a primary education system in 1872 and during the mid-1870s institutions of higher learning have been implemented. It was not before the mid-1890s that apprentice schools and vocational continuation schools (enactment of the Regulations for Vocational Continuation Schools in 1893) were established as two pillars of an education system providing skills needed for the modernisation process.

The apprentice schools educated young primary school graduates in full-time courses to carry out skilled or semi-skilled work in the rapidly developing industries. With the shift towards heavy industry during the 1920s there was a corresponding shift of the apprentice schools' curriculum taking place. The curriculum contents since then increasingly focused on mechanical, electrical and chemical engineering. The vocational continuation schools provided part-time vocational (and supplementary elementary) courses to the working youth. Since many of these schools were in rural areas the curriculum was oriented towards agriculture.

This system of separate tracks for general and vocational education was abandoned after World War II and replaced by an adoption of the U.S.A. style of a single-track system consisting of 3-year compulsory junior high school and 3-year voluntary comprehensive senior high schools. The latter were integrating components of vocational education.

On the political and social discourse level, post-war education was largely influenced by the ideological divide between progressives – the Japan Teachers' Union that supported the construction of a democratic system – and conservatives – the Ministry of Education that wanted to maintain the state control.

During the 1950s, industry called for school-based VET to overcome shortage of scientists, technicians and engineers. From the late 1950s on, the 'high school education for all' campaign was launched and as a consequence many children progressed onto the normal academic route rather than the technical/vocational route. This led to a flat distribution of high school qualifications amongst a large proportion of the workforce, consequently, companies could provide uniform training (on-the-job) expecting similar results. The Vocational Training Law of 1958 allowed the establishment of colleges and high schools by enterprises so that they could produce a technically trained workforce.

In the 1960s, enterprise-centred training increased, while in parallel, the system of long-term employment as a condition for the development of skilled workers was established. This system brought about government's withdrawal of workers' skill development and left it to the companies to develop more structured long-term career development systems.

4.3 Definitions of and demarcations between IVET and CVET

This section is intended to disclose the actual use of the crucial terms (such as initial and continuing VET, non-formal and informal learning) by relating the country-specific usages and assigned meanings to the clarifications given in chapter 2.5 on concepts and definitions. A major goal lies on the question how clear-cut the distinction between IVET and CVET is made, because this is crucial for the subsequent analyses on financing, the institutional framework and for the anticipation of skill needs.

Comparative Findings

In all monitored countries there is no clear-cut distinction between IVET and CVET. In Australia, Canada and the U.S.A. initial and continuing VET is offered by the same institutions, which contributes to the »fluidity« of the border between them. In the U.S.A. preferably community colleges and career academies offer a variety of tailored courses, while in Australia RTOs and TAFE colleges serve a similar function. All countries have in common dominant school-based VET systems which are complemented by apprenticeship systems. Even though they are marginal in numbers of enrolments they are important means of skill provision in certain sectors. But unlike to European apprenticeships, in the monitored countries they are not unambiguously signed up by youngsters as their initial VET courses.

Australia

In Australia there is no clear distinction between »initial« and »continuing« VET. There is a variety of VET programmes, most of which are delivered by Registered Training providers (RTO). To these RTO the TAFE colleges as well as community education providers and private providers are counted. The courses offered range from full-time and part-time courses in educational institutions over apprenticeships to partial courses, which are referred to as »modules«. The full-time courses in educational institutions normally can be counted as initial VET which is supported by the average age of the enrolled people which is between 15 and 19 years. The case of part-time courses is slightly different, because the part-timers are working part-time while studying, therefore many are above the age of 19 and for many it is a continuing VET. In the case of apprentices data show that in 2006 of the 400,000 apprentices only 125,000 were aged 15-19, and the age cohorts go up to 40 years and above. For many an apprenticeship is not necessarily an initial VET measure. The mentioned case of »module completers« most likely is a measure of continuing VET.

Canada

The distinction between initial and continuing VET is not very clear-cut. The differentiation is even more difficult to make, since there are profound differences between the states. Nevertheless, we find currently 13 different apprenticeship systems, with over 200 apprenticeship programmes all over Canada. The apprenticeships typically combine on-the-job experiences with technical classroom teaching (the ratio is 80% work place training to 20% classroom teaching). The classroom teaching is often in collaboration with community colleges or similar, even private, organisations. Upon completion the apprentices receive a Certificate of Qualification. Besides the apprenticeships that can be unambiguously counted

as initial VET there are a variety of career paths, which originate from the high school graduation. In most cases this departure point implies both options, the track into an initial vocational education as well as a step into continuous VET.

On the side of continuous VET there is a remarkable programme labelled Workplace Skills Initiative (WSI) which aims at supporting eligible organisations to improve or upgrade the (technical) skill base of their employees by launching appropriate projects, i.e. projects that improve the productivity position to compete effectively in the global knowledge-based economy. Through the WSI particularly three target groups are addressed: First, immigrants are subject to upgrading technical and essential skills; second, older workers shall increasingly participate on the labour market; third, low-skilled workers shall enhance their employability through improving their skills.

Japan

In contrast to the other countries observed by this study, Japan can be assumed as a country with a rather clear-cut distinction of IVET and CVET. In accordance with historical and administrative distinctions, IVET is mostly a part of school education administered by the Ministry of Education, Culture, Sports, Science and Technology (MEXT), stipulated in the School Education Law. CVET is training for workers administered by the Ministry of Health, Labour and Welfare (MHLW), stipulated in the Human Resources Development Promotion Law (originally enacted in 1969, most recently revised in 2007). But as it is shown in chapter 7 on current VET policies, there are initiatives and programmes promoted such as the »Japanese-style Dual System« that cannot unambiguously be pinpointed as CVET measures, because it targets at young people for whom such a programme must be counted as initial VET.

U.S.A.

Generally, in the U.S.A. today the common term to describe VET is *career and technical education*. A clear distinction between IVET and CVET is not made. Commonly both take place in the same institutions such as high schools, vocational schools, community colleges or technology and career centres. Particularly the career technology centres and career academies have developed courses tailored to the needs of local industry and offer these programmes as evening courses. The community colleges' programmes are open to people of all ages and status. Therefore a mix-up of experienced employees and graduates from high-schools are enrolled in the same courses. Especially in advanced level programmes leading to recognised vocational degrees, both, the learners in IVET and CVET cannot be separated.

There are attempts and structures to recognise informal learning such as the Council for Adult and Experiential Learning (CAEL) which has been established in 1974. The CAEL has developed a process called Prior Learning Assessment (PLA) through which informal learning is evaluated and credited. The subjects of the evaluation are knowledge and skills gained from life experiences including work, parental and volunteering experiences. The reference frame for evaluating these forms of learning is the knowledge depth, breadth and contents of college level learning.

There are no special programmes in CVET that are focusing on labour market oriented training for unemployed. It is usually left to the unemployed to find an appropriate institution offering courses or degrees that meet the wishes of the unemployed for re-constituting their employability by upgrading their qualification. The cost of these measures might be covered by their former company or become reimbursed by new employers.

4.4 Organisation of the IVET systems

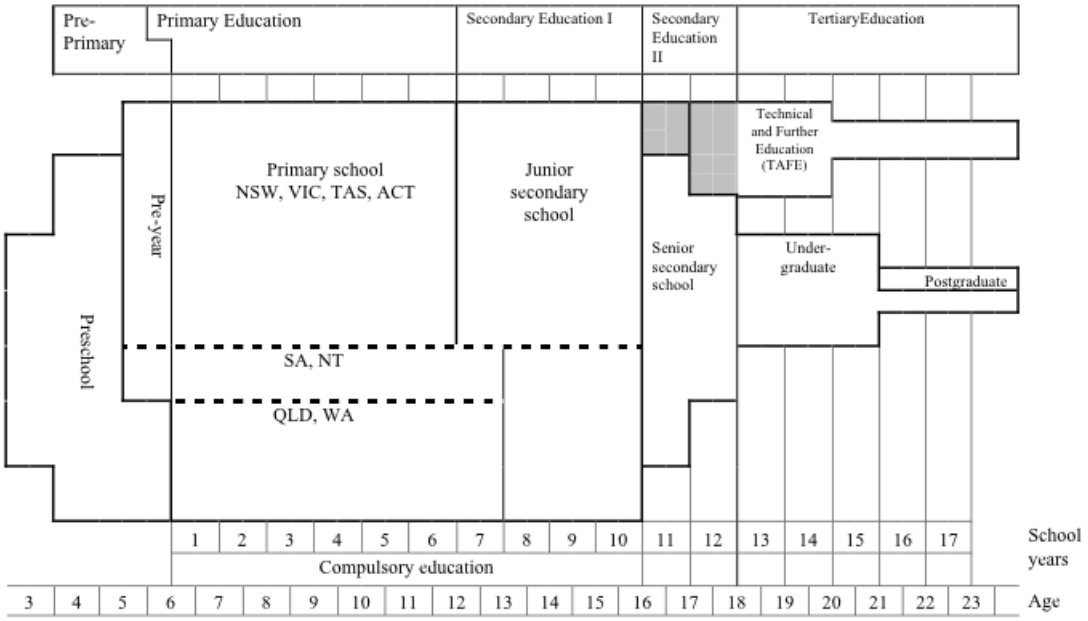
The analyses on the organisation of initial VET are building upon the country-specific practices of distinguishing between IVET and CVET (cf. the preceding chapter) as well as on the conceptual clarifications given in chapter 2.5. Thus, descriptions of the countries' education systems, particularly the relationship between general and vocational pathways, are inevitable. The analytical sections are addressing issues that were raised in the conceptual part, such as the structural distribution between general and vocational enrolments and the transitional paths into employment. Other issues related to »lateral mobility« between vocational and general education are discussed in chapter 4 on image and attractiveness.

Australia

About 1.7 million Australians participate in various ways in the national VET system, this is approximately 13% of the working population. The VET programmes are either carried through as full-time courses in educational institutions, as part-time courses in educational institutions combined with on-the-job experiences or fully in the work places.

At the level of secondary education 2 (i.e. after completed 10 years of schooling) vocational education is provided in various institutional forms, of which the largest are the TAFE. These colleges are administered by the 6 state and 2 territory governments (co-funded by the Federal government). In 2004 there were 68 TAFE institutes, 518 community education providers and over 1300 other registered providers (mainly private) as well as 10 agricultural colleges. All providers listed as RTO, which means that they have to meet the standards established under the Australian Quality Training Framework (AQTF). The AQTF standards focus on the outcomes achieved by training organisations rather than on the inputs used to achieve these outcomes.

Although the transition from secondary-1-school to VET is common in Australia it is by no means the pathway of the majority. Since the end 1990s the annual share of enrolments to VET education is approximately one third of all upper secondary enrolments – thus two thirds stay in the general education path. Most VET students are aged above 25 (35% of students are at the age of 25-44, and 18% above 44 years old). In 2006 around 80% of all VET students were enrolled in TAFE colleges, the remainder were community and other, mainly private registered providers.



NSW	New South Wales;	Vic	Victoria,	Tas	Tasmania,
ACT	Australian Capital Territory,	SA	South Australia;	NT	Northern Territory,
QLD	Queens Land ,	WA	Western Australia		

Source: Lauterbach et al. 1997: AUS-29

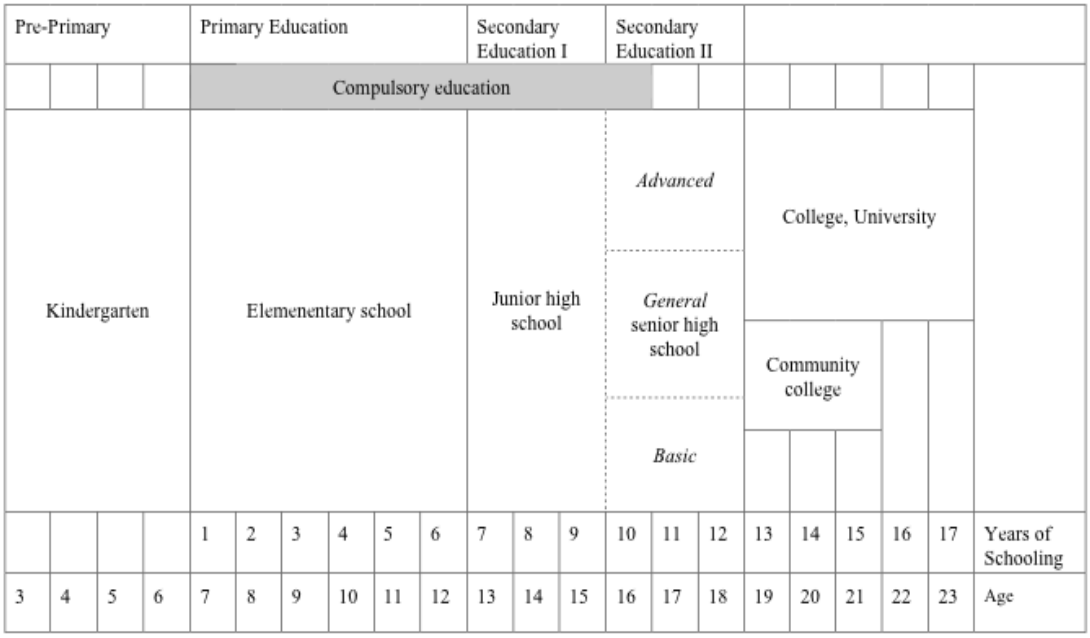
Figure 1: Australia's education system

Many students in the secondary VET education combine part-time employment with their studies. More than 55% of all full time students in Australia aged between 15 and 19 years are in employment, almost all of which is part-time. Furthermore, many of those, not in full-time education in this age group, such as apprentices, combine part-time study with their employment. At the end of 2006 there were about 400,000 apprentices in Australia although only about 125,000 of these were aged 15-19. So even for the apprenticeship programmes a clear-cut distinction between IVET and CVET seems difficult, because only one third was at the secondary 2-level-age.

Canada

In Canada the provision of IVET is a matter of the provinces and territories. The programme types provided can be distinguished into a school-based vocational and an apprenticeship pathway. After completing junior high school level, which is not the standard departure point for a transition into the labour market, the secondary education with a triple division into general, vocational and academic (higher education) school branches is the true starting point for initial VET. This holds also true for the apprenticeship programmes, because the majority of apprentices are above the secondary 2 graduation age (average is currently 26 years). As already pointed out the federal structure in Canada's education sector is very strong and leads to a low level of comparability of vocational education paths and this is particularly true for the apprenticeships – although there are efforts made which aim at harmonising the programmes and certificates through the Red Seal (see above).

The primary understanding of vocational education is coined by the school-based programmes. The courses do address various vocational, technical and craft fields like metal-working, car mechanic or electronics. Even though these courses are school-based they can include practical stages, which depend on the provinces and territories' regulations. Most provinces and territories combine technical in-class training with on-the-job training, only the scale and modes of organising it differ. Roughly speaking, the Canadian high schools have very comprehensive orientation, even more so than in the U.S.A. Therefore, high school VET is not treated with the same attention as in the neighbouring country. In that regard most of VET s taking place at the post-secondary level and in the sphere of continuing and vocational training.



Source: Lauterbach et al. 1997: CAN-47

Figure 2: Canada's education system

Besides the community colleges there are two college types that have been established in two provinces and which provide vocational and technical secondary education. First, in Ontario need to be mentioned the Colleges of Applied Arts and Technology (CAAT), and in Quebec the Collèges d'Enseignement General et Professionnel (CEGEP). The CAAT focuses on vocational education as the basic qualification for further career advancements; as an entry level these colleges require twelve years of schooling. Quebec's CEGEP comprise two branches of secondary education, a two-year branch of general education and a three-year branch of vocational education as a preparation for employment.

