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Skills and competences development and innovative pedagogy in Austria (EN)

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ZBW Forschung & Beratung GmbH

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June 2007

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Preliminary remark

The structure of this report is arranged according to the most important parts of the Austrian VET system which include IVET and CVET. This means that wherever it is reasonable, the subtopics are discussed with reference to four main levels:

- Apprenticeship training – VET schools (upper secondary level – ISCED 3B)
- VET schools and colleges (upper secondary level – ISCED 3A and 3B)
- Universities of Applied Science (*Fachhochschule*) (tertiary level, ISCED 5A) and Academies (post secondary level, ISCED 5B)
- Continuing Vocational Training, with focus on VET as a part of employment policy

Usually, this order is kept throughout the entire report, with remarks on other particular areas where this seems advisable.

Evening classes for employed persons and some of the post secondary colleges are not covered in this report for two main reasons: (1) No information is available, (2) some VET types get absorbed by the tertiary level which means that they are subject to regulations which are described in connection with other institutions of the tertiary level anyway.

0701: Anticipation of skill needs: General background

Definition of 'qualification', 'skills and 'competences':
Before approaching the concepts of 'skills and 'competencies', it may be reasonable to point to the fact that, in addition to these terms, the concept of 'qualification' is widely used in Austria. The term 'qualification' is used in a comprehensive way referring to skills and competences but also referring to the formal outcomes of vocational education and training which usually become manifest in certificates which allow somebody to perform certain professional activities.

Thus, the term 'qualification' serves as a denotation for various final examinations which can be acquired at the different levels of the VET system. There are three major types of formal qualifications (see www.bildungssystem.at):

(1) Certificates from VET schools (3 to 4 years) at the upper secondary level refer to qualifications which entitle graduates to immediately exercise the respective occupation and give them access to regulated professional activities. The project work, which forms a part of the exam, gives students the possibility to demonstrate the practice-oriented knowledge and skills they have acquired.

(2) Graduates of VET colleges (5 years) acquire a double qualification: The *Reifeprüfung* and VET Diploma Examination opens up access to higher learning and also to regulated professional activities, thus providing immediate entitlement to jobs on the executive level. As in VET schools, project work is a part of the final exam.

(3) At the postsecondary level, the diploma examination is the final exam of training programmes.

Apart from this formal distinctions, the question how 'skills' and 'competences' are defined in Austria can be treated from two perspectives: First, 'definition' of skills and competencies can be understood in terms of institutionalized *processes* where the relevant political bodies, social partners, stakeholders and experts develop the legal foundations and frameworks for curricula or training regulations. This question is dealt with in section 070102.

Second, the terms refer to the particular *types and categories* of skills and competences, which are regarded as requirements for professional practice, personal and social advancement, and social and political inclusion. In addition, an important distinction is the differentiation of *levels of educational attainment* which are combined with the different stages of the VET system. For a comprehensive discussion of the definitions of different types and categories of skills and qualifications see chapter 0702.

Forecast of skill needs in the labour market

Forecasting skill needs in the labour market has a quite long tradition in Austria. Many approaches were used rather occasionally and on-demand. However, two systematic streams of forecasting activities were developed within the scope of the Public Employment Service (PES) and within the scope of the Universities of Applied Science since the 1990ies. Less methodical in character, some mechanisms of demand-oriented anticipation and qualification development are inherent to other parts of the VET system, in particular at the upper secondary level in VET schools and colleges and in the apprenticeship training system.

In the four VET areas mentioned, the legal foundations, the institutional arrangements as well as the processes and methodologies applied differ very much. A comprehensive and systematic approach which would consolidate the findings from different sources still remains missing, although some standard methodologies have become a sort of standards for continuous forecasting activities in recent years. This is particularly true for the activities in the scope of the PES and of the Universities of Applied science and, thus, in CVET and VET at the tertiary level.

The development pf anticipation methodologies show some characteristics: While in the early days of skill forecast in the 1970ies, the human capital approach based on high aggregate level, macroeconomic data dominated, a greater variety of micro and macro-approaches, applying quantitative and qualitative methodologies to varying scopes developed in the 1990ies. In these years, three major developments started which still shape the Austrian landscape of skill forecasting and qualification development:

1. Labour market policy was always an important trigger for skill forecasting in Austria. As early as 1991, the PES started a continuous programme of "Labour Market Forecast" (*Arbeitsmarktvorschau*), which became a regular activity providing annual reports on the development of employment and qualification demand. As far as skill forecasting was concerned, the scope of forecast was determined by occupational groups and educational attainment in relation to sectors (see Synthesis). The studies contracted by the PES were characterized by a great variety of approaches in the 1990ies. In these 'experimental years', the issue of *qualification demand analyses* dominated the national landscape of skill forecasting and the various methodologies applied produced a vast heterogeneity of forecasting approaches with results that could be hardly related to each other.

In recent years, more standardized sets of methodologies for skill forecasting were developed within the scope of the PES. In addition to macro-economic forecasts, sectoral, regional and occupation group-related analyses of job announcements, regional and sectoral company surveys (demand side) and qualitative approaches have been carried out. The ever more systematized forecasting activities of the PES became the foundations for the set-up of an online information system on qualification trends in 2003, the Qualification Barometer (see the appendix with web-links). This web-based, free-access

system provides detailed information on educational and skills requirements and employment opportunities at a very detailed level for occupational groups as well as for particular occupations, thus covering the entire system of professions. The system uses data from all PES-contracted studies and external sources.

Parallel to the more institutionalized research activities of the PES, independent studies on the skills demand in particular sectors such as the ICT sector, based on the analyses of job announcements, have been started in Austria in 2001 aiming at the monitoring and forecasting of qualification demands (ZBW 2000-2006).

2. A rather different development at the tertiary level started in the 1993, when the first Universities of Applied Sciences were established. The Fachhochschule sector is regulated by an obligatory system of quality assurance. These quality standards contain inherent criteria for the (re-)accreditation of study courses, when each study course has to prove its labour market demand and acceptance by a separate analysis (*Bedarfs- und Akzeptanzanalyse*).

This analysis has to be carried out by the provider of study course and it includes an analysis of the actual and future skills demand in industry. Here, a direct communication pattern between labour market partners has been established and successfully institutionalized as a part of the general system of quality assurance at the tertiary level. The methodologies to be applied for demand and acceptance analyses have to follow the guidelines defined by the Fachhochschule Council. These guidelines provide a framework including standards for the implementation of the analyses. Usually, the results of these analyses are not published.

3. At the level of vocational schools and colleges as well as apprenticeship trainings, the actual and future qualification demands of commerce, crafts and industry are parts of continuous development processes rather than specific analyses. For instance, in the apprenticeship training system, job profiles are not laid down statically, but are rather formulated dynamically in a process involving social partners, representatives from the ministries responsible and the members of the Federal Advisory Board on Apprenticeship (*Berufsausbildungsbeirat*). This board consists of experts who discuss and evaluate proposals for new trades and prepares drafts for final conclusions. Here, the analyses of two associated research institutes are relevant inputs for these activities, too.

Similar boards following the principle of cooperation between different institutions, policy-levels, companies and other stakeholders can be found within the scope of the VET schools and colleges, too. Regarding VET schools and colleges, it is the General Directorate for Vocational Education and Training in the Ministry of Education which is in charge of governing the process of school development and, thus, of qualification development, too.

070101: Policy development on the anticipation of skills needs

Major issues of anticipation

In Austria, there are less specific *regulations* or *guidelines* related to the anticipation of skill needs at the various levels of the VET system. However, the issue gained rising importance in recent years. In 2006, the 'anticipation of qualification requirements' was explicitly stated as an important means of modernization in a strategic paper of the Ministry of Economy and Labour which defined the targets of labour market policy in order to strengthen correspondence with labour market needs (BMWA 2006b: 5).

At the different levels of the VET system, different approaches of anticipation are implemented. The extent to which they follow explicit guidelines varies strongly. While at the level of the Fachhochschule, there is a set of explicit guidelines for the analysis of the demand and acceptance of new study courses, there are more inherent practices characterizing demand orientation and anticipation in the area of VET schools and colleges. CVET within in the scope of the PES again is characterized by both, a set of standardized anticipation methodologies and practices which are inherent to local or regional cooperation settings.

Apprenticeship training:

For the apprenticeship training system, a set of policy guidelines governs the mode of responding to actual qualification demands rather than future needs. Here, it is the process of introducing a new trade or adapting the curriculum of an existing trade which may serve as an example for the particular way of responding to actual qualification demands in industry and commerce. Usually, three ways of introduction respectively adaptation of apprenticeship trades can be distinguished (see Lassnigg & Markowitsch 2005):

(1) Initiatives from single companies or trade associations
(2) Submission of suggestions by representatives of industry and commerce
(3) Initiatives from the Ministry of Economy and Labour

The majority of new trades is a result of the demand articulated by the representatives and/or interest groups of commerce and industry. The motivation to become initiative is an explicit demand for new qualification. Here, the Austrian system is highly flexible and enables single companies, local bodies and interest groups, as well as branches and the social partners to articulate new demand. Usually, their proposals are subjected to a consulting and assessment process, which may also include the contracting of an external institute for scientific expertise on the demand for the trade in question. In this process, the Federal Advisory Council for Vocational Training is the most important body. However, there are no explicit guidelines or standards of demand analysis or forecasting in this process.

Though, a rather elaborated practical process of further developing or creating new trades is institutionalized by law. Here, the regulations follow the idea that qualification and skills requirements are subject to continuous changes. This approach pursues a strategy towards matching qualification demands through dynamic formulation of job profiles allowing for continuous adjustment of curricula to new developments and requirements (BMWA 2006a).

Regarding the modernization of the apprenticeship system, two more important developments should be noticed. First, the training regulations place stronger emphasis on the provision of *key skills* to be promoted by company-based training. The preparedness of the skilled workforce for mobility has been stressed as an important political objective, too. Second, strong efforts have been made to transform the traditional structure of the apprenticeship trainings into a modular structure. Therefore, a new amendment to the Vocational Training Act (BMWA 2006c) introduced a differentiation between basic modules, main modules, and special modules as components of the apprenticeship training. This was also implemented in order to maintain and further increase the attractiveness of apprenticeship training for young people and enterprises. While the basic and the main module ensure the acquisition of all relevant standard competences, the special module can be used to train the particularly demanded qualifications of an occupational branch with regard to its specific modes of production and services. This regulation takes into account the need for stronger accentuation of a framework for demand-oriented vocational training.

VET schools and colleges:
Regarding the school-based VET at the upper secondary level, it is important to take into account the main rationale as perceived by the Ministry of Education, Arts and Culture where the General Directorate for Vocational Education and Training is the department in charge. Here, the primary objective of school-based VET is seen in imparting skills and competences for long-term vocational usability. The focus of VET policy here is to impart paradigmatic skills competences which are, of course, relevant to particular occupational fields but also encompass a longer life-cycle. Thus, it is not regarded as recommendable to strive for immediate changes but to keep a certain endurance of paradigmatic skills and competencies. Short-time adaptation and specialization is regarded to be predominantly an individual task and a task of companies. This policy leaves much space for the practical implementation of exchange between vocational education and the demands of economy in terms of personal exchange between the two spheres.

Tertiary level:
At the level of tertiary education, the Universities of Applied Sciences (*Fachhochschulen*) have developed a coherent set of regulations for (re-)accreditation, which include, as mentioned before, analyses of demand and acceptance as one important means. The Ministry of Science and Research assigns the Fachhochschule Council the task to decide on accreditation. Thus, the Council has the task to monitor the acceptance of the Universities of Applied Sciences “through the employment system and the educational

demand" (BMWF 2003) continuously. To this end, the Fachhochschule Council defined the guidelines for accreditation, which contain two separate sections: (1) the section on the *objectives* of the demand and acceptance analysis, and (2) an amendment containing a specification of its *methodical requirements*. On the basis of this legal assignment, the Universities of Applied Sciences have developed – in addition to the aforementioned demand and acceptance analyses - particular practices of close adaptation to the needs of the employment system. These practices are dealt with in greater detail in the next section.

CVET:
Regarding labour market policy as executed by the PES, the issues of monitoring and anticipating qualification demands were adopted since 2000 as a priority and a continuous and structured activity. The idea behind the "Qualification Barometer", a comprehensive system of continuous monitoring of changes in qualification demand at a disaggregated level of occupations, is a strong governance concept. In particular, the intention was to support 'in-time adaptation of human resources and thus to reduce or avoid sectoral and regional qualification deficits' (Archan et al. 2004).

A complementary motive was to provide information on new and demanded skills for policy-makers, experts and practitioners for decision-making on new vocational education and training programmes. Since 2004, the data and information of the Qualification Barometer is disaggregated for the 9 provinces in Austria and thus supports processes of regional adoption of information on qualification trends and the adjustment of regional labour market policies to ongoing changes. The central distribution of qualification demand analyses has pushed back the tradition of regional qualification demand analyses driven be regional and/or local bodies of labour market policy.

Strengths and weaknesses
Apprenticeship system: The introduction of new trades in the apprenticeship system is often based on introducing new specializations of existing skills profiles instead of inventing completely new trades. As a parallel action, overarching basic modules have been introduced, supplemented by extension opportunities for the acquisition of special skills. Thus, one can say that this practice is characterized more by 'adaptation' than by 'anticipation' (Lassnigg & Markowitsch 2005: 143). The provision of short-term demand-oriented apprenticeship trainings is of course a benefit for apprentices as for companies. Yet, one may notice that there is no institutionalized system of reflecting future demands or anticipation which would be an integral part in the process of further development of the dual system. However, policy practice provides the opportunity for all agents involved for evidence-based and rather quick adaptation, which is a major strength of the dual system.

Labour market policy: At the level of labour market policy, the existing structure of qualification demand analyses and online information system is a comprehensive approach. Here, the efforts of the PES to establish such a system represent a major strength, since the system itself is the most comprehensive information system and, thus,

represents a reference (not only) in Austria. One could argue that the data bases of this system are very diverse in scope and that this would hinder the systematic further development of an even more systematic data base. Though the databases are very comprehensive, it seems to be difficult to provide detailed statements on future trends for methodical reasons. Also, there is no evidence as to which extent the system is used in other areas, e.g. in planning of curricula of vocational schools, but this does not affect the system itself. However, it must be noticed that other policy areas did not provide strong impetus for further development nor did they initiate the use of this information base in order to combine it with own data and findings which are of importance for anticipation and forecasting.

Within the activities of the PES, it is a tradition to address the skills demand of different target groups. Here, analyses often concentrate on occupational groups; other important groups for which demand is monitored on a regular basis are the group of apprentices and skill workers.

University of Applied Sciences: At the tertiary level, the combination of analyzing qualification demand and quality assurance may be highlighted as a very well functioning outcome of policy development which assigns the major tasks of developing a framework for anticipating to external bodies. Here, the five year cycle exerts a continuous pressure on the initiators and operating authorities of study courses to keep the curricula and the competence profiles close to actual and future demands.

There are no additional policy initiatives regarding the anticipation of skills needs which would concentrate on specific target groups.

070102 Legal, administrative and institutional framework

Apprenticeship training:
In the Austrian apprenticeship training system, the apprentices are trained in separately defined apprenticeships, which are recognised and regulated by federal legislation. All apprenticeship trades are laid down in the list of apprenticeship trades, which also specifies the apprenticeship periods and relationships to other apprenticeship trades including credits awarded for already completed apprenticeship periods. In June 2006, there were 255 recognised apprenticeship trades. They have been established as individual, group or special-focus apprenticeships. Since January 2006 it has also been possible to develop modular apprenticeships.

For each individual apprenticeship trade, the Minister of Economics and Labour issues a *training regulation*, which is binding for the training provided in the training enterprises. Training regulations stipulate the *job profile* specific to the respective apprenticeship trade.

In a catalogue broken down by apprenticeship years, the job profile covers the minimum occupational basic skills, knowledge and skills taught in the course of enterprise-based training. For newly regulated apprenticeship trades, not only job profiles but also activity descriptions are formulated, which lay down, in the form of a short list, the occupational requirements the trained apprentice is able to meet. The combination of activity description and job profile ensures a close link with the *curriculum* of the craft-specific vocational school (cf. BMWA 2006: 6).

Regarding the continuous further development of the apprenticeship system, the so called "Berufsausbildungsbeirat" (*Advisory Council on Vocational Training*) is in charge of submitting reports and assessments to the Ministry of Economy and Labour as preparatory process for a new decree regulating the introduction or change of trades. However, no explicit phrase concerning anticipation can be found in the Initial Vocational Training Act (2006).

As far as the institutional framework is concerned, the commercial and industrial interest groups, representatives of economy and the Ministry of Economy and Labour have been mentioned as initiators of new trades. The introduction respectively the change of existing trades is usually based on demand articulated by companies or branches. The core institutions in this process are the Chamber of Commerce and the Federation of Industry as the main social partners representing the employers' side. These organizations or the Ministry itself contract the IBW – the Institute for Research on Qualifications and Training of the Austrian Economy for arranging the occupational profile (or 'image' as the German term *Berufsbild* suggests). This activity comprises also the development of a provisional curriculum and an assessment of the demand for this trade, which usually are explorations of the relevant occupational field (see Lassnigg & Markowitsch 2005: 137f). In the next step, the concept is subjected to consultations and negotiations among the members of the Advisory Council on Vocational Training. Both sides of the social partners are represented in the Advisory Council, and usually unanimous decisions are reached. Then the Advisory Council submits a report to the Ministry of Economy and Labour which then decrees a new trade. Usually, the entire procedure for introducing a new trade does not take longer than one year on average.

School-based vocational training:
With respect to the school-based vocational education, the School Organization Act (SchOG 1962) does not contain any legal requirements concerning anticipation. The relevant basic legislation is embodied in the School Organisation Act (SchOG) and School Instruction Act (SchUG) and can be changed by parliament acting with a twothirds majority after a consultation process. The curricula of the various types of schools are decreed by the BMBWK as ordinances. In the Ministry, the General Directorate of VET is – among other issues - in charge of school development and the development of training and qualifications which include also monitoring of trends and demands.

In accordance with the particular longer-term curriculum policy at the upper secondary level, the main initiatives for changes come from within the Ministry of Education, Arts and Culture or from the schools as the two main sources. Both institutions often receive the impetus for change from their relations with relevant environments such as companies, trade associations, and representatives from businesses and industry. Four different modes of relations have been pointed out (see also Lassnigg & Markowitsch 2005: 146):

- Professionals acting as teachers
- Cooperative projects with companies and non-profit organizations
- Boards of trustees at the location of the school
- Discussions in professional associations

Exchange and cooperation with companies and non-profit organizations, particularly through practice projects, are far the most important sources which foster changes of the curricula. The emergence of new contents and interests which might propose changes are monitored by the departments of the Ministry of Education, Arts and Culture, which are responsible for the guidance of schools. These departments observe economic, social and subject-matter-related developments and its relevance for the (re-)arrangement of curricula. Here, close exchange with the regional School Councils is practiced. In recent years, the evaluation of curricula has been introduced as a further activity in order to ensure their demand-orientation. The main methods relevant to anticipation comprise standardized surveys of graduates regarding their usability of skills and competences acquired, surveys of human resource officers in companies regarding the qualification demand (See Lassnigg & Markowitsch 2005: 150ff).

The results of these analyses are submitted to the Ministry, where the responsible departments discuss the scope of the changes which have been identified. In the case of middle-range changes, the schools may use their autonomy respectively the space left by 'framework curricula' (*Rahmenlehrpläne*). More fundamental changes can be implemented through 'school trials' (*Schulversuche*) which provide space for experimentation. Their implementation often depends on the agreement of the regional School Council and of the Ministry. The third mode of implementation is the most fundamental and requires the development of new framework curricula through the Ministry of Education, Arts and Culture.

Universities of Applied Science:
There are legal regulations for anticipating skill needs for some relevant sections of the VET system. The best example is the legislation on the Universities of Applied Sciences. The Fachhochschule Council as the main administrative unit is – among other duties - in charge of two important tasks concerning anticipation regulated in the Fachhochschule Studies Act (*Fachhochschul-Studiengesetz 1993)*:

(1) 'the furtherance of the quality of teaching and learning as well as the furtherance of innovation in programmes of the Universities of Applied Sciences through research, further training and other measures'

(2) 'continuous observation of the entire sector comprising the University of Applied Sciences with regard to its coherence with the other sectors of the education systems and with regard to its acceptance through the employment system and the demand for education'.

The institutional framework for anticipation in the scope of the Universities of Applied Sciences is well established and maintained by the Fachhochschule Council. Anticipation in terms of a demand and acceptance analysis is an integral part of the development respectively accreditation process for each study course at a five year period. When developing or prolonging a programme, a development team consisting of representatives from education institutions, industry and commerce and experts of education and pedagogy meets on a regular basis in order to develop a concept. At this stage of conceptualization, an independent research institute is contracted by the prospective maintainer of the programme; in the case of re-accreditation, the maintainer of the programme may carry out this analysis himself.

As pointed out before, a catalogue of objectives and methodology regulates the implementation of the demand and acceptance analysis. After submitting the report to the development team, this team may adapt the concept according to the findings of the analysis. In the next step, the development team submits an application for approval to the FH Council, whose members examine the application. This procedure is obligatory for all Universities of Applied Science across Austria. Additionally, it has to be amended that the policy of recruiting teaching staff at the level of *Fachhochschule* is a strong contribution for a demand-oriented implementation of curricula, since many teachers are active in a corresponding profession.

Labour market policy:
For anticipation within labour market policy, there are no specific legal foundations. In the Labour Market Service Act (1994) it is defined as a general task of the PES Austria to care for 'the observation of the labour market und the labour market statistics as well as for basic and development work and research in labour market, employment and the occupational world'. From this formulation, a mandate for implementing anticipation activities can be derived.

The PES Austria contracts independent research institutes for anticipation studies and analyses of skill needs. The PES is also a facilitator of the national "Research Network", where anticipation is an important issue. The particular unit responsible for research and analysis within the PES is the Department for Labour Market and Vocational Information (*ABI – Abteilung Arbeitsmarkt und Berufsinformation*). With support of the PES and in

collaboration with this department, the members of this network started to organize expert meetings which put on the agenda the "qualification demand of the future". Since the first meeting in 2001, five more meetings followed until 2006, each meeting accompagnied by corresponding publications (Hofstätter & Sturm 2002a Hofstätter & Sturm 2002b, Hofstätter & Sturm 2003, Hofstätter & Sturm 2004, Hofstätter & Sturm 2005, Hofstätter & Sturm 2006). While the first meeting was explicitly dedicated to methods of anticipation, the subsequent agendas were dedicated to particular occupational fields (e.g. sports and health) as well as to target groups such as low-skilled people. Additionally, the Qualification Barometer is also maintained by the PES Austria as the online tool for the provision of the results of monitoring and anticipation carried out within the scope of the PES Austria.