Apprenticeship enrolments were in 2005 at a peak of 293,835 persons, which is the current final of a steady growth since the mid-1990s (at that time around 160,000 persons were enrolled).[5]

5 http://www.statcan.ca/Daily/English/071115/d071115b.htm

U.S.A.

The education system of the U.S.A. – though there is a considerable variance all over the country – is made up of a triple structure: primary, secondary and tertiary education. Vocational education usually starts at the upper secondary level in special vocational and technical high-schools or through vocational courses in general colleges. These courses can start at grade 9. The provided courses are rarely well-structured nor are they articulated well with further vocational education. In most states the vocational courses and vocational subjects are integrated into senior high school education (grades 11 and 12).

The entry requirements to vocational and technical colleges vary depending on the type of training, but mostly a high school diploma is needed. Depending on the state regulations entry exams focusing on academic subjects are also carried out. There is a huge variety of different programmes offered at high schools, career academies, and career and technology centres. The most important are listed below:

Tech Prep: Career and Technology Education Programs of Study are defined as programs, which connect occupational and technical classes at high school with constitutive classes at institutions of higher education. The courses built on each other and are intertwined. As a combination they lead to a recognised degree and can also be counted towards an Associate or Bachelor degree program if the students pursues further studies at an institution of higher education. Tech Prep programs are usually offered for high demand occupations.

Dual enrolment: It indicates the possibility to attend college classes while still in high school. Often high schools have agreements with community colleges in their state to recognise credits if students continue to study at those colleges after graduation. The credits are not generally recognised.

Co-operative education: It stands for the possibility to work in a company while attending high school courses. Students are preparing themselves for an occupation and gain work experiences on either half a day, a couple of days each week or a couple of weeks in a row. This program requires close co-operation between high schools and companies and a mentor in school who supports and co-ordinates the process. Such programmes are usually led and initiated by the schools or colleges.

School-based enterprises are small companies in the schools, which are run by the students and their mentors. In targeted courses students learn how to run these enterprises. The goal is to mirror the real work life and introduce the students to the world of work.

Clinical training is mainly offered to health occupations. Students attend a couple of introductory courses which are partially offered at the schools or at community colleges. Afterwards and also parallel to these courses students work in several medical positions.

Compacts and collaboratives are cooperations between various schools and companies. An example would be the *Boston Compact Initiative*[6], which consists of seven schools and 60 enterprises in Boston, Massachusetts. These co-operative programmes allow students to gain insights into the work of private enterprises, they furthermore offer vocational guidance, mentoring programs and internships. The programs vary widely. Precondition for the

6 http://www.bostonpic.org/compact/bostoncompact.pdf (30.05.2007)

recognition of high school credits/program credits towards higher degrees is that students need to attend targeted vocational high school classes for at least two years and continue their particular program for another two years at a community college. There are also co-operations, which require four years of additional education after graduating from high school.

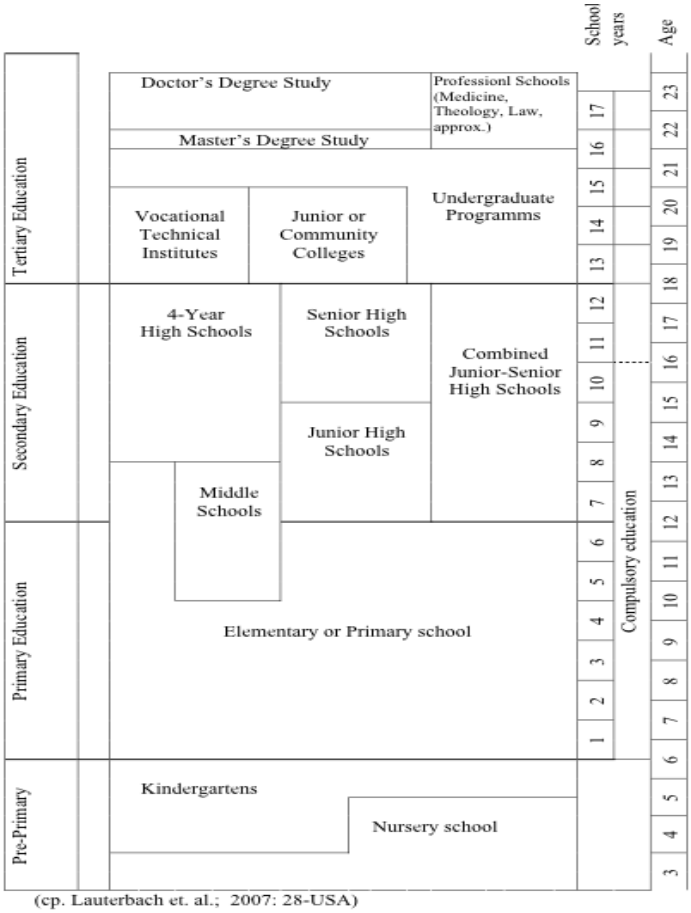


Figure 3: The U.S.A. Education System

There is a variety of other programmes and initiatives all over the country, most of which are under the aegis of states. Many programmes target at special groups like JobCorps (youth at risk) or the clinical training programmes (health occupations) or business partnerships, service learning and the like. Most of the mentioned IVET programmes take place in schools as full-time courses with a wide variation in duration (2 weeks to 4 years). Especially career academies, career education and technology centres and vocational schools dispose of a variety of well equipped workshops, which are used to teach skills relevant to workplace reality.

The schools, programmes and initiatives compete for students and therefore are constantly improving and upgrading their offers and seek for new ways to compensate for the systems weakness of lacking practice. The efforts, though, are limited, because of an uneven distribution of resources, that is disadvantageous to the vocational education and related programmes. Furthermore vocational education is stigmatised as a minor (»second-class«) education.

There are no typical pathways of initial vocational education standing out. These pathways are highly flexibilized and supposedly market driven and not (or only weakly) regulated.

Transition from the vocational pathways into higher education is possible, but students need to meet the entry requirements – and need to have the necessary financial resources.

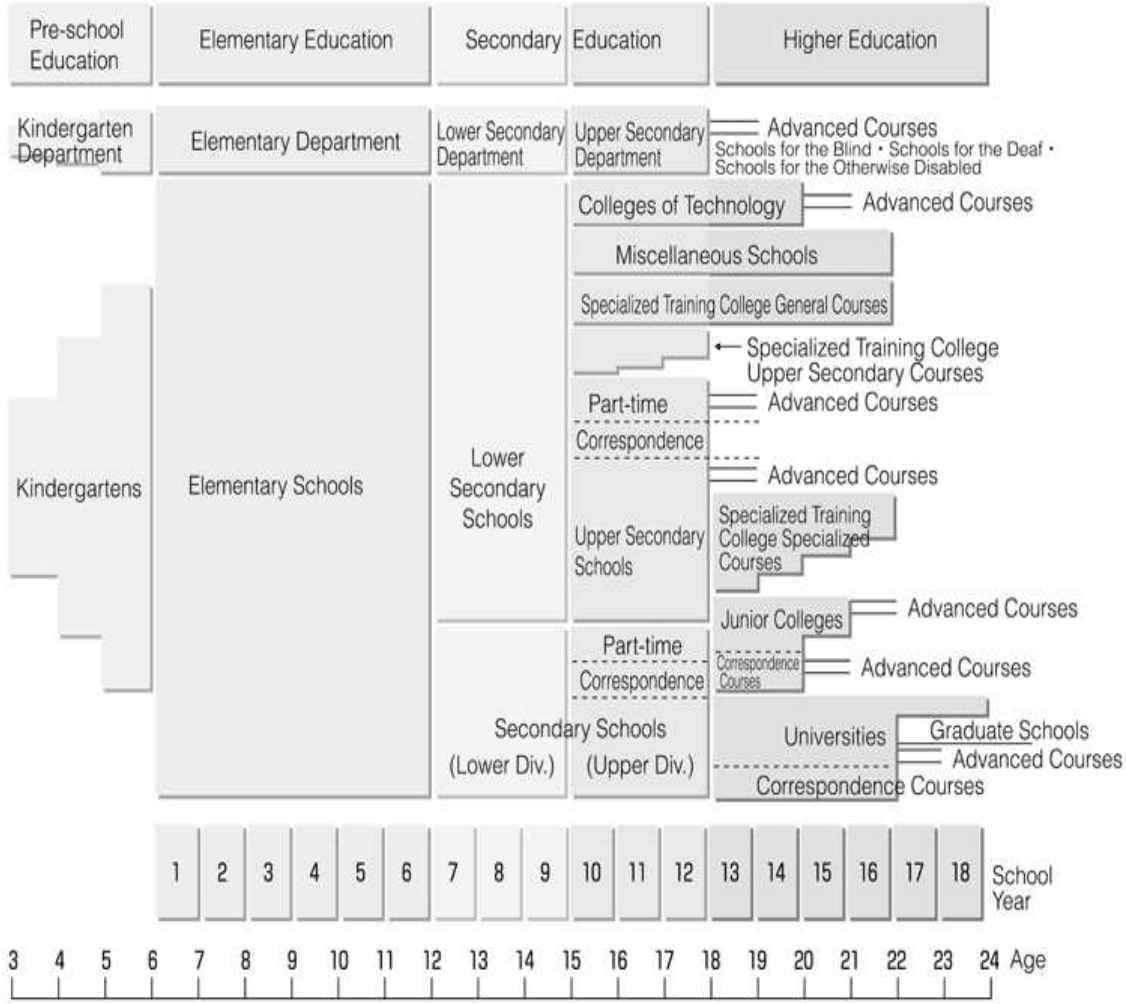
Japan

After the end of World War II the Japanese education system underwent a far-reaching reform (basic law on education, kyôiku kihonhô, of 1947). The old and complicated education system, which can be traced back to the Meiji reform, was replaced by a new education system that replicated the education system of the U.S.A. The general characteristic of this system is the 6–3–3–4 pattern, which stands for 6 years of elementary education followed by 3 years of lower secondary education. Three years of upper secondary education are following and afterwards a four year study at a university might follow (see Figure 5). Compulsory schooling ends after 9 years and terminates lower secondary school, but during the decades since the education reform of 1947 an increasing share of pupils continues secondary schooling and graduates from upper secondary schools (with completed 12 years). Since the 1990s the share of those lower secondary graduates who continue schooling is about 95% (Teichler 2000). Thus the school-to-work transition after finishing compulsory education *de facto* has disappeared and the transition to employment after 12 years of schooling has established itself as the new social norm.

The provision of IVET programmes is comparatively weak in Japan. There are two reasons to be mentioned: First, the majority of graduates from upper secondary education (approximately 75%) moves on to post-secondary institutions. Second, the companies (at least the medium and large-sized) have established their in-house training and education systems, which reduces the significance of the publicly provided school-based vocational education.

Vocational education at the lower secondary school level is hardly existent.

On the upper secondary level there are technical high schools (colleges of technology), specialised training colleges and the (mostly private) miscellaneous schools. Vocational education on upper secondary level includes courses on technical, commercial, agricultural, homemaking, nursing and fishery. Altogether this sums up to an enrolment of app. 4 Million high school students (Terada 2007). Vocational education on post-secondary level (junior colleges) is differentiated into *specialised schools* (under the administration of the Ministry of Education), which provide special and general curricula, *colleges of technology* providing 5-year courses, and schools for the development of vocational competencies by providing vocational training (shokugyô kunren) include universities, junior colleges and post-secondary schools operated by the prefectures (under administration of the Ministry of Labour).



Source: http://www.mext.go.jp/english/org/struct/010.htm

Figure 4: Education System of Japan

Generally, the vocational tracks are chosen only by a minority of pupils, who are assumed to be low performers. As the above figures indicate there are only very few youngsters leaving the education system after finishing compulsory school, and even after finishing upper secondary school a huge portion of the graduates (app. 75%) continue with post-secondary education paths, of which the general education track is more popular. Taken the pieces together it is obvious that there is only a peripheral sector of school-based vocational education in Japan. This is because the institutions of secondary education see their function in preparing the pupils for the entry exams to universities, which is the preferred entry level into employment. The transition into blue collar work or lower management or low-skill service jobs is usually after finishing lower secondary school (12 years). In most cases this covers only general education and no vocational skills and knowledge. Therefore the initial vocational training (in clear distinction to vocational education) is provided in the companies – usually in form of short-to-medium termed on-the-job training, which generally did not lead to a certificate at all or if, it is proprietary to the company. These initial training stages smoothly passed into continuing training within the companies. But even this dominant Japanese system of initial and continuing vocational training and education is a running out model since life-long employment is on the retreat – even in large companies.

4.5 Organisation of the CVET systems

From the conceptual point of view continuing VET covers a broad range of training and learning activities as described above. Particularly learning outside structured and institutionalised VET – or learning in and at work – is a core issue of CVET. Related to this is the problem of certification.

Comparative Findings

All countries have in common a limited distinction between initial and continuing VET. A major reason for the restricted selectivity lies in the fact that particularly in Australia, Canada and the U.S.A. the same vocational institutions are providing programmes serving to initial VET as well as courses of continuing VET. Japan is different since the major part of CVET is provided in companies.

Australia

The distinction between IVET and CVET is very difficult to maintain in the Australian case. There are at least three reasons:

a) the institutions supplying IVET and CVET are basically the same;
b) programmes like apprenticeships and traineeships are undertaken by persons of various ages – many are starting apprenticeships after being employed in a related occupation. Thus, for those people (aged in the mid-20s or above) an apprenticeship can hardly be perceived as an initial VET;
c) many of the students combine part-time employment with part-time VET courses, which makes it very difficult to unambiguously ascertain the training as initial or continuing VET.

A remarkable fact that remains to be stated is that in 2006 70% of students in Australian VET system undertook courses that were part of the Australian Qualifications Framework (AQF). The AQF system in VET is based upon a set of competency standards that need to be achieved, rather than qualifications defined by the time taken to run the course of study. Therefore students are flexible to take their own amount of time for completing their courses. There are 4 certificate levels on the senior secondary level, Certificate I-IV. While Certificate I and II provide basic vocational skills and knowledge, and are taking the equivalent of a half -year full-time study, The Certificates III and IV are the levels usually required from a tradesperson. The above mentioned TAFE institutes are important providers of vocational courses ranging in duration from a few hours to three years, but mostly part-time courses allowing attendance while employed.

Canada

Continuing VET in Canada is, similar to Australia, not clearly to distinguish from initial VET. There is no clear-cut definition of CVET, but rather a co-existence of various forms of vocational education, like continuing VET courses, upgrading courses or re-skilling programmes. The contents (and duration) of these courses vary distinctively. There are special measures of government to prevent job losses; these courses are targeting at

improving literacy and numeracy but also provide courses to improve special occupational skills. There are programmes targeting at special groups such as youth (Job Entry program), immigrants, women (Re-Entry program) or indigenous people.

The programmes and courses are provided Community colleges based on (regional) demand inquiries, but also companies and trade and industry associations offer vocational courses in their corresponding subject fields. Additionally, there are »correspondence courses« which are predominantly offered by private providers.

U.S.A.

The main providers of IVET and CVET in the U.S.A. are the community and technical colleges also called the two-year colleges. Most of the vocational programmes at such institutions lead to an associate degree or a vocational diploma and take two years. Some of the programmes are so-called transfer programmes that under certain conditions allow to proceed studies in colleges or universities.

However, in some states there are also well-established vocational programmes in the high schools or in special career centres that lead to entry-level job qualifications. Often those courses are accredited by certain trade associations or private companies as regards to programme and certification standards they would set. In some cases they are going beyond the boundaries of specific vendors (a typical vendor driven accreditation would be CISCO networking programmes) such as in the case of NATEF (National automotive education foundation and its automotive service excellence accreditation). Sometimes there are so-called dual enrolment programmes where a vocational student at high school is enrolled also into a local community college at the same time. This happens under the umbrella of an agreement between the institutions but often also without any formal framework {National Center for Education Statistics, 2005 #3227}.