070103 Methods, approaches, practices and tools used

There is a wide range of methods and approaches used for the anticipation of skills needs. Among the most important institutions funding analyses, there are the Ministry of Education, Arts and Culture and the Ministry of Economics and Labour which contract research institutes for external studies. The Public Employment Service, which acts on behalf of the Ministry of Economics and Labour, maintains a special department (*ABI – Abtg. Arbeitsmarkt und Berufsinformation)* which not only contracts a wide range of studies but also carries out and publishes studies which contain different aspects of qualification demand. Regarding the various approaches implemented, table 1 shows the most important approaches roughly structured by scope of analysis and methodology applied:

Table 1: Thematic fields of skills/qualification demand analyses covered by scope and method

Method / Scope	Macroeconomic analysis	Employer surveys	Employee surveys	Job advertisement surveys	Qualitative approaches	Other/ combined
National	+	+	~	+	-	-
Regional	~	+	~	+	~	~
Sectoral	+	~	~	+	~	~
Occupational	+	+	~	+	~	~
Specific skills	-	+	~	+	~	-

+ frequent deployment, ~ average deployment, - low deployment

At the national level, the most prominent approaches are standardized at a relatively high level. This is also true for the skills demand analyses carried out as a part of the demand and acceptance analyses carried out in a five year cycle for each study course offered from

the Universities of Applied Sciences. When it comes to the upper secondary level of the vocational education system, informal approaches gain more significance.

a) Macroeconomic studies:
On behalf of the Public Employment Service, periodical "Labour Market Forecasts" (*Arbeitsmarktvorschau*) are carried out. Often, a sectoral approach is implemented in combination with analyses of the demand for qualification levels and/or analyses of the demand according to occupational groups. Thus, the macroeconomic analyses usually apply a general definition of skills which refers to the demand in terms of educational attainment and/or occupational groups in selected sectors. The scope of forecasting is usually a short-term or-medium-term prognosis up to a five year-period.

A good example for a comprehensive approach in analyzing the mid-term skills demand in Austria until 2010 is a recent study carried out the Austrian Institute of Economic Research (WIFO) on behalf of the PES in April 2006. In this study, a sectoral and an occupational group-related approach was applied, complemented by corresponding scenarios for sectors and occupations and a particular gender scenario for the future demand on occupational groups (Huber et al. 2006). The study distinguishes between 34 sectors (according to the NACE system) and 57 occupational groups. The databases comprise mid-term macroeconomic data and labour market data use for a forecasting horizon of 5 years. The elaborated forecasting approach is based on a particular model (Prometeus) which integrates costs, commodity demand, household production, labour market development and wage function and energy demand as main components in the explanatory model of the sectoral and occupational demand for qualifications. The study mentioned represents a further development of former approaches by the WIFO (see Biffl 2001).

For regional demand analyses, macroeconomic data is not used very often, although there are some examples, most of them mainly in the sphere of the PES.

One example for an important macroeconomic approach in Austria is the labour market forecasts which are carried out on an annual basis by the Synthesis research institute on behalf of the PES. Here, statistical scenarios provide information on short-term demands (2 year-forecasts) disaggregated by sectors, occupational groups, age groups and sex. A particularity of this approach is that it usually disaggregates sectoral data for each of the 9 provinces in Austria in order to provide information on regional demands, too. The system usually does not disaggregate its forecasts by educational attainment and thus represents an approach which concentrates more on the sectoral and occupational group-related demand for labour craft rather than on particular skills demands (Alteneder et al. 2007).

With respect to the apprenticeship training system in particular, the PES maintains a periodical forecast programme which was carried out internally by a special department of the PES until 2005. The recent apprenticeship forecast was carried out by an external institute on behalf of the PES and rests on macroeconomic data, too (Alteneder 2006). This

analysis extrapolates the demand and supply for the period 2005 until 2010. It uses a database which comprises company-related data, data from the social insurance system, labour market data as well as data on demographic developments. It differentiates between sectors, regions and sex.

These two approaches represent the most elaborated macroeconomic methodologies of anticipation of qualification demand in Austria and their long-standing implementation makes them references. However, as is the case with macroeconomic studies, the level of information concentrates on general information on the development of labour craft demand rather than particular skills demand. By contrast, the advantages of these approaches are the long-term sectoral and occupational comparability and the identical databases on which they remain.

Employer Surveys:
The more particular aspects of skills demand are captured by employer surveys which represent a widely used approach in Austria, too. At the national level there was no standardized survey approach which would have provided periodical and - in terms of historical development - comparable information on the skills demand of employers until the implementation of the CVTS started in Austria in 1999 (CVTS II). While the CVTS approach is established in Austria since 1999, national approaches are often motivated by the particular interest for certain information and/or are carried out to improve the information base of particular interest groups. Accordingly, quantitative and qualitative approaches do coexist. In addition, employer surveys are often concentrated on specific target groups, sectors and occupational levels. This situation eventually increases the variety of the approaches applied for surveying companies. Due to their great diversity the general characteristics of the most important studies shall be touched here only briefly.

The most standardized instrument surveying the employers demand is the CVTS survey (Continuous Vocational Training Survey) which has been implemented in Austria in 1999 (CVTS II) and in 2006 (CVTS III). As in other countries, in the Austrian CVTS survey the employers' activities in planning and financing VET for certain levels of formal education and for particular skills is captured in relation to sectors and company size. The questionnaire used in the CVTS survey also asks for the future-oriented behaviour in terms of the companies activities in planning the future education and training demands. According to the particular rationale of CVTS, the survey provides indirect indicators on the actual skills demand, however, less information on future skills demand is provided.

Regarding other activities in the field of employer surveys, different levels - sectoral, regional, occupational and skills type-related levels - must be distinguished. The most comprehensive survey which explicitly concentrated on the demand of companies for labour craft and skills was carried out 2005 on behalf of the PES (Lechner & Wetzel 2006). This company survey covers the entire country and includes companies with more the 20 employees in all sectors. The information provided aims at supporting the regional

PES in planning and further developing vocational education and training offers for unemployed people and employees. Therefore, it contains information on the labour craft demand of companies in distinct occupational areas related to different levels of qualification. The findings are based on 7432 questionnaires returned by the companies across the country. For the first time, this survey provides homogeneous information regarding

- Sectors
- Provinces/Regions
- Specific occupations and occupational areas
- Educational attainment
- Thematic qualifications respectively skills areas (e.g. overarching qualifications, qualifications in economy and law, …)

The statements on skills demand usually start with a description of the TOP 5 qualification areas identified, but in-depth information is provided, too. In the course of the description, the regional findings on occupational areas are disaggregated by sectors, basic levels of formal education and particular skills. Forecasting is also made in terms of short-term statements for the next 12 months for the TOP 5 occupations per occupational group.

A distinct feature of this approach is that demand-related information is linked with information on the structure of training offers which are provided by the companies and the regional training centres. Thus, the company-related demand is matched with the supply of education and training courses for each of the nine provinces in terms of qualitative statements. Additionally, the deficits of the supply side in terms of missing training offers are correspondingly put in relation to the demand side. Please see the following matrix for a stylized example of information provided.

Illustration 2: Example of information provided

TOP 5 Skills areas	Specification	Existing Training Offers	Offers for particular target groups	Additional trainings needed
Business, Law	Sales Skills	Sales training, sales force training		Sector-specific trainings
	Business economics, accountancy skills	ECBL, accountacy & book-keeping trainings (apprenticeship certificates & intensified trainings)	Women, elder people (50+), people after parental leave, young people, low skilled people	
	Basic skills in office work	Modular office courses, preparatory courses for apprenticeship certificates		
	Marketing skills	Marketing trainings for assistants and managers	Early school leavers	

Company surveys focussing on technicians and scientists:
An example for the linkage of demand-oriented analyses and other topics is a recent study of the IBW on the expansion of the tertiary education and the shortage of technical skills (Schneeberger & Petanovitsch 2006). It concentrated on the demand for high skilled technicians and scientists in industry with a high rate of employees in engineering and natural sciences. 187 companies, the majority from the production sector, participated in the survey. From the demand side, an important focus of the study was to assess the effects of the skills shortage in relation to recruiting problems of companies which cannot be resolved through the expansion of tertiary education in short term due to a circle of growing employment opportunities and increased mobility of employees.

A prior study addressing the same topics and the same sectors was carried out in 2002/2003 (Schneeberger & Petanovitsch 2003). This study contains a brief section with a short-term forecast (three years) for skills demand distinguishing three levels of forecasting: (1) demand at the level of occupational activity fields such as administration, human resources, management, production, marketing & sales, and research & development, (2) demand according to type of tertiary education distinguishing between technical university, universities of applied science and higher technical colleges, and (3) demand according to type of study (e.g. electronic engineering, mechanical engineering).

The general job prospects of academics were also addressed in an earlier study series contracted by the PES, where companies from selected sectors were asked about the employment situation and prospects of academics in the companies (Eickhoff & Nowak 2001). Another important topic was their demand for employees with different kinds of tertiary education. The survey comprised 664 companies; analysis provided information on the sectoral, regional and size-related demand for persons with tertiary education.

Company survey focussing on language demands:
An example for skills-related employer surveys is a study on the quality of language education and the need for language skills. This study was carried out as online survey (IBW 2005). 2017 companies responded to the questions which addressed three major topics: (1) demand for particular language skills, (2) assessment of the existing language skills of new employees, and (3) organizational and financial issues as well as supplier-related questions. The findings were disaggregated along sectors and company size. Another important feature of this study was the objective to assess the demand for particular languages in relation to particular skills levels of employees and to particular work situations.

Regionalized company surveys:
There have been numerous qualification demand analyses since the 1990ies which represent regional approaches. Here, only the most recent and the most elaborated shall be mentioned with certain references to methodical models.

Regarding the biggest regional labour market in Austria, Vienna, a panel study approach has been started in 2004. By the means of the 'Employment and Qualification Monitor' (*Beschäftigungs- und Qualifizierungsmonitor*) which is funded by Vienna's largest organization for the vocational advancement of employees (Waff - Wiener ArbeitnehmerInnen Förderungsfonds), a sample of 6000 Vienna-based companies is surveyed each year for several qualification-related topics through telephone interviews (*Employment and Qualification Monitor,* see IPR 2006, IPR 2007). In addition to structural properties such as sector, size, number of employees, investment, foreign trade, estimated demand for future labour craft disaggregated by different levels (e.g. apprentices, blue collar/white collar employees) and sex, skills related topics are asked in a very detailed manner according to the main purpose of the programme, i.e. the continuous monitoring of qualification demand pursuing a short-term forecast perspective. The most important indicators for monitoring the qualification demand are:

- Demand for particular hard and soft skills, disaggregated by employee level
- Perceived skills deficit of job applicants (disaggregated by employee level)
- Difficulties in filling open posts
- Company-based activities in further training
- Practices in financing and finding the appropriate training providers

Within this monitoring approach, the situation of selected target groups and special topics are subjected to a particular in-depth analysis, such as the demand for apprentices (2004), the inclusion of elder employees in company-based further training (2006), or funding of company-based further training (2005) to name a few particular topics.

Skills demand is captured by a list which comprises 19 categories of hard skills mostly linked with certain fields of occupational activity (such as customer services, computer aided design applications, ICT skills and others) and 8 categories of soft skills ranging from language skills to self-learning techniques. Due to its panel character, changes in the regional qualification demand with regard to certain skills categories are captured. Basic distinctions between high and low-skilled employees are made, too. Results indicate a persisting predominance of demand for soft skills.

As mentioned before, the regional demand of companies for specific skills is also covered in the periodic demand and acceptance analyses which are carried out within the quality assurance system of the Fachhochschule sector.

In principal, surveys which are merely based on standardized company surveys are rather seldom at the regional level and, if existing, often combined with other approaches. Therefore they shall be covered in the section on combined models.

Employee surveys:
Less often, the supply-oriented anticipation of skills needs through employee surveys is the case. There is evidence that independent intra-firm surveying of skills needs for systematic development of human resources gains importance. Surveys on the qualification demand of particular groups of employees such as managers are carried out periodically, too. However, less is known about the methods of these analyses, their results and the implementation of results.

One source for employee-based findings on some aspects of skills demand in Austria is the national census 2003, which contained a set of extra questions on lifelong learning (Statistik Austria 2004). While the majority of questions addressed participation patterns, experiences and satisfaction with vocational training and its provision, a few questions concerned the interest in future training in particular subjects and changes in the organization (information, access, availability) of vocational training. A distinction is made the different interests of men and women, however no further distinctions are made between sectors, age groups or educational attainment.

A recent example for an employee-based analysis of the regional qualification demand is a representative telephone survey of the further vocational training behaviour of Viennese employees in 2006 (Paier 2006). Based on a representative sample of 1500 inhabitants, the main objective of the study was to analyze the participation patterns of Viennese employees in further vocational training and to provide a detailed analysis of groups of employees with low or now participation. Therefore, the survey concentrated on issues such as the participation in further vocational training, the experiences with vocational training, information on and access to vocational training as well as the attitudes towards vocational training. Particular emphasis was given to the particular needs in relation to the actual skills state in order to identify skills gaps and to improve the provision of services for less educated groups. The statistical data were complemented by findings from personal interviews with experts in the fields of labour market and vocational training in Vienna.

The study disaggregates findings by sex, age, educational attainment, company size and sectors. An additional aim of the study was to combine the results with the results of the Vienna Employment and Qualification Monitor in order to examine, in which branches and to which extent both surveys generate identical or similar results.

Job advertisement surveys:
The job advertisement approach of the PES is implemented at two levels: The first level is the general “Job Market Documentation” which concentrates on the personnel demand of companies as displayed in job announcements placed in the media (Kostera 2007). The approach is rather a monitoring and a documentation of recent demand trends, since no elaborate forecasting neither a further analysis is done. The data base is taken from the relevant job sections in about 80 newspapers and journals and comprises between 320.000

job announcements (2003) and 490.000 job announcements (2002); the recent data base 2006 contained 437.000 announcements. The information provided is disaggregated into three levels:

- 9 regional provinces
- 25 general occupational groups (*Berufsobergruppen*)
- 5 levels of (formal) educational attainment

A further distinction applied is the one between full-time jobs and part-time jobs.

While this approach does not make any further distinction at the particular level of skills, the second approach based on the analysis of job announcements, provides some distinctions. The annual "Analysis of Qualification Demand" concentrates on selected "occupational areas", although a transparent definition whether these areas refer to branches or sectors is not explained in the reports (Mair & Loidl-Keil 2006).

In addition to the country-wide and the regional disaggregation of information, the particular skills-related information distinguishes six types of qualification with different relevance:

- Educational attainment
- Practical experience
- Computer skills
- Hard skills related to a certain occupational group
- Language skills
- Social skills

The demands for these different skills types are related to 10 occupational groups such as health care, security services, cleaning and others. In 2006, the data base contained 11.392 job announcements. Within this approach, a second stream of monitoring on 4 occupational groups in the production sector (cf. Mair & Loidl-Keil 2006). This particular level of analysis is disaggregated into information for the 9 provinces and, thus, produces information on the demand for particular skills types in selected occupational areas in the different Austrian regions. This data base contained 8213 job announcements in 2006. The reports are carried out since 2002, however, no medium-term time series or analyses including more elaborate explanatory models for the changes in demand are provided. The regional disaggregation of data also reveals a particular difficulty which characterizes all job announcement approaches, because the empirical evidence becomes smaller the more detailed information is supposed to be provided.

A third, independent approach based on job announcements concentrates on the demand for computer-based and ICT-based jobs (see ZBW 2000-2006). This commercial reporting system analyses the changes in the demand for 23 selected occupational groups. This

covers occupations ranging from accountants to SAP specialists or network specialists. In the analysis, distinctions are made according to skills types (different key skills, hard skills, educational attainment, practice experiences). A major advantage of this approach is its detailedness. Besides other skills, computer-related or ICT-related hard skills are captured in a matrix containing 160 particular hard skills ranging from particular operating systems to specific programming languages. Due to its identical sampling, the data base reflects medium-term changes in the labour market demand. For 2006, the data base contains 13500 job announcements. Thus, it is the most detailed sectoral database.

Another important feature of this approach is the application of elaborated statistical techniques which are used to identify skills profiles. These skills profiles are produced for each job; each skills profile contains

- the changes in the sectoral and regional demand (time series)
- the top 5 occupational activities
- the top 10 hard skills
- the top 5 key skills
- the top 4 levels of educational attainment

As a further development of this approach, the data including the skills profiles have been made available online as a result of a transnational project carried out in the Leonardo da Vinci-programme: www.jobtutor.at.

Demand and acceptance analyses of the Universities of Applied Sciences

A special approach towards anticipation of skills needs is implemented in the demand and acceptance analyses which are carried out periodically on a five-year basis for each study course which is offered by the Universities of Applied Sciences. These analyses are a part of the general quality assurance system of the Universities of Applied Sciences. According to its educational mandate, the basic concept for a degree programme has to describe the connection between the vocational fields of activity, the related qualification profile and the curriculum. This complements the commitment to teaching the students skills that can be put to good use in the labour market.

In the guidelines for (re-)accreditation, the standards and the procedures of the demand and acceptance analysis are determined. In the case of an application for accreditation, the analysis must be performed by an independent institution according to the latest quantitative and qualitative methods of social research. In case of application for extension, the applicant may carry out the analysis himself; existing demand and acceptance analyses need to be updated.

The guidelines also define the scope and the methodological framework for the implementation of demand and acceptance analyses which take into account demand and

supply factors in order to obtain comprehensive knowledge. The main elements are (Fachhochschule Council 2006: 23pp.):

Demand analysis:

- Presentation of macroeconomic figures on, for example, economic development, sectoral employment and unemployment rates, labour supply of the core and secondary industries relevant to the degree programme, taking into account the geographical region to be specified.
- Qualitative assessment (expert interviews with labour market experts and HR managers of relevant enterprises and organisations) of employment trends and employment opportunities for graduates taking account of the qualification profile.
- Final evaluation of the employment opportunities for graduates, taking into account development trends, employment potential and related education opportunities.

Acceptance analysis:

- The geographical region – also cross-border, if relevant – that forms the catchment area for the degree programme applied for shall be described.
- The related post-secondary education opportunities (general matriculation standard and higher education lasting for at least three years) in the geographical region to be defined on a nationwide scale shall be described.
- The number of first-year students on related higher-education courses as well as the number of applicants on related FH degree programmes over the past four years shall be indicated.
- Quantitative details of the potential applicant groups meeting the respective admission requirements for Bachelor's, Master's and diploma degree programmes.
- The number of applicants shall be forecast on the basis of the number of potential students identified for the desired approval period.

Often this framework is put into practice in the form of qualitative and/or quantitative company surveys, expert interviews, statistical analyses based on macroeconomic data and assessment techniques.

Target group & sectoral analyses

With regard to sectoral and/or trade-related analysis, several projects which either concentrate on sectoral issues or which focus on certain trades have been carried out or are being implemented currently. As was pointed out earlier, sectoral studies are often based on macro-economic data and forecast the demand at the level of educational attainment and with regard to the labour craft. However, there are other sectoral approaches concentrating on one particular sector, which also include analyses of the demand for particular skills.

Recently, the qualification demands in the production sector received increased attention, particularly in combination with regional analyses. One analysis addressed the qualification structures and the demand for further training in the production sector in Salzburg, which is one of the 9 provinces in Austria (Humpl et al. 2006). In this study, trend analyses were combined with scenario techniques and the development of recommendations for future measures at three interconnected levels: (1) economic system (focus on production sector), (2) labour market, (3) initial and further VET. The study is an elaborated attempt of analysing future qualification demand as a result of long-term developments in the interaction of push and pull factors at the levels mentioned before. It also takes into account the situation and the skills demand of particular target groups of labour market policy such as handicapped people and low skilled people.

The findings are based on a survey of 101 experts for the selected sectors/trades, for the VET system and other experts as well as a wide range of secondary data (such as the BALI-Web, a data base containing information on the development of employment maintained by the Ministry of Economy and Labour, and other sources). In addition, the supply structure of the education system was examined through a 'screening' approach, complemented by content analysis of curricula. The forecasting period is short to medium-term and extrapolates trends for 4 years and is disaggregated by selected sectors and trades. The forecasting refers to the (1) quantitative demand for labour craft in the corresponding sector/trade, (2) selected levels of educational attainment (sectoral/trade-related), and (3) demand for particular skills (hard and soft skills). General statements on future skills demand is made and distinguished according to different skills types, which comprise:

- General qualifications or basic skills
- Social and personal skills
- Business skills
- Logistic skills
- Technical skills
- Language skills
- Computer skills

The study concludes with three short scenarios (good, bad, realistic/likely) which represent an qualitative extrapolation, although without detailed explanation of the scenario methodologies applied. The study concludes with detailed recommendations for different areas and levels of the VET system with regard to particular skills demand.

A particular trade-related study was carried out on behalf of the Chamber of Commerce and refers to the skills demand of the employers of certain trades, which are members of the trade association "Consulting and Information Technology" (Dornmayr 2006). The study is based on a survey with 1178 responding companies, which makes a response rate of 12,4% of the Austrian members of this trade association. It provides information for the qualification demand in three particular trades: information technology, consulting, and

commercial accountancy. Regarding the qualification demand in these trades, technical (e.g. computer, software, database, network), and non-technical subjects which concentrate more on the core activities of the relevant trade (e.g. marketing, law, sales, negotiating, project management, counselling methods etc.) are distinguished and the significance of certificates is identified, too. Another important topic is the distinction between individual and non-formal methods of further training, organisational aspects and experiences regarding the participation in further training. No detailed forecast periods are provided.

A recent target group-related study was carried out in the province of Styria (Paier & Grasenick 2005) using qualitative interviews with business owners and human resources officers to address the work situation, the work opportunities and the qualification demand of low skilled people. This particular approach was based on the method of job-profiling which was designed for identifying the structural and process-related requirements of a certain work place. This methodical procedure allows the 'location' and identification of particular skills requirements as a function of work organization at the interfaces of upstream and downstream production processes. The sampling comprised work places for low-skilled people in sectors such as electrical engineering, warehousing, cleaning, health care, construction, and trade. The method was not used for forecasting but for further development of skills profiles for each work place, which relates hard skills and key competencies to the relevant processes and structures the workplace is embedded in.

Two more studies which are related to sectors can be mentioned which are carried out during 2007 and promise interesting results, too. The first study analyzes the demand of soft and hard skills in the energy and environmental engineering sector. In particular, the study concentrates on selected trades in this sector (KMU Forschung 2007). The results shall support the further development of the occupational information system of the PES.