Apart from community colleges universities are providers of CVET to those people engaged in lifelong learning, but of course there also many private providers in continuing training.

Japan

The companies mainly carry Japan's continuing VET efforts. The measures of continuing VET might range between on-the-job training modules (by rotating within the company) or by off-the-job training sequences that might take place in company-internal training centres or, in the case of the large enterprises, in vocational training colleges that are run by the companies and which offer all types of vocational training courses (of varying length). Eventually the prefectures offer a variety of CVET measures through their regional framework of institutions supporting preferably small and medium sized enterprises. The Advanced Polytechnic Centers as well as the Technology Transfer and Testing Centers (kohsetsushi) offer a huge variety of vocational courses (length between several hours to several months) that are intended to support the local industry and service sectors with a special target at small (and very small) enterprises (Ruth 2006).

The major weakness of these courses lies in the fact that only very few of them are certified. Thus the acquired qualifications have only a limited value: only inside the companies the

VET measures are acknowledged – or at best within a locality. In this respect a national qualification framework is lacking, though there are some limited attempts to certify certain qualifications – or rather occupations – by the JAVADA (Japan Vocational Ability Development Association). In former times JAVADA focused primarily on the certification of traditional, craft-based vocations such as tofu making, tatami making or kimono tayloring. But with the changing situation where large corporations do not guarantee long-term employment anymore, the company-defined career plans with company defined and sponsored training courses disappeared. JAVADA in co-operation with Prefectural Vocational Ability Development Associations tries to support a system of career and skill development and guidance by supporting the individuals to build their own career plan and help them finding appropriate courses to pursue their goals. Simultaneously, JAVADA works on nation-wide evaluation standards for vocational abilities, such as the National Trade Skill test.

4.6 Institutional framework of the VET system

The major administrative and political bodies of VET and relevant stake-holders are supposed to constitute the institutional framework of national VET systems. There are mainly two dimensions of such an institutional framework, the administrative and the political. The major political actors are central governments through corresponding ministries, which are delegating certain tasks to regional political and administrative bodies. Therefore, the institutional framework sometimes is characterised by frictional tensions between central and regional policy and administrative bodies.

Comparative Findings

All countries under investigation share a tension between the central governments' limited competence on education policy and a high level of independency of the federal states (or territories). On a smaller scale this is also true for Japan, where the prefectural administration play an important role: approximately 70% of the secondary schools are carried by the prefectures. As a consequence, the institutional frameworks in the countries are not uniform. The varying involvement of stake-holders in the federal states or regions contributes to variability of the institutional framing of VET.

Australia

Before the 1990s VET in Australia was almost exclusively under the duty of the states and territories. With the deteriorating of the labour market conditions during the 1980s and 1990s a debate on VET took place in Australia, which eventually turned into a reform period. An outcome was the establishment of the ANTA Agreement, under which the central government provided additional funding to the VET sector. In exchange the central government, the states and territories agreed to develop national policies, priorities and outcomes of the VET sector, one of which was the Australian Quality Framework. Another important component of the Australian institutional framework of VET was the establishment of a 'VET sector', which meant the development of a competitive market of VET providers including public and private ones.

In 2005 the ANTA Agreement was transformed into the Department of Education, Science and Training where a Ministerial Council on Vocational and Technical Education (MCVTE) was founded to monitor funding and maintain policy debates on VET. This led to a centralisation of VET funding and control.

Important stake-holders on the level of the central state are the unions, while on the state and regional levels the companies and professional organisations play a role. Probably the best example for a successful stake-holder involvement is the co-operation between industry and the VET system in the apprenticeship system. In addition, the involvement of industry leaders, representatives of the Australian Manufacturing Workers' Union and Indigenous representatives in the ANTA Board indicates the level of stake-holder involvement in the Australian institutional VET framework.

Canada

The federal structure of Canada is responsible for the absence of a national education policy. The provinces are exclusively responsible for education policy (since the British North America Act of 1867). In the field of vocational education and training programmes initiated by the federal government the provinces receive funding of the National Budget but the implementation of programmes is under the responsibility of the provinces, which is not supportive for the efficiency of measures. The federal structure affects the development of curricula, educational standards, and particularly the requirements and standards for graduation exams: every province defines its own standards. In vocational education the interprovincial red seal standard is an attempt to overcome the problems arising form this. The decentralisation has also effects on the community colleges. Founded on the basis of the provincial and territorial legislation (in 1963-1972) the community colleges corresponded mainly to the provinces' or regions' economic and cultural needs.

The involvement of stake-holders is taking place through consultation. Usually the provincial governments invite various stake-holders such as the Canadian Education Association (CEA), representatives of industrial chambers, unions and educational institutions. Also the Economic Council, the Canadian labour Congress or the Canadian Association of Manufacturers are involved into processes of opinion-forming, but they cannot directly influence administrative decisions.

The strongest stake-holder involvement probably is effective in the apprenticeship system, where employers and unions play important roles in guiding provincial and territorial officials and providing input to training programs.

U.S.A.

The major structural peculiarity of the U.S.A. vocational education system is the strong position of the federal states in the educational field. Similarly to Canada, the U.S.A. community colleges as major providers of VET courses are under the jurisdiction of the states, which assigns them the freedom to define their own standards, their specific curricula etc. On the other hand this allows the involvement and influencing of regional or local stake-holders from industry. The governance structure of those colleges is as close as possible to the regional needs. As the name community colleges indicates, the institutions are regarded as

the property of the surrounding community. E.g. this is reflected in the governance if such colleges through the setup of the governing boards with representatives of the local branches of the respective associations and interest groups.

Japan

Japan shares the structural peculiarities of other countries observed by this study. There is a strong central government with a leading position of the MEXT and on the other side there are prefectures being also important actors in the VET business. The different school types focusing on VET-related contents are operated by various bodies, such as the specialised schools, which are run under the administration of the MEXT and the miscellaneous schools operated by the prefectures (under the administration of the Ministry of Labour).

There is a division of the administration of 'education' and 'training' that runs through national, prefectural and municipal levels. Most of prefectural governments and many municipal governments now have 'lifelong learning (promotion) centres' which offer cultural, leisure or self-development courses, and often vocation-related courses such as languages and IT, but mostly without accreditation. These courses are considered as 'education', which is administered under MEXT via Prefectural Boards of Education. Depending on the local government, lifelong learning centres could include vocational training, which leads to qualifications. Besides there are a number of human resource development projects conducted by the Japan Institute for Labour Policy and Training.

5. Image and attractiveness

Conceptual Clarification

The image and attractiveness of VET has been an issue for several decades in most of the European countries and to a varying extent in the countries monitored with this study. Policy makers as well as practitioners have been and are worrying about the fact that many young people (and their parents) opt for general academic education instead of vocational education. VET often is seen as a second best option, an option for the lower achievers. What exactly is 'attractiveness' of VET? A simple 'definition' of the attractiveness of VET would be the extent to which (young) people – given the choice – opt for VET instead for general education. In operational terms this would mean the relative proportion of each age cohort that enrols in VET (relative as percentage of the whole age cohort).

However, the concept of 'attractiveness' has more dimensions:

a) the relative standing in the labour market (both employers' perceptions and the relative labour market position of VET graduates in terms of employment chances and earnings);
b) the responsiveness or better the 'flexibility' of VET.

The latter concept can be further delineated in:

Organisational flexibility: the extent to which VET participants can switch from VET pathways provided by one particular institution to VET pathways provided by other institutions (inter-organisational flexibility) or the extent to which VET participants can switch between pathways within one institution and/or can follow more individual pathways in terms of enrolment, outflow and curricular options (intra-organisational flexibility). In the latter case particular organisational pre-conditions are such as timetables, resources, locations, etc. play a role.

Pedagogical flexibility: this concerns the ways of teaching and learning applied and the instructional and guidance activities of teachers and trainers as well as the learning activities of the learners themselves.

Flexibility of pathways, which refers to like open access, less emphasis on distinctions between groups of participants in different pathways, smooth transfer between different pathways and a greater diversity in the further educational routes and labour market possibilities upon completion of a particular pathway.

Curricular flexibility, which involves flexibility with reference to a number of dimensions:

a) flexibility over time, e.g. updating the curriculum due to changes in competencies demanded by occupational practice;
b) across space, e.g. adjustments to regional conditions;
c) across individuals, e.g. meeting the particular needs of individual students (comparable to input flexibility).

These different 'dimensions' of flexibility are not completely mutual exclusive. At the same time, flexibility over time and across space, are also related to the third specific theme of this study, namely 'identification and anticipation of skill needs'. Nevertheless, it is clear that

'flexibility' can contribute to the 'attractiveness' of VET both form the perspective of potential participants and from the perspective of the 'end users' of VET, which are in the first place the (future) employers of VET participants.

Furthermore, the attractiveness of VET can be raised through the recognition of non-formal or informal learning. Since long schools are not seen as the exclusive venues of learning, but rather companies (particularly work places) are perceived as places of knowledge creation and knowledge emergence (Nonaka & Nishiguchi 2001), as the »wellsprings of knowledge« (Leonard 1998), and thus the places of manifold learning processes among the involved workers. These other forms of learning need to be recognised in order to increase the attractiveness of qualified work in production sphere.

Comparative Findings

The image and attractiveness of IVET is problematic in each of the countries. Without exception, IVET has a low status and is perceived as a track for the 'under achievers' and the 'losers'. Moreover, improving the »lateral mobility« – a materialisation of the concept of organisational *flexibility* – did not significantly boost the image of VET, but rather contributes to the escape from vocational education.

For all analysed countries, we have to consider few attempts to recognise (and accredit) prior learning through special assessment and certification methods. This is mainly, because practical work experiences and informal learning are not considered to be of equal rank to theoretical (and general) knowledge. But since all observed national VET systems are mainly school-based there would be a need to recognise (and certify) the practical work experiences, which happens only in special cases.

Australia

The Australian education reforms, particularly those efforts affecting the VET system, since the 1980s have been inspired by the popular apprehension of VET as an inferior branch of the education system. The expansion of the universities starting in the 1980s contributed to the common understanding of a superiority of the pathway from school (general education) to university, while the transition from school to VET was only a second-class career path. This was supported by the general developments on the labour markets which showed a growing demand for professional occupations or, the other way round, there was and is a lower unemployment rate among the population shares with higher levels of post-school qualifications.

The status of VET against that of general education can be taken from the participation rate of students in different school types and learning arrangements. Reviewing the data given in Table 7 shows that the majority of students is enrolled in general education pathways, while only around a third of all school students choose the VET track. The ratio of one third to two thirds remains stable since the end 1990s. Even when counting the apprentices and trainees to the VET school students it only makes up for less than 40% of all secondary education enrolments. Though a weak indicator it supports the above-mentioned general attitude towards VET as an inferior type of education. Nevertheless, the table also shows that the apprenticeships and traineeships have significant increases during the last 10 years (the

number almost tripled from 1995 to 2005; even if there are slight decreases in 2004 and 2005). The participation rate for apprentices and trainees thus might indicate a considerable level of attractiveness, which contrasts the general opinion

Year	School students (1)		VET students (2), (3)		Apprentices & trainees (4)	
	Number ('000)	Change from previous year (%)	Number ('000)	Change from previous year (%)	Number ('000)	Change from previous year (%)
1999	3,227	88	1,615	6.95	251.0	30.05
2000	3,247	62	1,708	5.76	271.3	8.09
2001	3,268	65	1,679	-1.70	310.0	14.26
2002	3,302	104	1,683	0.24	351.8	13.48
2003	3,319	51	1,718	2.08	404.8	15.07
2004	3,332	39	1,595	-7.16	400.2	-1.14
2005	3,348	48	n.y.a	—	391.2	-2.25

(1) Refers to full-time students only.

(2) Private providers were included from 1996, and VET in schools was included from 1997 to 2001.

(3) In 2003 Queensland introduced a unique student identifier for all students covered by the collection which creates an apparent reduction in overall student numbers when compared with previous annual collections.

(4) Data have been revised following a major review of the estimation method. Under the new method, data will not be finalised for eight quarters after initial estimation.

(Source: Wynes et al. 2006: 8)

Table 9: Trends in participation, 1999-2005

The Australian education system provides increasing opportunities for changes between the different educational tracks, i.e. a transition from VET pathways to academic higher education. With these opportunities VET is increasingly effective as a bridge to higher education, but interestingly, the transition from higher education to VET is estimated to be three times higher than the number of transitions from VET to higher education (Harris et al. 2005 and 2006). Even if the actual amount of these transitions is difficult to record, what remains to be considered is that the transitions are no one-way street from the VET path to the general education path. Qualitative investigations on the motives for (sometimes multiple) »track changes« give clear indications that the students changing to a VET track expect a stronger practice-orientation during their education and eventually, better employment opportunities. Thus, the perception of VET has been changing over the last decades – not only in the minds of the students and public opinion, but also reflected in changing programmes in the school system, such as the recently launched »VET-in-schools«, which allows students to commence a VET training program as a part of their school curriculum. An increasingly higher level of qualifications offered through the VET institutions has also enhanced the image of VET.

A crucial role for improving image and attractiveness is played by the employers/companies. Since more and more companies are forming partnerships with VET institutions (e.g. the »VET-in-school« programme) in order to improve work-based learning and practical experiences in the work, the image of the VET programmes, the VET providers and schools becomes enhanced. This and other regional and community-based partnerships contribute to

a higher quality in VET programmes, and improve the image of VET nation-wide on a sustainable scale.

Recognition and validation of prior learning can be a key element for boosting the image of VET. In the Australian context at least two types of recognising prior learning can be distinguished: an institutionalised and an individualised (case-by-case) branch. The institutionalised recognition is also labelled as a mutual recognition of validating qualifications or Statements of Attainment that were issued by other registered training organisations under the Australian Quality Framework (AQF). Within this framework exist opportunities to receive credits for previous studies, which can be approved for studies in related courses, subjects or for similar courses in other states or territories. The second, individual layer of recognising prior learning focuses on approving non-formal and informal learning experiences. The assessment procedure aims at determining whether the students meet the »industry standards« or not. As evidence for proving qualification and skills interviews or professional conversations, (practical) skill observations, work place visits, sample work pieces, theoretical and practical tests are chosen. The main purpose of the recognition of prior learning lies in the avoidance of duplicating training and learning modules. Additionally, recognition of prior learning serves the purpose to assist access to further training (Wynes et al. 2006). Despite of the flexibility obviously enabled through RPL, and its significance for the system of credit transfer in general and adult education in particular, there is critique raised that the processes are too complicated and too bureaucratic. Therefore, the Centre of Learning Innovation in Sydney has developed an interactive tool to support students to collect and present evidence of prior learning. But this system is up to now only in use within the schools and TAFE system of New South Wales.

Canada

Similar to many other countries also in Canada a judging of vocational education and training as inferior to higher education degrees and also to general education is common. The general perception identifies vocational education programmes as fitting to the less talented students. Therefore the image of the vocational courses and programmes diminished and as a consequence, the quality of students enrolling in VET programmes decreased. Eventually, this affects the employment strategies of companies to the advantage of graduates holding higher education or universities' degrees.

Since the mid-1990s a change in attitude is taking place that also expresses itself in the number of enrolments of students in various educational institutions: The number of enrolments at universities was slightly decreasing while at the same time the enrolments at community colleges went up. Besides demographic reasons there is some evidence indicating that a changed attitude of students is responsible for the re-orientation: An increasing number of students appreciates the better usability of vocational exams (in terms of employability) at community colleges. For the university degrees there are an increasing number of graduates attending short- or mid-termed courses at colleges to increase their employability after leaving university. This interesting phenomenon is labelled as *reverse transfer*.