Another sectoral study analyzes the skills demand in trade and crafts in the province of Styria. The project concentrates on the demand and supply of skilled labour craft as perceived from the companies in crafts and trades. It is a distinct aim to identify skills shortages and to contribute to the discussion of company-based and overarching approaches. Here, the context of the EU enlargement is with respect to the labour markets in Hungary and Slovenia is of importance, too.

070104 Building partnerships and raising awareness

There are several partnerships which are institutionalized at varying degrees and aim at the further development of anticipation approaches. The following sub-sections are arranged by VET levels, since the collaborative approaches may be very different.

Apprenticeships:
The interaction of the social partners, an external institute, companies and the Ministry of Economics and Labour is a very good example for a collaborative approach in the apprenticeship training system. In the course of the design or remodelling of an apprenticeship different partners are involved. Usually, the design of the job description is the first stage, where the main skills elements of the apprenticeship are further developed by the IBW - Institute for Research on Qualifications and Training of the Austrian Economy. Usually, this activity is not a comprehensive demand analysis, but an exploration of the occupational field. The results are then discussed and negotiated in the Advisory Council for Vocational Training (*Berufsausbildungsbeirat*), be it in the plenary sessions or in the particular subcommittees. Here, the employer interests aim at fulfilling the demand of the companies, while the employees' associations main interest is the usefulness of the prospective qualifications (see Lassnig / Markowitsch 2005: 137pp.).

Usually, the Ministry of Economy and Labour favours proposals which have passed the negotiations of the Advisory Council unanimously. At the regional level, there are the Province Councils for Vocational Training, whose tasks differ from the national councils due to the greater importance of advisory tasks regarding all organizational and practical apprenticeship affairs. But it is characteristic for the Austrian system that also at the level of the provinces, the "encouragement and advancement of the collaboration" between the social partners, the school councils, the firms where apprentices are trained, the province government, the apprenticeship offices of the Chambers of Commerce and the Public Employment Service for the "advancement of the company-based vocational training" and for the implementation of "measures for joint training systems" are explicitly mentioned at the regional level, too (see BAG, § 31).

The highly institutionalized system of cooperation in Austria is complemented by a consultation process between the Ministry of Economy and Labour, which is in charge of the company-based regulations, and the Ministry of Education, Arts and Culture, which is responsible for the school-based regulation of VET and the school councils in the provinces. The main objectives of this mutual consultation are synchronization in the (further) development of curricula, adjustment of regulations, and joint enactment of apprenticeship trades and curricula of the vocational schools.

The example of modularization:
Coordination and consultation as supporting forces of further development does not stop with changing curricula or introducing new apprenticeships. While since the 1990ies, the modernization of the dual system was mainly achieved through the development of new apprenticeship trades, increased specialization and differentiation of existing apprenticeships was the case. Thus, the concept of modularization was created in order to support a sequential order of learning subjects, which is supposed to integrate different skills levels in three subsequent modules (Archan 2005):

- 2-year basic module which prepares for work in one or more apprenticeship trades of a certain occupational area
- 1-year main module which are characteristic for one or more apprenticeship trades of a certain occupational area
- half year or one year special module for qualifications in special production or service skills

These structural changes aim at clearing up and bringing more transparency into the highly differentiated system of apprenticeship trades. Furthermore, more flexibility in the introduction of clusters of apprenticeship trades and in the introduction of new learning subjects shall be achieved. These change processes will be implemented in the next years on the basis of a corresponding amendment to the Vocational Training Act implemented in 2006. The example illustrates the reform capacities of the Austrian dual system in terms of responding to new skills needs both in structural terms and in terms of fostering adjustment to new skills types and sequential learning and training processes.

Partnerships at the upper secondary level:
At the level of upper secondary schools which comprise 4-year (medium) and 5-year (higher) secondary technical and vocational colleges, there are multifaceted exchange relations between industry and schools. As mentioned earlier, the philosophy of the VET policy at this level is double: (1) the curricula of the secondary colleges shall be adapted to the current needs and requirements; (2) the secondary colleges shall also be aware of the longer development cycles in order to educate a skilled labour force whose skills shall outlast short-term technological changes (see Lassnigg & Markowitsch 2005: 145).

This approach requires a two-fold strategy of anticipation. The first one becomes manifest in a wide range of targeted cooperation projects between industry and schools. The second one is a more general approach toward reflecting long-term developments and the resulting impact on the changes in skills requirements. While the first approach is suited to adapt quickly through concrete activities and largely rests on well established information relations between the representatives of industry and schools, the second approach aims at the general adaptation at the level of teaching regulations and is thus a matter of collaboration between ministry, school councils, experts and social partners. Major changes and adaptations are usually implemented through the Ministry for Education, Arts and Culture. On average, changes in the teaching regulation framework are implemented at a 10-year cycle (Lassnigg & Markowitsch 2005: 150).

Smaller, however important changes and adaptations can be implemented within the so-called school autonomy which leaves it up to the schools and the local school councils to further develop the curricula. Here, collaborative projects have become a well-established mode which supports fast adaptation to labour market needs. Although detailed statistics is not available for the last years, it can be assumed that there is intensive cooperation, since for the school year 1999/2000 more than 700 projects involving 45 schools are reported

(see Lassnigg & Markowitsch 2005: 147). Cooperations are not confined to technical colleges, the fields of activity comprise touristic subjects, too. Commercial cooperation often use the so-called 'training firms' as a real world-learning field. Additionally, in many schools practice periods in companies are compulsory. Based on the feedbacks of the interns, schools may get information about the real demands, however, there is no institutionalized system of evaluation which could be used for developing information regarding future skills needs.

Schools may establish a board of trustees, thus creating a more institutionalized mode of exchange relations between industry and school. The extent to which such options are implemented, varies in correspondence with the different subjects of the secondary colleges. While in the technical areas, about 50% of schools do have a board of trustees, their number is rather low in human-related and business-related colleges. Where a board of trustees exist, it is mostly composed by high-level representatives of from industry, commerce and the social partners. It is their primary task to propose their particular views and demands regarding training subjects and other relevant topics within the autonomous space, where schools can adapt the teaching regulation frames to particular needs.

A further opportunity for ensuring the matching of demand and supply is provided by the so-called "school trial" (*Schulversuch*). Here, schools may try within the scope of their autonomy whether an adaptation of the curriculum is feasible or not. If the results are positive, the adaptations can be transformed into a standard element of the curriculum. A good example is the 'TGM model', a school trial of the 'Technological Trade Museum", which is a provider of several technical studies at the upper secondary level. Here, a trial in the field of electronics has been started in 2003 where different fields such as biomedicine technology, computer technology and mobile communication were amalgamated. The ideas behind this school trial were of course to meet new skills requirements, but also to enhance the prospects of the graduates at the labour market by reducing the number of drop-outs (for information on other courses, see http://www.tgm.ac.at).

In addition to these modes of cooperation, other initiatives have been developed to intensify the interaction of industry and technical colleges as well as Universities of Applied Sciences. A good example is an initiative of the trade association of the Austrian Electronics Industries, which established a programme called "Teaching the Future" in 2001 aiming at the continuous improvement of the existing curricula and teaching practices. The programme addresses teaching subjects and teachers by providing further training for teachers, it furthermore organizes teaching plan conferences with directors of technical colleges, provides information material on recent technical developments and more (for further information, see http://www.feei.at/index2.html).

These examples provide evidence about a considerable number of development activities in the different areas of the upper secondary level of the Austrian VET which give impetus toward changes. The organization of a curricular change follows different strategies in the

technical study areas on the one hand and in the commercial respectively human service-related study areas on the other hand. Both forms are examples for the collaborative way of further developing a curriculum. Regarding the commercial and human-related study areas, several boards are involved at different stages of the development process, which often consist of representatives from the Ministry of Education, School Counsellors, school directors and practice experts. Teachers are directly involved in this process since they form a sort of 'curriculum commission' which drafts a proposal for a new curriculum which then is distributed to all relevant schools for assessment. The renewed curriculum draft is the subjected to appraisal by social partners, parents associations, and other stakeholders. Thus, a consensus is reached which eventually becomes the new curriculum. It is noteworthy that in this procedure the social partners enter the process only lately. Partly, this is due to the new evaluation process, which ensures an independent identification of skills demand in the beginning of the process which is then subjected to examination (see Lassnigg & Markowitsch 2005: 158p.).

In the technical study areas, the procedure is different due to a greater heterogeneity of the teaching regulations. At the moment, there are 255 different teaching regulations, many of them are implemented only at a few school locations. Additionally, technological changes require greater flexibility for fast adjustment. Therefore, the teaching regulations provide general frames which offer space for regional initiatives, where committed teachers and companies develop particular ideas for new curricular elements which may later become - after a very practical form of evaluation in one of the aforementioned school trials - standard curricula. In any case, the initiative has to address its intention to the responsible department of the Ministry of Education, then the idea is subject to appraisal by a special committee. If this committee agrees, the so-called "Business Talk" takes place. In behalf of this Business Talk, the Chamber of Commerce and the Federation of Industry asks interested companies to review the idea from the point of skills demand. Based on this consultation process, a draft for appraisal is developed which then passes through the formal procedure (ibid., 159p.)

The collaborative procedures which have been described briefly do have some important advantages, since they allow involving all relevant partners in a very informal way. However, there is no guarantee that every school site has established the boards required or discussed all relevant aspects in the trade-related commissions. In addition, certain standards which would make the procedure even more transparent, are missing. One may conclude that all ingredients exist, but without 'sufficient area coverage' as Lassnigg & Markowitsch put it in their detailed analysis (2005: 163).

Active labour market policy:

In Austria, an interaction of policies can be observed in some areas such as in labour market policy, where – in some provinces – the Territorial Employment Pacts (TEP) provided suitable environments for reinforced interaction of VET policies and labour market policies. In the sphere of the active labour market policy, there are several

instruments which have not decidedly been created for building partnerships in anticipation, but which finance activities where anticipation and matching of demand and supply is an important activity.

Among other examples, the forum active labour market policy in Upper Austria (*Forum aktive Arbeitsmarktpolitik Oberösterreich*) is an example for joint financing of measures of active labour market policy by the PES and the province of Upper Austria (see http://www.pakte.at/teps/232.html). The group comprises about 10-15 representatives from different institutions and organizations: the members of the provincial government for economy and social affairs, the school counsellor, the PES, and the social partners comprising the Chamber of Commerce, the Chamber of Labour, the Federation of Industry and the Federation of Trade Unions. The group meets every two months on average. It is noteworthy that this group is not institutionalized at all; the forum has no decision-making power, too. However, in the participating organisations decisions are made according to the discussions in the forum.

The main objective of the forum is the reduction of the number of unemployed people. To attain this goal, the partners involve each other at a very early stage of their considerations when an idea for a new project is being developed (see Lassnigg & Markowitsch 2005: 164pp.) Often, this process starts with informal consultations. When there is consensus among the partners about an idea or a problem, measures are developed rather quickly. When there is no consensus, additional expertise is canvassed usually by the PES members and additional data and information is processed to support further discussions.

The key mechanism relevant to anticipation which characterizes the forum activities is the parallel identification of demand and preparation of an idea for appropriate measures. Usually, partners rest upon their own sources: For example, the Chamber of Commerce uses their findings from periodical company visits (about 4000 per year) for identification of new demands, the Chamber of Labour rests on the information gathered from its vocational counselling offices, the Federation of Industry surveys their members periodically. The PES itself provides a wide range of information from different sources (primary analyses, labour market data etc.) which have been referred to in this report elsewhere.