Year	94/95	95/96	96/97	97/98	98/99
Community Colleges					
Full time	379 961	391 282	397 308	398 643	403 516
Part time	90 810	87 689	87 081	91 577	91 439
University					
Full time	575 713	573 194	573 635	573 099	580 376
Part time	283 257	273 215	256 133	249 673	245 985

Source: Grollmann & Wilson 2003

Table 10: Enrolments at Community Colleges and Universities between 1994-1999

The second pillar of VET, besides the community colleges, in Canada is apprenticeship. The apprenticeship participation rate as a percentage of the labour force (aged 15-44) is fairly stable over the last three decades at around 1.6%. The total number of registrations in apprenticeship programmes increased since the 1970s and particularly since the mid-1990s a boost in registrations was identified. However, the number of completions has remained static. There is evidence that the trends in the number of registered apprenticeships and economic cycles are closely linked. In the recession during the early 1990s the number of apprenticeship registrants declined, which can be explained by the employers' falling willingness to accept new apprentices, while in periods of economic growth (such as the end-1990s and beginning 2000s) it often is a viable alternative for the apprentices to leave for a good job before completing the apprenticeships, which eventually drops the completion rate. This explains two phenomena, first the attractiveness of apprenticeships not only depends on the demand of potential apprentices to undergo such a programme, but also the attractiveness for employers to offer apprenticeships varies with economic cycles. Second, under certain favourable economic conditions the attractiveness of achieving vocational certificates (like a completed apprenticeship) is decreasing, which leads to an »outward mobility« into the labour market. An additional de-motivating factor against completing apprenticeships is constituted by the provinces' and territories' responsibility for apprenticeship training and certification, which hinders skilled workers' mobility all over Canada. Through the Interprovincial Standards Red Seal Program (or Red Seal Program) provides a nation-wide standardisation of training and certification programs. The purpose is to ensure skilled workers mobility and as a by-product increasing the attractiveness of apprenticeship programmes.

In general, the labour market position of VET graduates (vocational programmes at colleges and apprenticeships) has improved since the mid-1980s. The VET graduates compare favourably against graduates of general education paths and against »early school leavers«. Only university graduates have a lower unemployment rate, but in this respect it is probably worth considering the phenomenon of »reverse transfer«, which drives an increasing number of university graduates to run through a medium-termed college program that supplies practical knowledge in order to increase their employability (Grollmann 2004).

The possibilities to continue studies with a vocational degree are limited. It is more common to pursue additional education at the college or trade/vocational level. This supports the emerging perception that it requires nowadays more than one degree to ensure a successful

transition into the labour market. Continuing studies based on a VET graduation– also in the tertiary sector – can best be assured through a qualification framework. The Ontario Qualifications Framework (OQF) is such an important initiative within Ontario's strategy to improve the quality, the accessibility and accountability of its post-secondary education system. The OQF includes all post-secondary certificate, diploma and degree programs offered under the auspices of the Province of Ontario, including apprenticeship certificates, the qualifications to be phased in for private career colleges, the qualifications awarded by public colleges of applied arts and technology, and degrees offered by public universities and institutions authorised to award degrees by a ministerial consent.[7] Such a framework can be seen as a necessary condition for accreditation of certificates, but if it is expected to have large-scale effects it needs to be a nation-wide qualification framework.

As already stated, the recognition of prior learning is one of the most important measures to improve the image and attractiveness of VET. Canada has established the tool of »Prior Learning Assessment and Recognition (PLAR)« in some provinces since more than 30 years. Nowadays, most public colleges recognise prior learning – at least in some of their programs; also some universities recognise it – preferably in programs offered for continuing education. PLAR is used to assess individuals' knowledge and skills in relation to certain pre-defined criteria. The definition of such criteria, that evidently need to be measurable, is the basis of the PLAR process. The assessment methods used comprise demonstrations, structured interviews, presentations of examples (e.g. work pieces) or portfolios (of documents and other items documenting the knowledge and skills). Often written tests are used to assess an applicant's prior learning. The PLAR method is established in most of the colleges of Alberta, British Columbia, Ontario, Quebec and New Brunswick, but the implementation and the pursued policies vary considerably. In apprenticeship programmes, PLAR is being implemented in Ontario and Newfoundland, where it is used to assess possible reductions (shortening the term) of apprentices' formal training programs based on an assessment of skills and knowledge. In most provinces the verification of prior learning is »calculated« on the basis of individuals' time previously spent in an occupation. In the case of prior learning assessment, as in most other education issues, the Canadian federal system is responsible for the manifold approaches and practices applied, which make the results of assessment procedures incalculable for students and apprentices and thus it does only make very limited contributions to an improvement of the attractiveness of VET.

Finally, there is one initiative worth mentioning that contributes to an improvement of the image and attractiveness of VET: »The Canadian Association for Co-operative Education (CAFCE)«. CAFCE is a member-driven association with over 400 members from colleges, universities, government bodies and business, which promotes the post-secondary co-operative education across Canada. It was CAFCE's commitment to high-quality co-operative education programmes that has founded Canada's reputation as an international leader in co-operative education. Thus, contributing to a profound improvement of the attractiveness of co-operative VET programmes.

7 http://www.edu.gov.on.ca/eng/general/postsec/oqf.html

U.S.A.

Vocational education used to be provided for industrial and agricultural sectors, which progressively represent a diminishing part of the economy. Many vocational programs in high schools have been used as dumping grounds for academically poor achievers and disinterested and/or problem students. Vocational programs have a low standing in U.S.A. society, because of the stigma that vocational students become trapped in blue collar jobs. Therefore, parents want their children to attend college and high schools and career counsellors pay particular attention to college-bound students. The number of apprenticeships offered (mainly through trade unions to their members) is decreasing. Although the majority of young adults never finish a college degree, college education is highly favoured and prioritised in the U.S.A.

Because of the stigma that has been attached to vocational education, community and technical colleges refer to their programmes as »career« and »technical education«, which attaches a positive label to vocational education by suggesting that even below college degrees a »career« in its emphatic meaning is possible. The average age of participants is 29 years. Many students require remediation in math, science, and communication. They generally take one or two courses (part time) to get new jobs or to refresh their skills. Recent educational reforms, such as Tech Prep, have shown that concrete or applied learners can master rigourous academic courses if they are »taught in context« and that the context of work (careers) is useful for maintaining students' interest and enhancing the learning process.

Possibilities for VET graduates to continue their studies in higher education exist, but the usual entry requirements for 4-year colleges apply. Even though these requirements can vary from state to state or can be specific for a certain institution, the students need to pass standardised tests and essays. When failing some preparatory classes can be taken to upgrade the skills and knowledge. Depending on the institution and the program it is possible that credits acquired previously (high school or junior college) can be transferred and recognised towards other degrees.

Generally, it is always possible to return to college and to pursue another degree, but there are only very few institutions offering special access paths such as online universities do. There are some studies indicating that the preparation in a VET program, especially one pursued in the frame of a dual credit program or Tech Prep program, helps to enter a higher education program. The reason is seen in an increase of motivation through the realisation of the applicability of theoretical knowledge in a practical context. Students' participation in VET programs is also viewed as a maturation process in which students acquire a better sense of themselves and start setting life goals. They appear to be very motivated in further education programs.

In the conceptual framing we claimed the possibilities of a »lateral mobility« allowing for switching between vocational and general educational pathways as an important »measure« for the attractiveness of VET. In the U.S.A., generally the transitions are fluid. However academic education is highly emphasised. At high school level students are free to flexibly choose vocational classes or advanced academic classes. The practice shows that the academically low performing students are channelled into vocational classes and eventually were not sufficiently prepared to enter college afterwards. Therefore VET programs need to

be designed which ensure that students take a large amount of academic classes to be prepared for studies at higher education institutions.

Evidently this creates a contradictory situation where on the one hand low performers are channelled into VET programs and at the same time the impression is maintained that after completion any pathway would be possible afterwards.

The assessment and recognition of prior learning is not established as a nation- or state-wide system but rather are there weak attempts on a case-by-case basis to assess real skills of students or applicants. The rule still is to take a written test in order to be placed in a suitable program or course level.

In practice one of the most successful measures to improve the image of VET was renaming the courses, programs and institutions, which provide »vocational« courses. As mentioned earlier, VET is nowadays labelled as »career education«, »technical education«, »industrial technology education« or »school-to-career programs. The institutions and programs providing these courses are named Tech Prep, career academies, service learning internships, dual enrolments and the like. The »re-branding« has been taken up on all levels of VET in the US.

Recent educational reforms, such as Tech Prep, have shown that concrete or applied learners can master rigorous academic courses if they are taught in context and the context of work (careers) is useful for maintaining students' interest and enhancing the learning process. A new system of career clusters has been introduced that is used at the senior high school level (grade 11 and 12) and in the two-year colleges. Career clusters build an integrative curricular framework for academic and vocational content. High school graduates who attended tech prep classes in high school will also be prepared for university admission, for community and technical colleges or for employment. The specifications for career clusters are standards: academic standards, skill standards, and employability (soft skill standards). The system enables students to exit and re-enter many times, according to the particular needs of the individual and according to changing requirements of the career paths. The new system presumes a new definition of »job-entry skills« that requires a solid education – including useful academics, a career interest and focus, critical thinking, ethics, and interpersonal skills. It is organised into broad career areas, such as health, information technology, engineering, and business. And, within a career area, the new system allows an individual to pursue wide latitude of occupations.

Japan

Image and attractiveness of VET is clearly inferior to general (and higher) education's image. Similar to Korea, which is a country included in the monitoring study lot 2, the general attitude against VET can be traced back to the Confucian heritage which rates theoretical knowledge higher than practical knowledge, and intellectual labour higher than manual labour. Since vocational courses lead in most cases to blue-collar, manual work students generally try to avoid the vocational pathway of education. As a well-known fact Japan's education system consists of »sequential education trajectories« starting at kindergarten, which is either high- or low-rated. Depending on the starting level, the transitions lead to higher or lower rated elementary schools and so forth. The achieved final stage is passing the

entry exam of a high-rated university. The pursued ideal educational career path ends at a high-level national university. Those who do not pass the entry exams of an even low-rated university have to pass directly into the labour market and thus share the fate of those running through VET programmes.

The two-year post secondary vocational schools (senmongakkou) go historically back to the pre-war period when the Japanese education operated on a double-track basis: a vocational track subsidised by state and a higher (general) education system. In the immediate post-war period many of these secondary vocational schools were given university status. The remaining vocational schools received a lower status than academic education institutions and their state subsidies became dramatically reduced, which lead to the emergence of a large number of unregulated institutions without state support labelled as miscellaneous schools (kakushugakkou). Thus the vocational education is rather uncoordinated lacking of a strong policy control. Nowadays around 25% of the age cohort of 15-18 years attend vocationally-oriented schools, which is significantly less than in the 1960s (around 40%), and the vocational students are said not to be the top of the educational achievement hierarchy. Despite of this »patchy image« there was a trend established over the last 15 years which remained almost unrecognised from public attention. The proportion of higher education students going to full-time post-secondary non-university vocational schools (senmongakkou) has increased distinctly. The major reasons lie in the qualifications offered, which are recognised by (local and regional) employers. While the labour markets for university graduates have been shrinking and becoming insecure (unless graduates are not from top-ranked national universities), the vocational qualifications produced by the senmongakkou are targeting at a more stable labour market segment. This has improved the image and attractiveness of the post-secondary vocational schools. But the image is still ambiguous and the senmongakkou are still perceived as a second-class education. To this image contributes the still prevailing strict separation of universities and senmongakkou. Switching from one to the other is very difficult, there are only very few exceptions, one of these is enabled by a relaxation of the educational law in 1999. This allowed those who achieved a degree from a senmongakkou (and fulfilling some additional requirements) to transfer to a junior college or a university, which means that vocational courses at senmongakkou can be perceived as a part of a four year university degree. In 2005 it were round 2000 students who took this opportunity. Interestingly also in Japan we find the phenomenon already sketched in the section on Canada labelled as »reverse transfer«: Also in Japan there are considerable amounts of students who attend vocational courses upon completing their university studies; and in addition, a significant number of university drop-outs eventually re-enrol in senmongakkou.

A fact that unambiguously contributes to the attractiveness of post-secondary vocational education is the expectation of a smooth transition into the labour market: The success rate of finding a job is around 80% – some senmongakkou even guarantee employment to those completing their courses. The average success rate for male university graduates is at around 60%.

6. Financing of VET

Conceptual Clarification

Knowledge on the financing of VET is of crucial importance – not only to assess the overall performance of the VET systems on the basis of input/output measures, but also in a more qualitative sense that if emerging innovative funding approaches can be identified and assessed regarding their sustainability.

Adequate data and indicators for monitoring VET (within Europe) are lacking or not compatible (Behringer 2004). This turns out to be true also for the set of countries observed by this study. Especially, the need for disaggregating data on education and training according to general and vocational paths is an important precondition, which is still not met by many countries.

This concerns in particular:

a) the extent to which available data allow for the required breakdown in cost categories;
b) the comparability of data between countries (in terms of reference years and classification of cost categories);
c) the extent to which 'fund flow' can be made transparent or even the extent to which information is available about different 'fund flows' (given that substantial amounts are coming from private sources);
d) the extent to which it is possible to give a realistic picture of total funding of VET (again given the substantial amounts coming from private sources).

In this section possible new methods and indicators to measure and evaluate the efficiency and effectiveness of VET financing will be followed.

In addition, the distribution of VET expenditures among public and private (enterprises, households, individuals) is subject of considerations. However, when applying a wide concept of VET, it is difficult to assess all different costs, expenditures and benefits, because this includes learning that takes place under conditions that are not straightforward to control. Typical examples would be learning while working, HRD measures under the auspices of the companies involved or opportunity costs of training and also of not-training. In addition, in order to make a precise assessment on the efficiency of training an accurate measure is needed on the quality of training (Grollmann 2007)

The quality of available statistical data often is inconsistent because of a lack of distinction between IVET and CVET; similarly with the absence of a clear-cut differentiation between different cost types (direct vs. indirect cost). Since VET provides benefits to individuals and companies as well as to economies and societies it is extremely difficult to assess the net costs of VET, especially when it takes place in the private domain of companies and individuals, where accurate data is difficult to obtain, as it is the case in most countries for continuing training activities. Therefore, theoretical explanations on investment in in-company and apprenticeship training are multi-fold.

6.1 Regulatory and administrative framework for financing of VET and funding mechanisms

National laws, which generally define the responsible bodies, set the major beneficiaries and the frame for VET financing. The actual financing and budgetary issues are administered through various schemes and programmes.

Comparative Findings

The widely available data on the expenditures on educational institutions as a percentage of GDP can serve as a general measure of comparison among the monitored countries. Figure 5 provides an overview based on the total education expenditures. We observe that with 7.5 % the U.S has the highest share of educational expenditures as a percentage of GDP, followed by Canada, Australia and Japan (with 4.8%). Canada is the only country of the sample that shows a decrease of the GDP share between 1995 and 2003. These highly aggregated data do only allow broad (and limited) comparisons; detailed comparisons of VET expenditures require more differentiated and comparable data sets, which are not generally available. A common differentiation distinguishes between primary and secondary, and post-secondary expenditures.