Thus, the forum eventually consolidates information from different sources and practices a synergy-oriented policy in order to create quick and appropriate measures with the commitment of all partners involved. A good example is the creation of new technical VET colleges in the province since an increased demand for additional schooling positions as of the beginning of 2008 was detected. Other initiatives have been established to create additional training positions in health care in the form of particular measures of active labour market policy, or for young people which have the opportunity to be trained as apprentice in so-called ‘production schools’ which provide a very practice-oriented way of

vocational training, or modular training measures which meet the particular demands of companies for combined skills, e.g. in metal-working and electricity.

Another important collaborative approach was already mentioned in connection with the activities of the Austrian PES in anticipation. Since 2002, the reports of the PES on the "Qualification Demand of the Future" are the result of periodical conferences, where experts from labour market policy, science, representatives of companies and human resources consulters participate. The first volume (published 2002) represented an overview on approaches, methods and options with regard to analyzing skills demand. The second volume (2003) was dedicated to topics such as education and training careers, labour market careers, and labour market demand and integrated knowledge and discussion of various studies which was mentioned already before. The 2005 volume dealt with further training of low skilled people and contained presentations of approaches in vocational training of low skilled people, measures and experiences with people having difficulties in entering the labour market (young people) and approaches of work with elder people in vocational training. The recent report in 2006 examined the labour market dynamics and job prospects in sports business and in the health care sector (Sturm & Hofstätter 2002-2006).

The PES conferences do have the primary function of exchange on anticipation approaches. However, they have become an important place where experts from different spheres meet and relate the highly sophisticated topic of anticipation with ongoing developments of the labour market. The social partners are involved as members of the administrative boards of the PES. An important function of the social partners is to relate the findings to their particular areas of activity and to communicate the results within their domains, too. Since social partners are also involved in the development of vocational qualifications and curricula, the PES conferences and events are important sources of information.

Other examples for communication-oriented and dialogue-oriented approaches are the projects following the Prospect method developed in the Netherlands in the 1990ies. In Austria, the Prospect approach has been applied since 2001 for regional labour market monitoring, which concentrated on skills demands (Prospect 2001). As the method suggests, the monitoring is implemented in three steps:

- Telephone surveys of companies regarding the demands in human resources and skills demand
- Personal interviews with companies which have actual or future demands in order to elaborate their particular demands
- Feedback of the demands identified to the regional PES and training providers for further development of targeted labour market measures and training measures.

The monitoring approach intends to analyze the sectoral reasons for the potential gaps between the actual skills profiles of the job applicants and the skills profiles required from the companies.

In Austria, this approach became complemented by the so-called "Qualification Dialogue Method" in order to bring together institutions and training providers from labour market policy with social partners and companies (Prospect 2001, Prospect 2007). This method is used for anticipatory identification of skills demands as perceived by companies and it aims at the development of a structured and continuous dialogue, which should support the linkage of the qualification system of the PES to the companies' demands. The findings of this process are further elaborated in workshops with counsellors of the PES in order to improve the adaptation of the training provision to the needs of companies. The approach does not represent a standard procedure in the Austrian labour market policy.

Tertiary level:
A distinct anticipatory approach for early identification of qualification demand which also follows the principle of a trans-sectoral partnership has been established in the province of Lower Austria. In 2003, the *Bildungsgesellschaft m.b.H. für Fachhochschul- und Universitätswesen,* an organization for the management of education and training at the post-secondary and the tertiary level, started a network-like think tank, consisting of representatives from education, business, politics, training, clusters, social partners and other important areas, aiming at enhanced collaboration regarding anticipation of qualification demands at the level of higher education. Since its beginning, this group has organized annual *anticipation workshops* on different topics such as ICT skills (2003), Lifelong Learning (2004), Innovation, Research & Development (2005), Hard Skills (2005) and Demography, Education and Labour Market (2007) (see Niederösterreich Bildung 2007).

A distinct objective of the network is the implementation of new findings which are developed in the workshops. The workshop results are discussed with VET providers in specific workshops, where the providers have the opportunity to adapt and create new offers. Thus, the communication process triggers and supports the development of new learning opportunities in the VET system which are adapted to future needs. The network addresses both public and private VET providers and collaborates with the School Council of Lower Austria as well. The entire process is supported scientifically by the Institute of Higher Studies, Vienna. For a detailed description of recent activities and results, see Niederösterreichische Bildungsgesellschaft mbh 2007.

Tertiary education at the Universities of Applied Science is a further example for a highly collaborative structure in planning study courses. Here, different political bodies, committees, and institutions interact at different stages involving different political levels as well as representatives from different areas of society. As mentioned earlier, a development team consisting of not less than 4 experts from companies, professional

associations and experts from other education and training institutions is in charge of developing a new study course. The most important body for the accreditation and (re-)accreditation is the Fachhochschule Council, which consists of 16 members appointed by the Minister of Education, Arts and Culture; 4 members come from the Advisory Board for Economic and Social Questions (*Beirat für Wirtschafts- und Sozialfragen*) and represent the social partners in implementing the key task of the Fachhochschule Council, i.e. (re-)accreditation of study courses.

In addition, province governments have a vested interest in providing a skilled labour force to their regions and therefore often contribute with regional development plans to the development of the Fachhochschule sector. Furthermore, every provider of a Fachhochschule has to set up a particular council (*Fachhochschulkollegium*) which meets at least two times a year to decide on changes in the study courses and on new study courses, to coordinate and evaluate the subjects of the study courses and examinations, and to assess the appropriateness of the study courses and examination procedures. The majority of its members consist of the directors of the study courses, teachers and students.

Another important board is the Fachhochschule Conference which is a platform for the (further) development of the Universities of Applied Sciences. The participants of this conference which is held at least two times a year, comprise all directors of study courses and one or two representatives of the providers. At the conference, which is complemented by two meetings of the general assembly per year, three commissions are discussing continually research and development, international affairs and human resources development as major topics. The demand and acceptance analysis as well as other expertise are an important source of information for continuous development.

070105 Financing the anticipation of skill needs (INCL. STATISTICS)

Regarding financing, less data is available. However, the principal modes of financing differ across the different school types.

Apprenticeship: The apprenticeship system is financed predominantly privately by the businesses providing apprenticeships, as well as publicly by the federal government and the provincial governments. As anticipation activities are mainly a part of the development process of apprenticeship trades, there are not many direct costs for anticipation except for the IBW, the institute in charge of preparing the information on the vocational profiles in question. The social partners contribute through indirect personal costs for their members which participate in the development process.

Regarding anticipation, the periodical forecasts on the apprenticeship demand of the PES have to be mentioned. Here, also indirect personal costs were employed since the forecasts

were made by the ABI department (*Abteilung Arbeitsmarktforschung und Berufsinformation*) of the PES until 2005. For the recent forecast, an external institute has been contracted (Alteneder et al. 2006). The forecast on apprentices and skilled labour craft is a standard in the PES portfolio of analyses and studies.

PES:
The PES also maintains Austria's largest programme on skills demand analyses which has become a standardized structure at the beginning of this decade. In the meantime, annual job announcement analyses on the skills demand on particular occupational groups as well as a screening approach covering job announcements in the press and in online job databases are carried out for which external institutes are contracted. Although there is no information on the absolute or relative costs which are brought up for this programme, the number of studies (nation-wide and for the 9 provinces) may give an impression of the relevance of job announcement analyses in the PES context: In 2006, 23 studies have been published in total, of which 5 covered the demands nation-wide, and 18 detailed analyses provided information on the provinces.

In addition, secondary analyses are made and purchased in order to integrate relevant data in the AMS-Qualifikationsbarometer and to maintain the system, for which an external institute is contracted, too, since the start of the system in 2002.

Upper secondary VET:
The number of explicit and standardized anticipation studies at the upper secondary level is too small to provide reasonable information. However, as was written before, the amount of personnel costs which are brought up by school officials, teachers, company representatives and social partners for contributing to anticipation in informal ways, is considerably high. Yet, the number of collaborative projects is still growing and exchange relations with a strong impetus on the production of knowledge on skills demand are likely to grow continuously.

Fachhochschulen:
A more approximative assessment of costs brought up for anticipation can be done for the Fachhochschule sector. Due to the fact that each study course is subject to (re-)accreditation on a five year basis, the number of demand and acceptance analyses can be assessed. In 2006/07, there have been 245 study courses in Austria, with the first studies starting in 1994. This would imply that there are almost 50 demand and acceptance analyses to be carried out per year. It is rather difficult to differentiate the costs for these analyses since there for the initial accreditation, each study course provider is obliged to contract an external institute while for (re-)accreditation, a provider is free to choose whether he carries out this analysis on his own or contracts an external research institute. In any case, the provider itself carries the costs for a demand and acceptance analysis. However, the annual expenses for demand and acceptance analyses should reach about €

750.000.- if one assumes the average costs for the surveys required in a standard demand and acceptance analysis.

Funding instruments for partnership building:
In the area of active labour market policy, there are several initiatives and projects which have successfully established partnerships. There are no formalized instruments for funding partnerships aiming at the promotion of collaborative anticipation as main purpose so far. However, in Austria a convergence of policies can be observed in some areas such as in labour market policy, where – in some provinces – the Territorial Employment Pacts (TEP) provided environments for reinforced interaction of VET policies and labour market policies. Very often, this entails the involvement of representatives from different spheres in politics, education, labour market policy, economy and social life, which have received fresh impetus for collaborative policy-making and for efforts in matching demand and supply. Although distinct anticipation projects seem to be seldom, the TEP's do have an important monitoring function for the assessment of training needs and job requirements which are relevant for particular target groups of active labour market policy. The funding itself is indirect through the time invested by the partners of a TEP in developing appropriate measures and training opportunities for these target groups (for information on the general approach of the TEP's in Austria, see www.pakte.at). One example for this was referred to as the 'Forum aktive Arbeitsmarktpolitik Oberösterreich' – the Forum for Active Labour Market Policy in Upper Austria. In other provinces, similar activities can be met, too.

Within the sphere of the PES, the 'PES Research Network' (*AMS Forschungsnetzwerk*) is another platform, where external research institutes meet from time to time for discussions and conferences. The PES itself invites researchers to the periodical conferences on the qualification demand of the future, which are held each year with subsequent publications of the conference presentations

0702 DEVELOPING QUALIFICATIONS: GENERAL BACKGROUND

Since the 1990ies, a discussion process on several aspects of qualifications took place. These processes did not have very systematic structures, however the main topics regarding the definition of qualification can be identified as follows:

- One important development concentrated on the definition and the determination of 'elementary competences' (Grundkompetenzen) in the lower secondary schools. The aim was to complement subject-matter competencies by key competencies such as personal competence (*Selbstkompetenz*) and social competence which have been defined as elements of the 'Curriculum '99'.

- Important impulses came from the Federation of Industry. These efforts concentrated on the extension of the professional competencies through methodological competencies and social competencies

The reinforced integration of key skills (which cover the particular types of key skills mentioned before) is a characteristics of the Austrian discourse and efforts to integrate the types of competencies in the different levels if the VET system. As was laid down in chapter 0701, similar categorizations with respect to a more differentiated and integrated system of skills, can be found at other levels of the VET system.