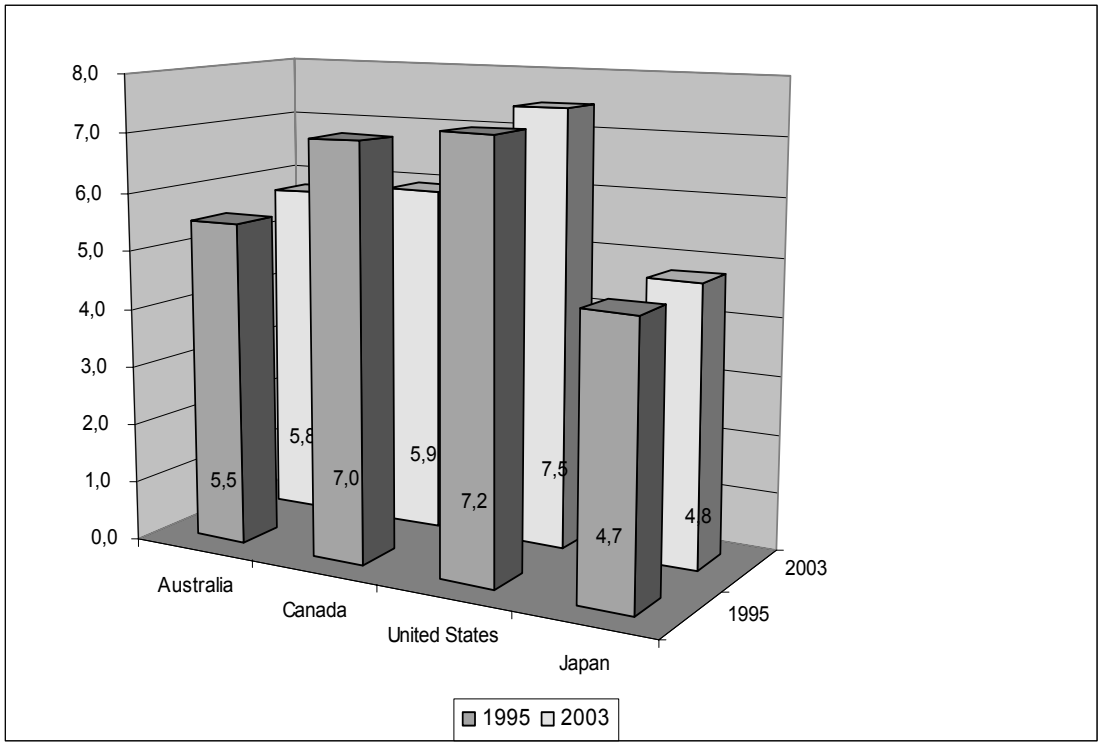


Figure 5: Total expenditure on educational institutions for all levels of education – As a percentage of GDP

Table 11 provides an insight into the distribution of expenditures per student by type of educational institution. It becomes quite evident that the per student expenditures on post-secondary level are much higher (on the average double as high) as compared to elementary and secondary level.

A general analysis of the data shows that in all monitored countries government at various levels covers around 70 % or more of the expenditures of the formal education systems. By which means and in how far the public/private distribution of expenditures is changes will be addressed in chapter 5.2 after the more general financing mechanisms addressed in the following.

		Expenditures per student[1] (in $)		Expenditures as a percentage of GDP	
Country	Elementary and secondary[2]	Postsecondary[3]	Elementary and secondary[2]	Postsecondary[3]	Total[4]
Australia	6584	12406	4,1 %	1,5 %	5,7 %
Canada[5),6)]	6482	19992	3,6 %	2,4 %	5,9 %
United States	8935	24074	4,2 %	2,9 %	7,0 %
Japan	6842	11556	3,0 %	1,3 %	4,2 %

1) Per student expenditures are calculated based on public and private full-time-equivalent (FTE) enrollment figures for the 2002–03 school year and on current expenditures and capital outlays from both public and private sources where data are available.

2) Includes postsecondary nontertiary data (International Standard Classification of Education [ISCED] level 4) for Australia, Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Japan, Netherlands, New Zealand, Norway, Poland, Slovak Republic, Spain, Sweden, Switzerland, and the United Kingdom. Also includes preprimary data (ISCED level 0) for Canada, Greece, and Luxembourg.

3) Includes all tertiary-level data (ISCED levels 5A, 5B, and 6). Also, includes postsecondary nontertiary data for Canada, Denmark, Iceland, and Japan.

4) Total includes elementary/secondary, postsecondary, and postsecondary nontertiary expenditures with the exception of Italy, Korea, Luxembourg, Mexico, Portugal, Turkey, and the United States where data for postsecondary nontertiary are either not applicable or not available.

5) Data are for 2002.

6) Public institutions only.

Source: http://nces.ed.gov/programs/coe/2007/pdf/41_2007.pdf

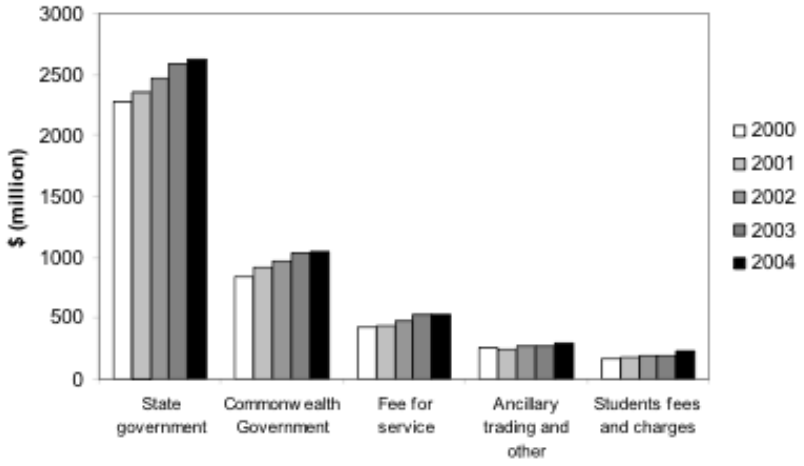
Table 11: Expenditures per student1 and as a percentage of GDP

Australia

The Australian government's total expenses for all education sectors in 2005 amounted to 47.2 billion $ (net of transfers) which equivalents to 5.3% of GDP. In addition, private household final consumption expenditure on education in 2004-05 was $18.3 billion, or 2% of GDP. Schools accounted for the highest proportion of the $47.2 billion government expenditure on education and training (55.6 per cent) in 2004-05, followed by universities and tertiary education (26.4 per cent) and TAFE institutes (9.7 per cent).

In 2005 the total operating expenditure in the Australian VET system was $5.17 billion, an increase of 6.1% from the previous year. Of this total 6.6% or $342.8 million was allocated to non-TAFE providers for the delivery of training.[8] Recurrent expenditure on VET by all governments amounted to $300 per person aged 15-64. State and territory government provided about 75% of all recurrent funding for VET in 2005.

8 NCVER, Australian vocational education and training statistics Financial information 2005



Source: Wynes et al. 2006: 9

Figure 6: Australian VET recurrent revenues by category, 200 to 2004 ($ million)

Figure 6 indicates the share of different sources of recurrent funding. As can be easily grasped from the figure, states and territory governments spent approximately twice as much as the federal government, and students' fees and charges make up for only 5-7% of the total revenues.

It must be considered that the figures only represent the publicly funded VET branch, that means not all in-company training, fee-for-service and private training is included. Consequently, the Australian VET system is larger than suggested by the official statistics. Difficult to determine, as usually with estimations on unreported cases, there are nevertheless some indications (brought forward by a study of the Australian Bureau of Statistics in 1997) that training outside the formal government funded sector is at least 71% of the size of formal VET system (measured by contact hours). This insecurity of data makes it difficult to identify the expenditure balance between the different sub-systems, the formal and in-formal.

Canada

Post-secondary education is mainly financed by government. With the exception of vocational education, financing of the education system is the primary task of the provinces. The share of government financing (federal, provincial and local) amounts up to 54.5% in 2007 (Statistics Canada 2007). The total expenditures for all universities and colleges were approximately 33.8 bio C$ in 2007, while for the schools revenues and expenditures summed up to 45.5 bio C$ (in 2006), with a governmental share of 75% of which the bulk was burdened by the provincial and territorial governments. The vocational training revenues were totalling 8.3 bio C$ in 2002-2003 with a share of 56% governmental sources and a 40% share of tuition fees.

In Canada's post-secondary education two different phases in funding can be identified. The first phase lasting up to the mid-1990s characterised by a reduction of the federal government's transfers to the provinces, which lead to an according reduction of the provinces' transfers to the education institutions. Since the late 1990s the second stage started off with a pattern of federal government's re-investing in post-secondary education

(Snowdon 2005). This pattern was replicated by the provinces. In Alberta, British Columbia and Ontario these patterns are obvious and are expressing in considerable increases of investments in post-secondary education since the year 2000. These increases of funding did not lead to a better per student ratio of resources, because the increasing funding was outperformed by the enrolment increases (and by inflation). Consequently, the funding per student was lower in 2004-05 than in 1992-93 for almost all provinces. Snowdon (2005) emphasises that these decreases in per student funding might be even more serious when considering that much of federal funding is earmarked for special purposes like research and that the running expenses of the institutions have been increasing over inflation. A common solution to cope with these difficulties is to generate revenues by launching businesses or by raising tuition fees, which is what all institutions did. Besides this sourcing for donations from local stake-holders, companies and alumni are viable options to compensate for the rising expenditures.

U.S.A.

In the United States education largely is the responsibility of states and local communities. In the fiscal year 2007-2008 of an estimated $ 1 trillion being spent nation-wide a substantial majority is raised by the states, the communities and private sources. For elementary and secondary education the federal financing share is at around 9%. If looking at the federal support for all levels of education, including post-secondary education (and including students' financial aid programmes etc.) it is approximately 12% of the total spending.

Funding for the Career and Technical Education (CTE) by federal, state and local levels at first sight has been stable over the recent years, which, similar to the Canadian case, is a big challenge because more students are enrolling in the CTE programmes/institutions, the high tech programmes require a higher investment to secure a high-quality education, and finally, the small increases in federal funding for CTE over the last years have been outperformed by inflation. Therefore, in real dollars, the funding for CTE decreased over the last decade. In states where both, state and local funding is decreasing, the situation becomes even more severe. Some states have very small budgets to work with and the only funding they receive for CTE comes from federal government. Without this these states would not be able to provide CTE to their students. For the majority of states the federal contribution to CTE, which amounts to $ 1.4 billion annually is used to support innovation and programme improvements, while the state and local funding is used to cover the running expenditures for infrastructure etc.

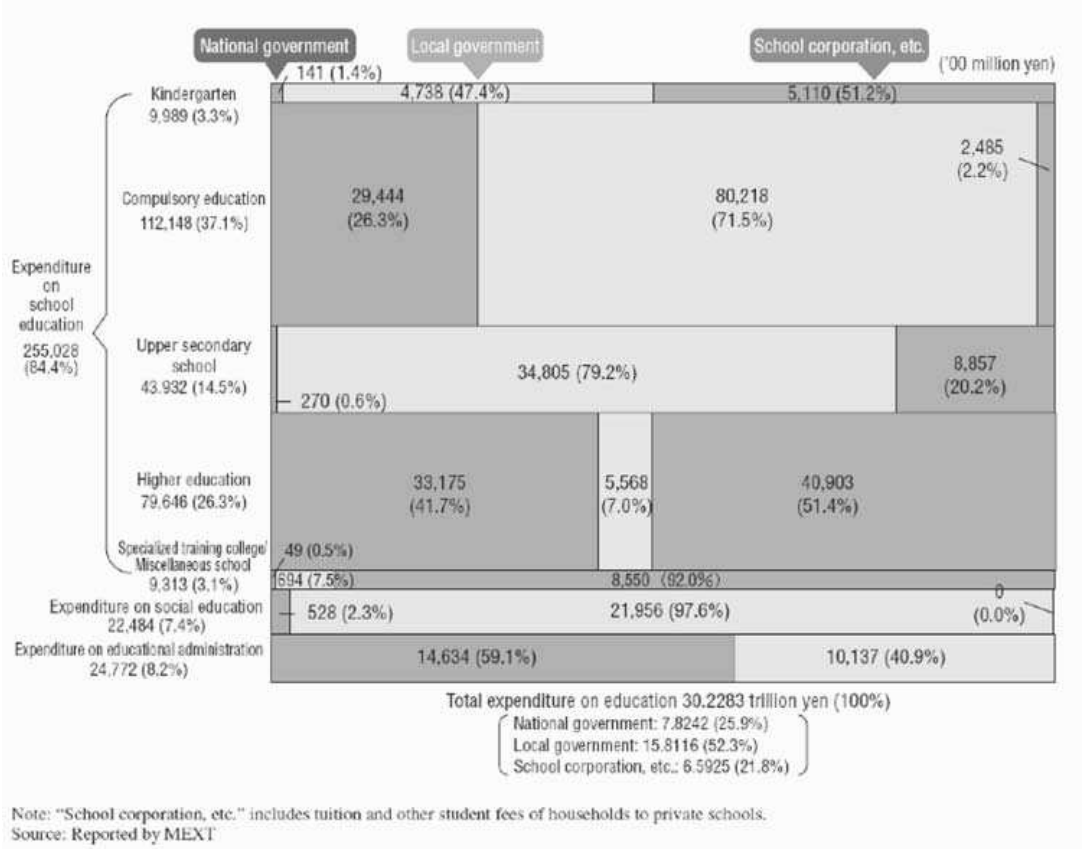
The legal basis for receiving federal CTE funding is the Perkins Act under which Basic State Grants and Tech Prep grants are awarded. The states are free to decide the split of the funds between secondary and-postsecondary levels, but after this decision being made funds have to be allocated according to certain formulas (e.g. needs-based formula).

Generally speaking funding schemes vary from year to year depending on the budget that had been approved and other sources that the schools are using or generating. State funding sometimes amounts to only five percent of the budget used in some schools. The reason for this limited financial support is that most schools are supported on a local level and are encouraged to seek local funding through private entities.

Japan

The educational system in Japan is largely financed by the central government and the prefectures and the communities. The total expenditure in 2003 amounted 30.2 trillion yen, of which national government covered around 26% and local governments contributed 52% and the remaining 22% are contributed by tuition fees etc. Figure 7 shows that the share of public funding is higher in compulsory schooling and lower in universities. Even private schools and universities receive governmental subsidies. The second pillar of financing the education system is the omnipresent tuition fees. The national governments' funding share is highest in the compulsory and higher education with a percentage of 26.3% and 41.7%. The figure also indicates that the expenditures of the VET branch, mainly the specialised training colleges and miscellaneous schools, are almost completely covered by students' tuition fees and other fees (92%), the remainder is covered by local governments, and national government is contributing only marginally.

The expenditures in vocational education and training do only cover the school-based courses. The expenditures on vocational education and training provided in companies and through specialised institutes like the prefectural technology transfer and testing centres are not included in the official statistics. Even though this is difficult to assess, it can be assumed that the expenditures on vocational training (mostly CVET, but like in other countries also in Japan difficult to distinguish from IVET) outside the school system are as high as the expenditures for school-based VET.



Source: MEXT 2006

Figure 7: Total Expenditure on Education by Sphere of Education and Source (2003)

A striking fact is given by the high share of funding to vocational schools that is contributed by the private households (through tuition fees etc.). The vocational education is thus widely neglected by national and local governments.

6.2 Innovative funding schemes and efficiency/effectiveness

If we consider innovative funding schemes as those which are going beyond the existing funding systems and which are also more than just an eclecticistic attempt to extend existing pilots nation-wide or across sectors, there are only very limited innovative funding schemes reported by the national experts.