It is characteristic for the development process since the 1990ies that not in all school sites the full practical implementation was achieved. Also, an official, systematic conceptualization of a new set of competencies for the different school types and levels which could have been regarded as programmatic objectives was difficult to achieve due to the highly differentiated education system. However, the understanding of teachers and school authorities has changed very much and still is in change; furthermore, it can be assumed that the practice of teaching became strongly influenced by new didactics which are characterized by technology alignment, output orientation and collaborative approaches. As can be learned in chapter 070303, numerous initiatives, projects and competitions at the national, regional and local levels contributed to a continuous further development of the understanding of actual qualification demands, types of competencies and new pedagogical approaches.

Currently, the discussion on the introduction of comprehensive schools is dominating the educational policy. In addition, important changes should not be ignored, as was pointed out with regard to the modularization of the apprenticeship system. The Ministry of Education, Arts and Culture set up an expert commission which is responsible for the development of criteria for the concept called the 'Common School' (*Gemeinsame Schule*). In accordance with earlier practices, the process is designed as a collaborative one

involving the provinces and the school partners ranging from parents to companies. The Ministry aims at a broad public discussion and debates on the different topics of the agenda. Starting in autumn 2007, "School Summits" will be held two times a year, where representatives from teachers, schools, parents, social partners, stakeholders and officials from the regional and local levels will gather to discuss on questions of school organisation and education (see http://www.bmukk.gv.at/ministerium/vp/pm/20070607.xml).

The definition of objectives and subjects of vocational education in Austria usually follows a dual scheme (Lassnigg & Mayer 2001) combining (1) a specific, profession-related definition of skills and competences with (2) a definition of general objectives of vocational education which often addresses a set of key competences. Thus, it is difficult to lay down the particular definitions of skills and competences which are developed. By contrast, it is more meaningful to emphasize that, in Austria, the term 'competence' usually refers to the ability to practise or exercise an occupation. This concept provides a framework for particular profession-related definitions which are applied at the different levels of the vocational education system.

Regarding upper secondary education, this concept can be found in the decrees regulating the apprenticeship training and education in vocational schools (BMWA 2006, BMUKK 2003). At the tertiary level (University of Applied Sciences), the alignment on subject-matter competences becomes visible in the conception of demand and acceptance studies, which are supposed to concentrate on fostering the ability for solving the tasks of an occupational field according to scientific standards and practical requirements (BMWF 2006). Usually, the common definitions of subject-matter competences comprise theoretical knowledge and the practical skills which enable a person to practise a certain occupation.

On each level of the VET system, there are specific concepts which evaluate the various subject matters of particular skills and competences differently. However, there is a consensus that a modern concept of skills and competences has to integrate different aspects within one qualification framework. Thus, since the early 1990ies, the concept of profession-related subject-matter competences was broadened step-by-step through integration of self-competences, methodological competences and social competences as the most important types of key competences.

Reviewing the different regulations of VET, it becomes evident that there is a widely acknowledged set of key competences in terms of a 'transferable, multifunctional package of knowledge, skills and attitudes' (see EU 2004) which is an encompassing framework for the definition of skills and competences in Austria, too. According to the different areas of the VET system, the priorities regarding the particular key competences may vary. However, there are certain key skills and competences which are stressed throughout the VET system.

Among the most important, the following definitions of key competences shall be highlighted in terms of selective examples of concepts adopted in Austria. At the upper secondary level, self-competences play an important role among others. In older papers, this type is referred to as the 'ability for active structuring of one's own private and work life, self-organization, individual initiative and further training' (BMUKK 1997). In recent documents skills such as self-appraisal, independence and ability to cope with stress are emphasized (BMWA 2006: 38). Definitions of methodological competences often comprise the 'capacities of acquiring information as well as planning, choosing and applying problem-solving techniques' (BMUKK 1997) and 'presentation skills … and competence concerning self-directed learning' (BMWA 2006: 38). Social competences are referred to as the 'capacity for communication and cooperation as well as team-oriented behaviour' (BMUKK 1997) and the 'ability to deal with conflicts' (BMWA 2006: 38).

Recently, new types of skills which are basically a combination of skills and attitudes more and more become adopted in the VET system, too. Here, one important type is 'entrepreneurship', which is defined as the development of entrepreneurial attitudes and skills in general, and the acquisition of subject-matter knowledge and competences needed for founding or managing a business (BMUKK 2005a, BMUKK 2005b).

At the tertiary level, the Universities of Applied Sciences make special emphasis on key competences, too, based on the demanded 'fit' between vocational education and specific sectoral or regional labour market needs. Within this demand-oriented approach, the 'Guidelines for Development and Accreditation of New Programmes' edited by the Fachhochschule Council highlight technical and methodical skills as well as inter-disciplinary qualifications which also comprise social skills as significant elements of the qualification profile of students (Fachhochschule Council 2006).

Qualification development:
One important characteristics of qualification development in Austria is the involvement of different policy-levels and social partners in all relevant processes, but other stakeholders are involved, too, such as companies, teachers, and external experts. The processes of qualification development vary according to the different school types and levels.

This collaborative approach did not change in substance over the years, however, it became complemented by additional processes which partly concentrate on more regional aspects of labour market demand. As is the case at other levels, the amplification of direct project links between schools and companies through projects is a distinct development at the level of VET schools and colleges. A very important impetus toward further development of regionalized and/or sectoral qualification development stems from the accreditation processes of the Universities of Applied Sciences since the mid of the 1990ies.

The modes of qualification development do vary with regard to its standardization. The close the interaction between VET and industry, the more informal, though not without clear assignment of responsibilities, the processes of qualification development are. This has serious advantages since it allows flexible responses to labour market needs, however, the adverse effect may be loss of transparency due to informal procedures of assessing needs and decision-making.

070201 Policy development on developing qualifications

National Qualification Framework

The predominant topic of the national policy is the question whether a full-time school shall be introduced or not. Notwithstanding, the discussion on the National Qualification Framework has started, too, based on preparatory work since 2005. In April 2007, the kick-off conference on the National Qualification Framework was held in Vienna, where in several workshops the participants discussed experiences from other countries, the potential impacts on the European labour markets and education & training provider market, strategies towards lifelong learning in connection with Europass, and approaches towards classification and quality assurance in education systems (for a detailed programme (in German), see http://www.qibb.at/fileadmin/content/downloads/Programm_5.4.07.pdf; the documentation of the conference is available: http://www.qibb.at/home/info/nqr.html; both 01.06.2007).

In the conference, a schedule for implementation the NQR was presented and discussed showing the main considerations and the objectives regarding the future implementation process. The general objectives presented are (see Staudecker 2007):

- Development of a NQR in collaboration with all stakeholders (with presumably eight levels
- covering all areas of education
- based on the learning results with a clear set of descriptors for the classification of qualifications (occupational profiles, grades, skills profiles
- orientation at the demands of the labour market

In particular, the NQR is supposed to be an important instrument for the approval of qualification and skills based on coherent national priorities, clear strategies and national benchmarks. The Ministry of Education, Arts and Culture aims to continue the collaboration at the national level and further improvement of existing organizational pillars in combination with a strong coordination. Strong linkages are scheduled with the quality assurance system in the education system, too.

The organization of the process will be implemented by a project group consisting of representatives of the Ministry of Education, Arts and Culture and the Ministry of Economy and Labour which both hold distinct responsibilities. This group will carry over the strategic planning, the implementation and the involvement of stakeholders as well as the scientific attendance. The national steering group will be supported by a consortium of scientific experts and in addition there will be a preparatory group and projects in field of lifelong learning which include European cooperation projects will take place.

The first stage of the process – information – already started in February 2007 and will last until September 2007. Then follows a consultation process where a 'consultation paper' containing a concept for the classification of pilot qualifications will be an important document to be assessed by stakeholders.

Based on the results of these stages, the aims which are supposed to be fulfilled until 2010 include:

- Classification and description of the qualifications acquired in the formal education system according to reference levels
- Creation of a NQR with European reference
- Implementation of a national coordination unit
- Integration of methods for the validation of non-formal learning (lifelong learning process)
- Implementing a legal framework

Apprenticeship training:
Currently, an important step in further developing the apprenticeship training is being made through the modularization initiative which implements major changes in the structure and in the skills levels of the apprenticeship training. The modularization approach was explained in greater detail in chapter 070104. These changes are not confined to particular regional or local levels, but encompass the entire apprenticeship training all over Austria.

In the beginning of 2006, an amendment of the Vocational Training Act was issued which paved the way for a nation-wide implementation of the modularization approach. Further activities are carried out regarding anticipation activities. In the beginning of 2007, another survey of 175 companies in the wood sector was finished in order to provide information on potential key elements of the new modules in the relevant apprenticeship trades.

Target groups:
There are several other policy initiatives which are currently in preparation or in implementation. One initiative of the Federal Association of Industry refers to the improvement of the employment opportunities for migrants to attenuate the threats of skills shortages which may stem from a migration policy which is rigid on the employment

regulations for migrants (Industriellenvereinigung 2007). The topic is currently discussed controversial at the policy-level, and no consensus is reached on it so far. However, it becomes more and more important and the PES Austria has therefore recently also commissioned a study that examined the situation as well as the opportunities and barriers for migrants in business activities and in apprenticeship training (Schmid 2007).

A topic of growing importance is the integration of women in technical jobs, too. Here, several projects financed through national and European funds worked on this issue and covered the question of the advancement of girls and women from vocational orientation in compulsory schools (Paier 2005) until the question of integration of women in technical work environments respectively in the industry (Industriellenvereinigung 2006).

Regarding low-skilled people, several projects which were financed by the national ministries and European funds have been carried out in the last years concentrating on the particular challenges in providing appropriate training in basic skills, specific hard skills and in key skills.

Elder people have been an important topic for labour market policy, too. In particular, the questions regarding appropriate work organization and the need for adapting to new skills requirements are of interest here. These questions are on the agenda of the PES Austria (Steiner & Sturm 2005) since years and new modes of further training are in constant development in various measures of the active labour market policy.

070202 Legal, administrative and institutional framework

According to the different levels of the VET system and the shared legal responsibilities, there are several legal foundations regulating the implementation of VET courses in general and the development of qualifications in particular.

Apprenticeship:
For the apprenticeship training, the Berufsausbildungsgesetz - BAG (Vocational Training Act) provides the statutory framework. In addition, the BAG includes some provisions governing the fields of VET schools and colleges as well as their special forms for people under employment and school pilot projects. One provision, for example, stipulates that the successful completion of a VET school or college of at least three years' duration ensures minimum professional skills in the following fields:

- professional qualification;
- labour legislation including collective bargaining agreements;
- social security legislation

This means that the certificate awarded to graduates of VET schools or colleges

- gives them access to professional activities requiring successful completion of an apprenticeship-leave exam in a related apprenticeship trade;
- is evidence that they have fulfilled recruitment requirements for specific payment levels in the public sector;
- ensures that they are classified adequately into particular wage and salary levels.

Within the BAG and by means of amendments to this legal reference, the continuous further development as well as major changes of the apprenticeship system (see section 070104 on the modularization process) can be implemented. As was explained in greater detail earlier, there are several opportunities to introduce and to implement changes. Based on stable structures of collaboration, the involved parties in Austria fairly use this opportunity and thus contribute to innovation of qualification profiles.

Further training and additional certificates for graduates of the VET colleges:
The certification system also supports the start up of businesses by graduates of the upper secondary VET system. The main legal criteria are laid down in the Trade, Commerce and Industry Regulation Act (*Gewerbordnung - GewO*), which stipulates under which circumstances persons are entitled to take up a trade. As also graduates of VET schools and colleges have the possibility to exercise self-employed professions and to start up a business at their own account and risk, the *Gewerbeordnung* regulates the general and particular requirements to exercise self-employment pursuant to the ordinances issued in connection with the individual regulated crafts and trades.