Generally, the set of demand-led financing measures comprises of 4 general models: Training vouchers and individual learning accounts, loan models, saving plans and tax-financed approaches (cf. Dohmen 2007).

a) Training vouchers or training cheques are intended to support those individuals who take part in further training through direct payments of government benefits to finance this training. Usually there is a co-financing of the learner required. Indivdual learning accounts are accounts opened at a bank with a minimum deposit to be contributed by the individual and an offered government grant to be deposited on the account. The budget can be saved or used for training measures. Both types of financing are also made available for companies (preferably small companies).
b) Loan systems are available for small enterprises and for individuals (career development loan). Loans are provided at a low interest rate can be between several hundred up to 10.000 Euro and more. During the training programme no interest has to be paid. After completion repayments start.
c) Saving plans are a capital accumulation over a longer period (in equal deposit amounts) in advance of a training measure.
d) Tax-financed models allow the deduction of the expenses for training from taxation. These models apply to individuals and can also apply to companies.

All these models are at least on a pilot basis implemented in various countries. How successful they are is often unclear, because of their limited diffusion.

Australia

Australia seems to implement a variety of different financing mechanisms to encourage individual contributions to VET financing. Australia employs a variety of financing measures in the VET sector. First, the training levy needs to be mentioned which requires employers to provide evidence of training expenditures to the extent of 1.5% of payroll or pay a levy to the government. Even though the system lifted the training level of companies it was unpopular among employers and abandoned in the mid-1990s. The Australian type of income-contingent loans in general follows the loan systems.

The efficiency and effectiveness of VET expenditure is assessed independently by the Productivity Commission, an arm of the Australian Government. In its most recent report (2007) based on data from VET for 2005 it reported on a range of measures. The measure

used to assess effectiveness (agreed by the Ministerial Council) is the level of VET participation by age group. They reported that in 2005, 1.1 million people aged 15–64 years participated in government funded VET programs. This included 305 200 people aged 15–19 years and 212 700 people aged 20–24 years. These student numbers were equivalent to national participation rates of 22.0 per cent for people aged 15–19 years, 14.9 per cent for people aged 20–24 years and 8.1 per cent for people aged 15–64 years.

Efficiency in VET is measured by 'recurrent expenditure per adjusted annual curriculum hour'. While a full technical explanation of this measure is beyond the scope of this report, in practice this means recurrent expenditure for every hour of student contact. In 2005 this figure was $14.34, up from $13.88 in 2001. The changing composition of courses provided, along with many other factors, can influence this measure.

A further measure of output efficiency is the cost of each completed module or unit of study, technically known as 'Government recurrent expenditure per load pass'. Between 2001 and 2005 this measure indicated an increase in output efficiency, recording a fractional decrease in cost from $19.42 to $19.37, expressed in terms of cost per hour of each successful outcome.

A range of outcome measures are also used in VET, including data collected from the Student Outcomes Survey. The main measures used form this survey are student outcomes in terms of employment and further study, satisfaction with the course, whether the course helped to achieve their initial objectives and whether the course resulted in benefits to them in their workplace.

Finally the VET system uses two 'student achievement' measures to assess whether the system is functioning in an equitable manner. These measures are 'Load pass rate', that is the ratio of hours attributed to students who gained competencies/passed assessment in an assessable module or unit of competency to all students who were assessed and either passed, failed or withdrew and the 'number of students who commenced and completed a course' expressed as a proportion of all commencing enrolments in that year. These measures consider the performance of equity target group students against the total achievement of all students.

Canada

Besides of what was described in the previous paragraph there are some primarily fiscal measures launched in 2006 (or will be launched in 2007) that will contribute if not to a significant improvement in financing, to an increase of attractiveness – or both. Canadian budget 2006 takes action in supporting a more skilled and educated work force by a new tax credit of up to $2000 for employers who hire apprentices; a new grant for first- and second-year apprentices, several tax deductions and tax credits for learning related costs, confirming up to 1 bio $ to provinces and territories to support urgent investments in post-secondary education infrastructure etc. Clearly, these policy measures do not constitute broad scale innovative funding schemes.

U.S.A.

In the case of the U.S.A., however, examples such as voucher systems are reported which might be kind of innovative in the U.S.A. context, but compared to countries in Europe and elsewhere they are well known and in some cases well established. Special fund-raising strategies in local communities among stake-holders and companies

The National Assessment of Vocational Education (NAVE), a congressionally-mandated evaluation of the 1998 Carl D. Perkins Vocational and Technical Education Act and of the implementation and outcomes of vocational education in the United States has identified the following key findings regarding efficiency and effectiveness of the U.S.A. VET system:

»Vocational education has important short- and medium-run earning benefits for most students at both the secondary and post-secondary levels, and these benefits extend to those who are economically disadvantaged.

Over the last decade of academic reforms, secondary students who participate in vocational programs have increased their academic course taking and achievement, making them better prepared for both college and careers than were their peers in the past. In fact, students who take both a strong academic curriculum and a vocational program of study—still only 13 percent of high school graduates—may have better outcomes than those who pursue one or the other.

While positive change is certainly happening at the high school level, secondary vocational education itself is not likely to be a widely effective strategy for improving academic achievement or college attendance without substantial modifications to policy, curriculum, and teacher training. The current legislative approach of encouraging »integration« as a way to move secondary vocational education toward supporting academics has been slow to produce significant reforms « (NAVE 2004: 1-2).

Based on the third above finding the NAVE recommends some specific strategies to improve vocational program performance by federal priority: On the secondary level, enhance the academic achievements (e.g. by strengthening academic contents of vocational courses and by focusing funding to programs with proven academic content), raise occupational and technical skills in high schools, improving employment and earnings for non-college bound students (e.g. by promoting work experience programs); on the post-secondary level by improving employment and earnings.

Japan

In its final report 'Current State and Future Direction of Vocational Skills Development in Japan' (Japanese only) the Japan Institute of Labour summarises among others a set of policy recommendations with reference to new funding schemes:

a) expansion of public support for VET providers;
b) reduction of working hours and increasing flexibility in working arrangements to enhance individuals' discretion in terms of their time for ET;
c) more government support for individuals' ET planning;

d) government support for encouraging coherence and collaboration amongst industry-specific ET providers;
e) development of quality assurance mechanisms for ET providers and their services;
f) strengthening of public services that position between the government and the private sector to develop division of ET provision.

7. Identification of skill needs

Conceptual Clarification

With regard to the identification and anticipation of skill needs different types of 'anticipation methods' can be distinguished. Following Lassnigg (2006), anticipation of skill needs can be conceptualised in four ways:

a) conceptualisation, using the framework of 'transitional labour markets', which includes a specific focus on the development of labour market dynamics, combined with a broad view of the conditions underlying purposeful policy formulation;
b) conceptualisation, using the 'foresight paradigm', which avoids the technical complications associated with the quantitative forecasting methodologies that are prominent in activities designed to facilitate the 'early identification' of skill needs. Foresight uses the technical methodology of forecasting as only one asset among others, and includes it in systematic practices of communicating forecasts among the involved actors in order to bring their informal knowledge and action potential into the process;
c) conceptualisation, from a specific institutional view on the relationship between education and employment;
d) conceptualisation of an anticipation system as a social system of knowledge generation and management. Early identification is a kind of 'prediction', 'a form of strategic analysis in which a combination of participatory procedures is used for the collection of information of relevance to the future in order to build up scenarios that will facilitate decision-making and concerted action in the present. The participatory essence of the prediction makes it suitable in principle for regional and local planning and for the discussion of skills needs.

Using this conceptualisation, Lassnigg distinguishes four groups of 'foresight' or anticipation methods that are grouped according to two dimensions: the dimension formal methods vs. informal practices and the dimension 'professional-political decision oriented' vs. 'technocratic knowledge oriented'.

Applying these dimensions the following four groups of methods can be distinguished:

- functional analysis, detailed or strategic surveys, qualitative generalised approaches (e.g. action research), conference methodology (e.g. scenarios) (formal + professional-political decision oriented);
- econometric models, extrapolation, survey methods (enterprises) (formal + technocratic knowledge oriented);
- qualitative methods, such as experts, literature, Delphi (informal + technocratic knowledge oriented);
- qualitative research for early identification such as tailor-made research, practitioners task forces (informal + professional-political *decision* oriented).

Another way of clustering that has been promoted is based on the distinction between an observant and a participatory design of the forecast mechanism on the one hand and an interventionist and a more analytical orientation on the other hand (Grollmann 2004). The distinction between qualitative and quantitative might be misleading in some cases, because

what is referred to as »qualitative« methodologies might also be employing quantitative ways of gathering and evaluating data. Typical examples are large-scale Delphi designs such as the German Delphi Study on the »Knowledge Society« (Stock 1998). Similar qualitative methodologies under the use of quantitative data have been applied in the course of the CEDEFOP-ETF scenario study (Strietska-Ilina 2007, Sellin 2000).

Some early skill identification concepts building upon sectoral studies have been applied in European transitional economies like Estonia (cf. Järve & Annus 2007). These approaches are highly flexible, allow for adjustments to the specific situation of the given country and are organised as open discursive processes involving stake-holders

Apart from the inventory of explicit prognostic and prospective research it has been stressed in recent discussions that the prospectivity of research methods is a general quality criterion of VET research (Grollmann 2004). An example would be specific ways of task analysis that are rooted in a Taylorist conception of work. Given that the early identification procedures used to date often focus on trends on higher levels of social analysis, they are less concerned with the design of VET. A research based early identification tool is in use by means of which it is possible to identify changes at shop-floor level. What was learnt from use of the instrument may be used to design future-oriented VET (Windelband 2004).

Comparative Findings

Where the identification and anticipation of skill needs is concerned, this does not seem to be a much-addressed theme in each of the countries.

Overall there seems to be a lack of systematic 'foresight' approaches particularly at the qualitative level. While the U.S.A. focus their efforts largely on quantitative information, which then can be used by individuals to inform their career and employment decisions, Australia and Canada more strongly emphasise the qualitative skills aspects of emerging occupations. In Australia and Canada, on the one hand, uniform and nation-wide largely standardised foresight systems are employed. But to cope with the huge differences among the states and territories in both countries regional or state and territory-based skills foresights are conducted with non-uniform methodologies.

Australia

The major national level documents used to identify skill needs are the *Industry Skills Reports*, which comprise an overview report as well as individual reports for each of the most relevant industry sectors. The key messages of these reports address the difficulty of improving the match between skilled labour supply and demand. In certain industries such as mining and electro technology and energy utilities the initial skill requirements demanded by industries are above the average literacy and numeracy level, which causes difficulties in recruitment. Therefore, the industries compete against each other to attract the most highly skilled labour. Consequently, in some areas the strategy of targeted recruitment of skilled workers from overseas is re-vitalised.

The cornerstones of the reports' skill identification are one the one hand globally induced (market) pressures, and on the other hand environmental and energy factors as well as the

impact of rapid technological change. Eventually the growing impact of national regulatory demands and the need for more nationally consistent licensing arrangements and occupational health and safety issues are identified as major drivers influencing future skill demands in Australia. The national level Industry Skills Report identifies a set of policy measures to be applied in order to increase the match of skill demand and supply. Among others, the overview report recommends to increase overseas migration (including better recognition of overseas qualification), benchmarking against international practice of competency and qualification standards, establishing new and better to recognise skills and qualifications, improving the image of industries etc.

In addition to the national level skills reports there are also state and territory level analyses of labour market trends. These analyses address the varying economic and labour market conditions in these reports and try to adjust their VET policies to the peculiarities of their state or territory. Some state and territory training authorities use econometric models to forecast the occupational and qualification changes in their jurisdiction. Yet these forecasts are not necessarily conducted on a regular (yearly) basis, and the question whether or not the findings have impacts on the actual training delivery or on VET policy in general are disputed.

Canada

An important factor influencing the Canadian efforts to respond to skill needs is the fact of being a country with an open immigration policy. Thus the nexus between anticipating skill needs and corresponding VET policy measures are weaker than in countries without immigration. But there are measures and tools implemented to serve the need of skill foresight. One initiative to foresight skill needs is the »sector councils« launched by the HRDC. Sector councils are organisations within a defined area of economic activities (branches or sectors) which assemble partners from business, labour, education, government and other stake-holders The goal of these sector councils is to determine future human resources, skills and learning challenges and to develop sustainable sector-specific human resources strategies on these foresights. Based on sector studies the sector councils analyse the specific human resources and education requirements of given sectors. These findings are differentiated into occupational analyses of the existing and expectable work tasks in a given occupational field. Based on the results of this procedure skill standards can be developed which are the basis of the subsequent development of curricula. Thus the sector councils are linking skill foresight with the development of curricula and corresponding supply of VET programmes and courses.

Similar purposes serves the DACUM method (Design or Develop a Curriculum), which allows to identify those occupational contents that need to be considered when developing a curriculum. Through involving skilled workers and by means of mediation through facilitators curricula for emerging new occupations can be designed. But evidently DACUM requires a previous identification of skills needs or an anticipation of emerging occupations.

In some states such as British Columbia there are specific measures implemented that serve the forecast of skill shortages or labour market imbalances. The first source are economic measures of market indicators (e.g. the Beveridge Curve measuring job vacancies against

unemployment rates), the second source are employer based surveys (e.g. quarterly surveys of the Canadian federation of Independent Business). By measuring market changes and by monitoring trends over time future skills shortages are identified.

Since each of the measures has its own shortcomings, evidently the most reliable information basis for skills foresight would be a combination of labour market data and the information obtained through employer surveys. Such comprehensive and complete information is currently not available in Canada and therefore needs to be developed in order to improve the skills foresight measures.

U.S.A.

Forecasts about labour market requirements and educational needs are made until 2014 by the Department of Labor. The forecasts are available online and serve as a guideline for the various career education institutions to develop programs that meet the needs of the future workforce. They orient their program development on such projections.

The U.S.A. Department of Labor, Bureau of Labor Statistics, forecasts the number of new jobs that will be needed in each of over 240 occupations. These forecasts are for 10 years and cover the nation as a whole. The forecasts are developed every 2 years. They are developed for and paid by the national government. The forecasts are based on anticipated growth in the population and labour force, the overall economy, the demand for particular goods and services, and the number of workers it will take to produce those goods and services. These factors are estimated using a model of demand and an analysis of past trends and future developments. Occupational analysts make estimates of job growth based on their expertise and research. These analysts also study the educational requirements of occupations. For further detailed planning of educational processes and identifying the emerging occupational contents the DACUM method is frequently employed.

Many state governments develop forecasts of job growth, based on the national ones.

The information on the forecasts is made available to the public through various channels: The Occupational Outlook Handbook is a primary source of students, career counsellors and jobseekers. The Monthly Labor Review is used by labour market economists and related researchers, while education planners use the Occupational and Training Data Bulletin.

8. VET Policy

Conceptual Clarification

Analyses of VET policy shall provide some indications of the general orientation, the main objectives of policy in vocational education and training, its main actors, levels of governance and modes of intervention. Furthermore these analyses include references to related (and interacting) policy fields such as employment or welfare policies. Evidently the discussion of VET policy builds upon the analyses of the structural contexts, and the institutional and administrative frameworks of VET. These aspects have been discussed in preceding sections therefore this chapter addresses the VET policies with its key issues and priority areas and attempts to identify the factors that are influencing VET policies in the monitored countries.

Comparative Findings

First of all the question is: »Is there an explicit VET policy in the monitored countries or not?« This question can be answered roughly with a continuum ranging from the virtual non-existence of concept and practice to explicit and implemented policies and practices as regards to the governance of VET. When looking at the issue this way, the spectrum ranges from Japan with an almost complete absence of explicit VET policies to Australia with elaborated concepts and practices, U.S.A. and Canada ranging in between those two poles. Another but similar possibility of looking at it is the way in how far VET policy explicitly integrates different policy aspects and objectives that can be aimed at with VET. Australia then integrates different spheres that can be addressed with vocational education, such as innovation, social cohesion or building a competitive skills basis. In Canada and U.S.A. the main focus of VET policies is educational leaving aside the other issues to other neighbouring policies such as labour market re-training and the like. Therefore, one main issue is the parity of esteem between general and vocational education and to some extent especially in Canada the mobility of the workforce. The »VET-policy-vacuum« that can be found in Japan, shows that this country addresses the issues at stake almost fully through other policy domains.

All countries, especially Australia and Canada address the issue of involving a multitude of stake-holders into VET policies. A corporatist or at least multi-actors and stake-holder approach to policy making in VET seems to be a generally accepted ideal, but suffers from sever problems in realisation. In all the monitored countries major parts of VET policy are still addressed by the state and/or employers.

As regards to the mode of policy making, softer and harder mechanisms and different orientations can be distinguished: Canada turns its future focus to sectors and economic innovation. This is similar in Australia. In the U.S.A. the main focus of VET policy is educational. Interestingly, the example of Australia shows that there is increasing attention to the connection between policies on VET and policies of secondary education, so an increasing »educationalisation« of VET policies is likely in Australia for the future. In all countries the major lever of VET policy implementation are fiscal transfers, no matter if based on voluntary »partnership agreements« such as in Canada or VET–legislation such as Carl-D.-Perkins in the U.S.A. The major way of controlling the public policies in all the

countries are increasingly indicators and benchmarks that can be derived from the political goal setting, their measurement and the allocation of funds accordingly. National standardisation and accreditation mechanisms that focus on VET are advanced in Australia and exist on a weaker basis in the US and in Canada.

Australia

The most recent and surely the most comprehensive policy strategy for an integrated, medium-termed development of the VET sector in Australia is pursued by the national policy initiative 'Shaping our Future, Australia's National Strategy for Vocational Education and Training 2004–2010' (Department of Education, Employment and Workplace Relations). This policy initiative stands for a broad commitment among major stake-holders in the VET policy arena: government, industry, training providers and other parties. The initiative touches different neighbouring policy fields such as employment, regional development, innovation and social inclusion.

»Shaping our Future« intends to guide VET planning and priority setting for states and territories across Australia. Its four objectives are:

a) industry will have a highly skilled workforce to support strong performance in the global economy;
b) employers and individuals will be at the centre of vocational education and training;
c) communities and regions will be strengthened economically and socially through learning and employment;
d) indigenous Australians will have skills for viable jobs and their learning culture will be shared (ANTA, no year page 2; document retrieved from: http://www.dest.gov.au/sectors/training_skills/policy_issues_reviews/key_issues/nts/dap/strategy.htm (28.01.2008)).

Furthermore, the initiative sets 12 strategies for vocational education and training at the national level until the end of the decade. Among others the following strategies are most important: increasing participation and achievement; improving the value, image and public recognition of VET; achieving equality of participation; enabling partnerships between VET providers and industry; implementing flexible funding models; making learning pathways seamless; improving the quality and consistency etc. (Wynes et al. 2006: 6).

This national strategy for vocational education and training builds on the achievements of two previous national strategies, A Bridge to the Future (1998-2003) and Towards A Skilled Australia (1994-1998), but it is more far-reaching than its predecessors:

a) it runs longer,
b) it is broader,
c) it is more focused on clients,
d) it is inclusive.

While the preceding national strategies ran four or five years, 'Shaping our Future', the current strategy, covers seven years, and, even more important: »It also provides for the review, updating and adaptation of strategy implementation through its action plan« (ANTA,

no year, p 4). 'Shaping our Future' does not only apply to vocational education and training issues, but also to employment, regional development, environmental sustainability, innovation and social inclusion. Therefore it is broader and in some sense more integrative. On the other hand the strategy is more focused on clients, the goal is to better respond to the multiple and diverse needs of business, individuals, communities and other stake-holders Eventually, 'Shaping our Future' aims at inclusion of people facing multifarious barriers towards learning (due to disability, age, gender, cultural difference, language, literacy, numeracy etc.) by building equity into the core business of VET.

Even though the national policy initiative 'Shaping our Future, Australia's National Strategy for Vocational Education and Training 2004–2010' is set going and thus relatively independent of elections and changes in the ruling parties, the contexts and accompanying measures are to some degree sensitive to these changes in government.

So the future development of VET in Australia can be expected to be influenced by the change of government (since November 2007 the Australian Labor Party is in charge of government). On policy issue proposed by the new government is to create an independent body, 'Skills Australia', to advise on ways to address emerging skills shortages.

Another important policy issue that will need to be addressed in coming years is the relationship between VET and secondary education. While there are growing linkages between these sectors and increasing funding being allocated to schools for the provision of VET, there are considerable reservations held by industry over the capacity of school-based VET to deliver industry relevant training. Related to this issue is the bureaucratic dominance of schools in most state/territory administrations under which VET issues, especially the need to co-operate closely with industry in developing programs and training packages, can be submerged by the more politically sensitive issues around school education.

In addition to the indications on relevant stake-holders given in chapter 3.6 (on the institutional framework of VET systems), we will focus in this section only on those stake-holders that are becoming increasingly important for realising the new national strategy. First and foremost, business and industry are key partners of paramount importance, and as indicated above, the reservations held by these stake-holders against school-based VET have to be overcome. The successful implementation of the new national policy depends on regional and community organisations, on brokers of vocational education and training as well as on the co-operation of those stake-holders securing equality of participation.

Canada

As a federal state Canada has only very weak national education policy. The policy measures with relation to VET are either located on the level of provinces and territories or are covered by other than the Ministry of Education. The major strategies in place are run under the auspices of the Ministry of Human Resources and Social Development.

Agreements such as the Canada-Ontario labour market Partnership agreement provide a new way of giving direction to policies in the general framework of federalism. Such agreements outline the mid-term priorities of co-operation and also include processes of checking progress with regard to joint objectives as a means of securing public

An initiative supported by the Canadian Government is the Innovation Strategy, which, launched in 2002, significantly improve the innovative performance of communities across Canada. The Innovation Strategy aims at responding to the various facets of the innovation challenge. The Innovation Strategy comprises of two major initiatives, Achieving Excellence: Investing in People, Knowledge and Opportunity and Knowledge Matters: Skills and Learning for Canadians. The primary goals to achieve are knowledge performance, skills, the innovation environment and strengthening the communities. The specific priorities of the 'Knowledge Matters' initiative lie on a series of national goals and milestones for children and youth, post-secondary education, the adult labour force and immigration.

Since 2005 the Ministry of Human Resources and Social Development funds a considerable number of initiatives such as the Workplace Skills Initiative (WSI), which provides funding to promote awareness, collaboration, knowledge, experimentation and innovation around workplace skills issues and to mobilise employers and workers to make workplaces more competitive, productive and highly skilled.

The Sector Council Program (SCP) unites the Canadian Government with sector councils, which are permanent organisations that bring together representatives with different perspectives from key stake-holder groups in an industrial sector. The priorities of the sector councils' are human resources issues and to identify which skills are needed today, and will be needed tomorrow. In detail the sector councils define human resources issues, work on recruiting and retaining workers, the anticipation of skills shortages, career awareness strategies, facilitate school-to-work transitions, develop occupational standards and promote the workplace as a learning place.

The general underlying idea of establishing sectors councils was that human resources challenges affect industries or sectors differently – therefore a sectoral approach is the most appropriate. Furthermore, the sectoral approach is also an important platform for industry to develop the education and training system on a national level, ensuring that the skills being developed are relevant to the sector's companies needs. The SCP's objectives are building on four pillars:

a) growth,
b) excellence,
c) innovation,
d) synergy.

The objective of growth aims at broadening the scope, which means expanding the network of sector councils to cover 50% of the Canadian labour market. Excellence targets at the ability of sector councils to sustain impact through addressing skills issues. The third objective, innovation, addresses the ability to support and promote new, effective and sustainable practices in human resources planning and wok place skills development. Finally and probably most crucial, synergy targets at strengthening the linkages between the collaborating partners as well as all relevant stake-holders of the education and learning field etc.

The sectoral approach is expected to be beneficial for business, for workers and for learning institutions: The potential benefits for workers lie in practical and relevant training, an

improved job mobility and a higher adaptability to changing workplace environment, and eventually a higher degree of participation in the workforce. Business earns the most benefits from the provision of new services for their workers, a stronger position in fixing their training needs and improved relationships with learning institutions. The benefits for learning institutions comprise effective relationships with industry, an improved responsiveness of curricula to industry needs and expanded enrolments.

The Government of Canada supports all mentioned (and many other) initiatives as a facilitator. A characteristic is the broad approach which synthesises vocational education and training, innovation at regional, community and national level as well as human resources issues in its broadest meaning. These initiatives involve many different Departments of State and a broad multitude of relevant stake-holders

The mentioned policy initiatives shall contribute to achieving Canada's target to become a knowledge-based economy (e.g. by developing at least 10 internationally recognised technology clusters by 2010), to strengthen the innovation performance and environments and to improve the skills and qualification levels of the human resources by providing meaningful opportunities for learning and career advancement and by enabling mobility. Evidently, these general policy goals are very similar to the European Union's Lisbon Goals, therefore monitoring the advances Canada achieves are extremely interesting for Europe to learn from Canada's advancements and failures in VET-related policy.

U.S.A.

In the US an explicit VET policy has not played a major role in the last ten years. On the federal level it is mainly the re-authorisation of former VET bills that has taken place (Carl-D.-Perkins IV) with two major directions:

a) work place learning is emphasized in order to provide students with in-depth career exploration opportunities and support contextual learning that connects education and school to the work place and assists in the application of basic skills to life situations. It is intended to develop occupational and academic competencies that facilitate transition into advanced placements in post-secondary career preparation programs;
b) the switch from vocational education to career and technical education is mainly intended to distance the field from the negative stigma that has long been attached to it. So far participation number measured in Carnegie Units have increased but graduation from full programs have been constant.

This orientation is complemented by an educational policy that is mainly looking at improving the basic skills base of gaduates by increasing the academic orientiation and standards of secondary education.

On the level of states and individual sectors there are still iniatives and programmes that follow the the skill standards and occupational cluster logic that was introduced in the late nineties. Examples are the Comptia Initiative for the establishment of apprenticeships in the

IT-sector[9] or the curricular guidelines and career guindace services that ar still run and develop on »ocupational clusters« approach in many of the states.[10] However, it is difficult to assess the structural impact of this on the future of VET policy in the US, currently.

Japan

The major policy lines and debates during the 1990s are related to the self-responsibility of the individuals for their employment and career advancements. Since in Japan different mechanisms have been effective in securing life-long employment and career development the belief in the value of qualification as a means to achieve benefits in career advancement or securing employment is weak. In combination with the peripheral status of vocational training courses (in contrast to general education) the education policy preferably emphasises the field of general education.

In the following two important policy initiatives carried out by different ministries and with different perspectives and targets will be presented.

On the one hand, important policy measure with a close relationship to vocational training and education are carried by the Ministry of Health, Labour and Welfare's Human Resources Development Bureau. The most remarkable initiative is the recently implemented Eighth Basic Plan for Human Resources Development (in July 2006, term ends after 5 years). Based on this plan a variety of measures is established such as the provision of diversified vocational training opportunities, the establishment of a labour market infrastructure and vocational career support. The target groups aimed at are young people in their mid-career, middled-aged groups, elderly people as well as special target groups such as 'freeters' (i.e. underemployed or part-time working young school graduates (sometimes drop-outs) in low-qualified service jobs) and disabled people. A special emphasis is put on the improvement of »on-field excellence« which comprises techniques, skills and problem-solving abilities that are underpinned by practical experiences e.g. in manufacturing. The development of human resources that support »on-field excellence« are perceived as inevitable for the maintenance and improvement of Japan's industrial competitiveness (The Ministry of Health, Labour and Welfare 2006).

Among the measures for young people is one outstanding initiative that is carried by the Ministry of health, Labour and Welfare and the Ministry of Education, Culture, Sports, Science, and Technology since 2005. Under the label »Japanese-style Dual System« a programm was launched that combines classroom lectures at an education institution (3 days/week) with practical training at a company (2 days/week). This »Dual System« was implemented in 28 prefectures as a short-term training (5 months) or a long-term training (1–2 years). The target groups are high school students, unemployed high school graduates other unemployed young people and »freeters«. Running through the Japanese Dual System shall supply these young people with qualification (as a qualified worker who ran through an

9 See Grollmann, P., Tutschner, R. & Wittig, W. (2007): Structuring IT qualifications: lessons from the German case. Journal of European Industrial Training 31(7), 514-529.

10 National Association of State Directors in Career and Technical Education Consortium. (2007): Career Clusters: A Plan of Education for a Global Economy. Washington.

evaluation and certification process) which might serve as the foundation for their career paths (The Ministry of Health, Labour and Welfare 2006).

With its strategy towards a »New Growth« the METI launched a policy in 2006 that is founded on well-developed human resources (harnessing the nation's treasured human resources) supported by innovation, productivity improvement, and taking advantage of the dynamism of the regional Asian Economy (METI 2006). Thus, this policy is on the one hand targeting at economic growth and competitiveness, which will be grounded on the development of human resources. With this policy the METI will promote business-academia collaboration for the enhancement of practical education in regional technical high schools and the development of technicians utilizing locations provided by technical junior colleges. The overall target is to support the needs of sectors that contribute significantly to Japan's competitiveness such as manufacturing.

With these policy initiatives some steps in re-directing the vocational education and training are done, particularly the implementation of a »Dual System« is outstanding. Even though it yet is not more than a pilot experiment it might be a solution to the manifold problems of Japan's skill formation system, e.g. by enabling career perspectives for young people building upon a »Dual Vocational Education«. On the other hand, METI's strategy to a »New Growth« is the attempt of a broad synthesis between competitiveness, innovation and productivity, and the development of human resources through improved partnerships between business and educational institutions.

9. Conclusions

Monitoring the VET systems of Australia, Canada, the U.S.A. and Japan means to look at »old« and mature competitor countries of the European Union. With the U.S.A. the economy dominating the global markets since decades is monitored, and with Japan, Canada and Australia the »first generation« of globally catching-up economies is in the sample. Japan can be perceived as the archetype of today's rapidly developing Asian economies and therefore might be interesting to better understand the mechanisms of development under the conditions of globalising markets.

What unites the four countries regarding their vocational education and training systems is the relative importance of school-based VET, which at least in the cases of Canada and Australia is complemented by apprenticeship systems that play a certain role in their respective VET systems.

Hence, all countries made big economic progress during the last decades and all of them are prepared to deal with the challenges of globalisation. Their success measured in terms of GDP growth is convincing and it can be expected that all countries of the sample will be performing well in future globalised production.

Evidently, economic success is only partly rooted in policy. Other important contributing factors are labour markets and wage systems, natural resources and the like.

General lines of development

The monitored countries are belonging to those with the highest GDP per capita and are therefore belonging to the most advanced economies with wealthy populations. They are challenged by the catch-up economies in Asia. To survive in the global competition and to cope with the pressure exerted through the challenges of a knowledge-based production it seems inevitable to transform the national skill formation systems in order to better respond to the emerging transitions in production and service sectors. Evidently, these developments require adaptations of the VET systems. Clearly, there are various policy domains contributing to economic success, out of which the contribution of VET – even in its widest sense – maybe limited and at least difficult to assess. However, VET systems and current policies are in close interconnection with other factors of economic growth and success. If we can help to disentangle those closely interrelated spheres and make this interrelation more transparent, then the study has already reached one goal as regards to the notion of »policy learning«.

Comparative Conclusions

In the following, the most important findings of the comparative monitoring are presented and an attempt is made to draw conclusions to point to possible recommendations that might be formulated for European countries and the European Union in order to support their struggle for a good position in the global economy, innovation with more and better jobs and social cohesion during the coming decades.

First some general findings will be presented that can be derived from the commonalities of the monitored countries' VET systems. These findings will be scrutinised regarding their potential for informing the European Union's VET policies and the opportunities to learn. Those findings serve the global »trend-scouting« function of this study.

The second section of these conclusions will summarise differentiated findings alongside the major thematic fields of this study:

a) image and attractiveness of VET,
b) financing of national VET systems,
c) the countries' efforts in skill forecasting.

Those umbrellas provide the possibility of making direct comparisons with the Europe. With a reference to the results and recommendations of the Maastricht study we will formulate conclusions of this study's comparative findings, relate them to the Maastricht study's key messages and see if there is a match. By addressing the issues of VET's image and attractiveness, and financing of VET the findings lay within the frame and scope of the Maastricht study. The topic of skill foresight goes beyond the Maastricht study's research framework. Therefore, the latter point has no reference to the Maastricht study. Where appropriate, conclusions will be drawn that rest on individual countries' practices or policies that could be of specific interest to European VET policies.

General commonalities

The elaboration of conclusions must begin with mentioning that the largely criticised deficiencies regarding the availability of adequate and sufficient data on various aspects of VET are still prevailing. This is particularly – and somehow surprisingly – still the case with data and indicators on VET expenditures, the participation rate in VET, school-to-work transition data etc. It is astonishing that the availability and quality of qualitative data on VET is in some fields better than the quantitative data. Certainly, the absence of pronounced scientific sub-disciplines and respective infrastructures dealing with VET research is related to this lack of data in the monitored countries. The difficulties we experienced to find VET experts in some of the countries supports the impression that VET research in these countries has not yet flourished to a research landscape addressing a huge variety of thematic areas of VET.

Some countries – at least two of the sample, Australia and Canada – did switch their national human resources and skill provision policy from an immigration solution towards aiming at an endogenous, self-sustainable path of skill formation that requires a clear addressing of an active national skill formation policy. In all countries vocational education and training is preferably provided at vocational schools, junior and senior vocational schools, and mainly at specialised (post-) secondary institutions. The entry into the labour market is also feasible from general education tracks – in the case of Japan this is the standard path –, but the graduates from the general education track suffer severely from deficiencies in skills and practical knowledge required for the occupations. The provision of practical skills through work-based learning is a weak point in all systems monitored. Apprenticeship programmes that in all monitored countries eke out a peripheral existence tackle this major deficiency. Of

course co-operation programmes between vocational schools and local industry might support the solution of this »practice problem«. Yet, it did not succeed, mainly because companies are hesitant. This is due to the fact that companies prefer their in-house on-the-job training as the adequate measure to solve the companies' need for skilled and competent people.

This leads in all countries to a difficult situation with regard to the involvement of social partnerships on the level beyond the immediate practice of vocational education practice, which in turn leads to problems of establishing systems of VET that can build the foundation fro a high quality and mobile workforce.

Image and attractiveness

Considering the Maastricht study's key messages regarding IVET, it identified 'quality' as the major issue in Europe's initial VET. This insight is based on a fairly high participation rate in initial VET (average across all EU member countries). Therefore, the policy focus was directed on quality, attractiveness and flexibility of IVET, for example by fostering experience-based routes into working life. Considering this situation, the EU countries are in a more comfortable situation: higher participation rates and less resentment against vocational pathways of education. Evidently, most school-based VET systems in Europe suffer from a lack of practical work-place learning, but there are promising pilots implemented (like school-company co-operation, internships). With that at least tentatively first steps are made and Europe compares well to the group of monitored countries.

It can be learned especially from the example of the U.S.A. and Canada that attempts to raise the quality of VET through nation and state-wide testing are always in danger of favouring classical academic content. For the level of practice this can potentially lead to classical ways of instruction at the cost of providing more authentic curricular delivery modes in VET.

The sample of monitored countries is bi-furcated regarding the image and attractiveness of vocational education paths. Japan is similar to Korea and China, the countries monitored by the parallel study (Lot 2) with a strong Confucian heritage, in the contempt of manual labour and practical skills. This general cultural attitude leads to a widespread strategy of avoiding vocational education paths in Japan. Though Australia, Canada and particularly the U.S.A. also have a strong preference for general and higher education among their young people (and their parents), these countries could establish apprenticeship systems with a considerable reputation and a favourable image (at least in parts of industry and the population). The attempt to improve the image by renaming VET courses and programmes with terms emphasising technology, learning and career advancements was partly successful in raising the image.

The negative image and little attractiveness among the population and especially among youth are corresponding with reservations of companies against the vocational schools. The reputation of the VET institutions is often bad, because they do not match the needs of companies for skilled workers. The Maastricht study labelled the obvious solution as »developing new linkages«, i.e. to establish, among others, co-operations between companies and VET institutes especially on local and regional levels. The possibly developing dialogues on the contents, the quality, the curriculum and the relationship of theoretical knowledge and

practice can bring companies and schools closer together and contribute to increasing the organisational and curricular flexibility of VET. In Australia this strategy seems to have gained considerable momentum. Experiences from the U.S.A. and Canada are discouraging with regard to the upper levels of governance. Even though there exists a rich tradition of co-operation between business and industry (co-operative education) on the one hand and high schools and community colleges on the other, this has not been converted into a feature of the national policies of skill formation and vocational education. Countries in Europe might be better placed in that regard due to the stronger roots of corporatism and social partnerships.

The key messages of the Maastricht study assume the recognition of non-formal and informal learning to increase the attractiveness of VET programmes by opening up career paths or qualification levels otherwise not achievable for certain target groups. Additionally, formalised recognition would improve the chances for allocation on the labour market. Surprisingly, only two of the observed countries in our study are undergoing major efforts to implement procedures for recognition of the outcomes of learning forms distinct from learning in formal settings. As elaborated in chapter 4 on image and attractiveness, with regard to recognition of other learning forms Australia and Canada show the strongest efforts among the countries monitored by this study.

A specifically interesting finding, which can be observed across all the monitored systems, is a lack of fit between the graduates' qualifications and the labour market demands. This has led to the establishment of specific institutions on the one hand and backwards routes of educational mobility on the other hand. Increasingly young people after graduating from college extend their educational pathways through enrolling in specific courses aiming at increasing practical vocational skills and competencies in all the observed countries. Unfortunately accurate data about this phenomenon is scarcely available.

Financing

The expectation to learn about innovative forms of financing VET systems in the four countries, Australia, Canada, the U.S.A. and Japan, was not fulfilled. The amount of income gained through tuition fees and income-generating activities of the VET institutions is on the increase or, like in Japan, since long at a high level. The hope to find innovative approaches to funding of VET among the competitor countries brought about only well-known measures such as voucher systems and individual learning accounts in the U.S.A., in Australia the income-contingent loans and voucher systems as well as tax-based systems. The success of these financing mechanisms is yet difficult to assess, because most of them are in a pilot phase or suffer from low acceptance among the students.

Identification and anticipation of future skill needs

The identification and anticipation of future skill needs is the »stepchild« in all of the four countries. Skill forecasting in a narrower meaning is rarely conducted, but rather more general human resources and manpower forecasting, which is carried out by planning commissions based on census data or data from employment agencies. Such foresight activities are rarely linked with the assessment of real needs emerging from developments in production and

practice. Additionally, there are only few exceptional cases where foresight activities are interlinked with curriculum development and devising occupational profiles. Usually, foresight activities are focussing on other social layers and levels of abstraction, than the information that would be needed in order to make informed decisions about the design of VET programmes or training regulations.

On the other hand there are approaches to curriculum development that emphasise the knowledge and skills required in immediate working contexts – e.g. the DACUM methodology – that are not backed up by any more large scale considerations. An interesting measure is reported from Canada with the »sector councils« that are focussing their research, developmental work and skills foresight on specific sectors and the transformation of the gathered information into skill standards. Similar activities have seized in the U.S.A. with the skill standards initiative that suffered from a lack of employer involvement and the re-orientation of the federal educational policies. In future studies it might be interesting to probe the different functions and practices that educational providers such as community colleges apply in identifying industry needs on the regional level as one way of early skills recognition that is immediately connected to VET practice.

General Conclusions for European VET policies

For the four countries monitored in this report it seems as if the close look at them can mainly serve a mirroring function. The look at their VET landscapes and the three thematic areas helps to unveil and profile certain distinct features of European VET. In future studies it might be worthwhile to take a more focused look at the identification of exemplary practices on the institutional level or below.

Image and attractiveness of VET in Europe compares well to the monitored countries that are all putting in enormous efforts into trying to raise the image of VET. This can be seen as an asset to VET policies in Europe. However, it could also be argued that Europe is set on a specific future idiosyncratic track that brings about its own risks and challenges.

The »policy packages« that are available in general are roughly an integration of education and HRD through establishing VET as a pathway within the initial and higher education system or to bet on a strategy that puts emphasis on an academic orientation of the education system and leaves the whole issue of competence development and HRD to the individual and companies after graduation.

Especially, the cases of Australia and Canada show that targeted strategies of recruiting skilled workers from abroad might be a viable strategy for countries with a »tradition« of open immigration policy. But it cannot replace an active skill formation policy.

All in all one question remains: Which type of VET system is the most appropriate to economic success: a widely school-based system or a work and practice-based system built on arrangements such as apprenticeships? At least two of the monitored countries, Australia and Canada, have established significant (though marginal) apprenticeship systems, which work well within their overall dominant school-based VET systems. However, the challenges of an advanced manufacturing of highly sophisticated products and the delivery of high quality services might create the necessity to establish mixed systems of VET. Depending on the skill

requirements and the skill and knowledge types necessitated, there might be an apprenticeship system matching with the needs of craft-type productions and services while certain fields of high technology production might be served with a VET system that is emphasising school-based learning, but also covers work practice, because it seems as if some of the competencies learned in that setting cannot be substituted through school or college-based instruction.

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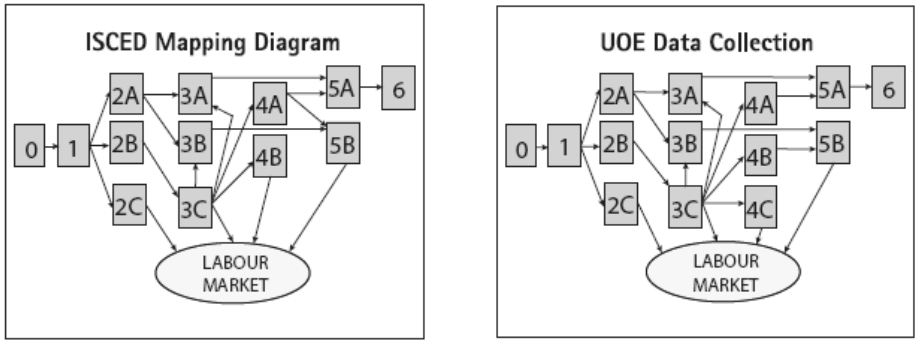
Annex:

Information about ISCED

Finally, the »type of subsequent destination« criterion is applied at levels 2 through 5, but not in the same way throughout (see Figure 1):

- At ISCED levels 2 and 3, there are three types: A, B and C.
- At level 4, there are only two ISCED types: 4A and 4B. However, the UOE data collection subdivides ISCED 4A (which provides entry to ISCED 5) in two types, calling them »4A« (which provides entry to ISCED 5A) and »4B« (which provides entry to ISCED 5B), while labelling ISCED 4B (designed for direct labour market entry) as »4C«.
- At ISCED level 5, there are also only two types, 5A (which provides entry to ISCED 6) and 5B, which are not modified by UOE data collection.



(UNESCO Institute for Statistics (UIS) 2006: 11)

Figure 1: ISCED mapping diagram showing levels and destinations, and UOE's modified version

ISCED levels are, in principle, based on the »complexity of the content« of programmes.32 However, in practice, given the lack of international standards on levels of educational complexity, they rely on a number of programme characteristics which are used as proxies. These relate to: 1) typical starting ages; 2) duration of programmes; 3) entrance requirements for programmes; 4) intended destination of graduates; and 5) types of qualifications awarded. The ISCED levels ascend from Level 0 to Level 6, where Level 0 refers broadly to pre-primary education, Level 1 to primary education and Level 6 to advanced research qualifications. The remaining levels, which correspond to this report, ascend broadly from lower secondary (2), to upper secondary (3) to post-secondary non-tertiary (4) to first stage tertiary (5). These levels are further subdivided on the basis of the destination for which the programmes have been designed to prepare the students. The ISCED levels relevant here are defined as follows.

ISCED Level 2 programmes (usually designated nationally as lower secondary) are those which start when education begins to be organised into a more subject-oriented pattern. Level 2A programmes are designed to prepare students for entry to Level 3A or 3B programmes, which may in turn lead to tertiary education. Level 2B programmes are designed to provide access to Level 3C programmes, which will lead to direct entry to the labour market. Level 2C programmes are designed primarily for direct access to the labour market.

ISCED Level 3 programmes correspond to the upper secondary phase of education, normally require completion of ISCED Level 2 for admission (or its equivalent for adults) and typically run between two to five years. Level 3A programmes are designed to provide direct access to Level 5A programmes. Level 3B programmes are designed to provide direct access to Level 5B programmes. Level 3C programmes are designed to lead directly to the labour market, to Level 4 programmes or to other Level 3 programmes.

ISCED Level 4 programmes are significantly more advanced than the Level 3 programmes and are typically attended by students who are older than those at Level 3. Students will normally have completed a programme at 3A or 3B to gain admission and the course will last between six months and two years. Level 4A programmes are designed to provide direct access to Level 5A programmes. Level 4B programmes are designed to provide direct access to Level 5B programmes. Level 4C programmes are designed to lead to direct entry to the labour market or to other Level 4 programmes.

ISCED Level 5 programmes represent the first stage of tertiary education, are significantly more advanced than Level 4 programmes and normally require successful completion of programmes at Level 3A, 3B, 4A or 4B for entry. Level 5A programmes are largely theoretically-based, involve at least three years of learning at tertiary level and are intended to provide sufficient qualifications for entry into advanced research programmes or professions with high-skill requirements. Those involving three to five years of study are classified as Medium; those with five to six years as Long. Level 5B programmes are more practically-oriented and occupationally-specific than 5A programmes, last at least two years and do not prepare students for direct access to advanced research programmes. Courses lasting for less than three years are categorised as Short. Those lasting from three to five years are categorised as Long.

Additionally, programmes can have three types of programme orientation at Levels 2, 3 and 4:

Type 1 (general) covers education which is not designed specifically to prepare participants for a specific class of occupations or for entry into further vocational or technical education programmes. Less than 25% of the programme content is vocational.

Type 2 (pre-vocational) covers education that is mainly designed to introduce participants to the world of work and to prepare them for entry into further vocational or technical education programmes. Successful completion does not lead to a labour market-relevant vocational qualification. For a programme to be considered as pre-vocational, it should comprise at least 25% vocational or technical content.

Type 3 (vocational or technical) covers education that prepares participants for direct entry into specific occupations and successful completion leads to a labour market-relevant vocational qualification.

The ISCED classifications cannot provide a complete framework for classifying TVET learning across the globe. They do not seek to cover many aspects of non-formal and informal learning, which may have vocational content, and such is the diversity of forms of provision in different countries, that the criteria for level and type cannot be applied in a mechanical fashion in all cases. Mapping programmes into the ISCED levels is essentially an

exercise of judgement that may involve a variety of different considerations, which is often difficult.

(UNESCO Institute for Statistics (UIS) 2006: 17-19)

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