Existing regulations ensure that graduates of VET schools and colleges obtain credits for the knowledge and skills relevant to the occupational field concerned. Skills and competences they have acquired through prior learning and already proved is credited to required examinations in the form of waivers (e.g. entrepreneurial examination, professional diploma examination, subject-specific parts of the master craftsperson examination). The regulations are rather dispersed; responsibilities are often assigned to regional or local trade authorities, too.

In some cases, the professional title includes a particular skills base, as is the case with the professional title ‘Ingenieur/in” which can be awarded to graduates of colleges of engineering and of agriculture and forestry. The title is regulated in the Act on the Professional Title “Ingenieur/in”. It is conferred by the Federal Ministry for Economic Affairs and Labour or by the Federal Ministry for Agriculture, Forestry, Environment and Water Management. Legal bases are the 1990 Ingenieurgesetz and relevant ordinances.

In addition to the successful completion of a college of engineering including all relevant certificates, the carrier of this title must prove a minimum of three years of professional

practice in the field where the training pathway focused on; thus, 'experience" becomes an indispensable skills requirement for these professions, too.

The Entrepreneurial exams which are based on the Entrepreneurial Examination Decree (*Unternehmensprüfungordnung*) are further important examinations for people who want to prove that they are prepared for self-employment. For the pursuit of a trade or a regulated craft or trade on a self-employed basis candidates must prove subject-matter knowledge and skills related to business administration and legal issues. This proof is furnished by successful completion of the entrepreneurial examination or through accreditation of prior learning.

A range of VET schools teach the knowledge and skills relevant for the entrepreneurial exam in the required extent of 160 periods of instruction. These include all types of VET colleges and the majority of VET schools. This leads to the waiving of the entrepreneurial exam for these graduates (cf. www.bildungssystem.at).

Institutional framework:
At the various levels of the VET system, the development of qualification is embedded in different institutional frameworks.

Apprenticeship training:
The continuous renewal of the apprenticeship system through qualification development, supported by different initiatives, represents an important strategy. Regarding the qualification development, the arrangement of the occupational image achieved by the IBW institute is the key stage after the initiatives have taken up action. Usually, qualification development in this process starts with one important player's idea about a new trade or a change in an existing trade. The sources of this idea are companies, the Chamber of Commerce or the Ministry of Economy and Labour, but also vocational schools may propose a new idea. The ways the input from various sources can be articulated are rather informal, however, the subsequent process follows clear rules.

The Advisory Council on Vocational Training plays the most important part in this process for its members cover all relevant areas of interest through integration of companies, representatives of trades, companies, industry and others. In this process, for each apprenticeship trade the components for a training regulation *(Ausbildungsordnung)* are developed, which, after being issued by the Minister of Economics and Labour, is binding for the training provided in the training companies. Thus, the training regulation determines the competencies and skills to be acquired through company-based training. The training regulations stipulate the occupation profile (*Berufsprofil*) specific to the respective apprenticeship trade. The job profile covers the minimum occupational basic skills, knowledge and skills taught in the course of enterprise-based training. For newly regulated apprenticeship trades, not only job profiles but also activity descriptions are formulated, which lay down briefly the occupational requirements the trained apprentice is

supposed to meet. The combination of activity description and job profile ensures close linkage with the Curriculum (*Lehrplan*) of the craft-specific vocational school.

VET schools and colleges

With respect to the school-based vocational education and training, different institutions are involved. As was pointed out, the Ministry of Education, Arts and Culture pursues a philosophy of long-term development as far as the elementary and paradigmatic knowledge components of an occupation are concerned. It is then within the framework curricula and the scope of the school autonomy which leave many options for the practice levels of qualification development, while the more general levels of long-term qualification development is governed by the General Directorate of VET.

It also has been mentioned that all relevant institutions and bodies are involved in the very practice-oriented development of qualifications. In addition, it should be noticed that - compared to the dual system, where specialization becomes more and more important - qualification development in the sphere of the VET schools and colleges does maintain an emphasis on overarching competencies. With respect to the interaction of schools and companies in projects and other ways, this development has fostered the emergence of – regionally varying – network-like initiatives (see Lassnigg & Markowitsch 2005: 145).

The options of 'school pilot projects' and direct cooperation projects mean that there are many different practices of adapting the framework curriculum to the needs and interests of companies and other organizations relevant to the labour market. As pointed out in earlier sections, the entire upper secondary sector is characterized by a highly differentiated system of interactions between different bodies and institutions. An important impact on the qualification development results from the multifaceted ways of adjustment to regional qualification demands based on cooperation of schools with companies and non-profit organizations.

This system is even more complex due to the different approaches in the different sectors of VET at the upper secondary level. A basic distinction can be made between business-related and human-related VET colleges on the one hand, and technical VET colleges on the other hand.

In business and human related VET colleges, changes of the framework curricula start with consultation between the responsible departments of the Ministry of Education, Arts and Culture and the provincial school inspectorate (*Landesschulinspektor*) where the general objectives of the reform are determined. Often, a steering group consisting of 3 representatives of the Ministry, 3 representatives of the Regional Education Board, 2 school directors and one expert from the relevant field further develop the results of the consultation. Then groups of 5 teachers is entrusted to develop the subject-matter changes. The responsible department of the Ministry summarizes the results of the work groups and distributes it to all relevant schools for assessment. Again, the results of this assessment are

distributed to social partners, and other bodies for further assessment. Eventually, the consolidated results represent the content of the new framework curriculum.
Due to greater requirements in terms of flexible adaptation to technological changes, the teaching regulations for technical VET colleges often only provide general frames and leave much space for regional initiatives, committed teachers and companies to implement their concepts. As was mentioned earlier, the initiative has to address its intention to the responsible department of the Ministry of Education, then the idea is subjected for appraisal by a special committee. If this committee agrees, the so-called "Business Talk" takes place. For this Business Talk, the Chamber of Commerce and the Federation of Industry asks interested companies to review the idea from the point of skills demand. Based on this consultation process, a draft for appraisal is developed which then passes through the formal procedure (ibid., 159p.)

The collaborative procedures which have been described briefly do have some important advantages, since they allow involving all relevant partners in a very informal way. However, there is no guarantee that every school site has established the boards required or has discussed all relevant aspects in the trade-related commissions nor is there a guarantee that similar standards and procedures are maintained.

Universities of Applied Sciences:
As was shown for the example of the Universities of Applied Science, it is a development team supported by external expertise which prepares all relevant information needed for the arrangement of a curriculum. The composition of the development teams and the standards defined in the accreditation guidelines ensures the integration of different perspectives. Also in case of a re-accreditation, the provider has to proof the demand of skills which are supposed to be provided in a study course.

In this approach, the development of qualification is based on direct translation of the needs of industry and takes into account the particular usefulness of particular skills perceived by graduates. After gathering all facts and information, the development team or the provider has the opportunity to adapt the original concept to the results of the demand and acceptance analysis. In the subsequent step the provisional curriculum is subjected to a check and approval by the Fachhochschule Council which may accept the curriculum or reject it for elimination of deficiencies.

The (re-)accreditation process is the most formalized framework of qualification development in the Austrian VET system. Despite this standard formalization which integrates the relevant bodies obligatory, there are differences across the study sites to which extent the development team actually implements all possible functions. It must also be noticed that after a period of creation of many new study courses, a trend towards consolidation can be observed, where an existing set of defined skills and competencies of a curriculum partly becomes adjusted to actual needs where this is necessary and reasonable. However, the five year re-accreditation cycle is a strong impetus for a

continuous renewal and alignment of qualification on the needs of industry, commerce and the non-profit sector which has a growing number of study courses, too.

Labour market policy:
Within the sphere of active labour market policy, there are no distinct legal foundations or regulations about the particular procedures for qualification development. However, the PES Austria since years has undertaken strong efforts to set up a coherent information system on labour market trends which also supports the development of qualifications and the implementation of demand-related competencies within the training system of the active labour market policy.

The anticipation and monitoring studies explained in greater detail in section 070103, thus are the basis for qualification development. Yet, regarding the qualification development a standardized, uniform procedure is not maintained since it is one philosophy of active labour market policy to increase the capacities to respond to regional demands. Therefore, qualification development is very much a topic for the PES at the level of the provinces. Usually, it is the provincial PES unit which coordinates targeted exchange between training providers and companies. Often, these policies are co-ordinated with the relevant departments of the provincial governments, whose economic policies but also regional development policies do interact with labour market policy with regard to qualification development. Regarding the system level it can be said that the federal level of the PES cares for the information bases, while the provincial PES units care for the implementation of the findings in collaborative processes of defining regional demands and skills needed. It is then the task of the provincial PES to develop the appropriate vocational training measures in collaboration with the training providers.

In addition to these standard activities of the provincial PES, the Territorial Employment Pacts (TEP) have become important instruments of a regionalized policy integrating labour market, economic development and regional development. In Austria, there are 9 TEP's which are active since the end of the 1990ies in all provinces. The TEP partnerships usually comprise PES representatives, training providers, the social partners, local and regional interest groups and stakeholders, experts, policy-makers and companies, usually from the regional and the local level. As is known from evaluations, the joint development of qualifications targeting the reconciliation of the needs of special target groups and the regional/local demands for specific skills has become an important activity level in the TEP's (Paier 2003, Huber 2003).

Overview: Institutions, roles and responsibilities in qualification development (according to VET levels)

Area	Initiative	Institutions and bodies involved	Responsibility
Apprenticeship training	Companies Chamber of Commerce Ministry of Economics and Labour	Research institute (IBW)	Exploration of occupational images for appr. trades
		Advisory Council on Vocational Training (social partners, companies, experts)	Development of training regulation (incl. job profile)
		Ministry of Economics and Labour	
		Ministry of Education, Arts and Culture	
VET colleges	Ministry of Education, Arts and Culture Schools Companies	***a) Major changes in business / human-related VET colleges***	
		Min. EAC	Consultation on objectives of reform of framework curriculum
		School Inspectorate (province)	
		Steering group	Supervising the reform process
		Teachers work groups	Specification of subject matters
		Min. EAC	Summary of results and distribution to social partners and others
		Social partners	Assessment
		Min EAC	Consolidation of results and regulation o
		b) Major changes in technical VET colleges	
		Min. EAC	Provision of standard curricula
		Special committees in the subject area	Appraisal of proposal submitted by initiators
		Chamber of Commerce, Federation of Industry, Companies	Business talk (review of proposal)
		Min. EAC	Consolidation and enactment of new curriculum
		School trials	
		Schools, companies, NPO's	Informal, flexible trials of new approaches
		School autonomy	
		Schools	Smaller adaptations to actual demands
Tertiary level (U of Applied Sciences)	Fachhochschule Council Development team Provider	Fachhochschule Council	Definition of guidelines for (re-)accreditation
		Development team	Developing curricula for study course
		Provider	Financing and supervision of demand & acceptance analysis
		Development team/provider	Consolidation of results and development of curriculum
		Fachhochschule Council	Decision on (re-)accreditation
Labour market policy	PES (national/regional) Training providers Companies Other (e.g. regional development initiatives)	PES	Establishment of information base
		Provincial governments, PES regional	Joint setting of priorities of collaborative training measures
		PES regional, Training providers, companies	Collaborative definition of short-term skills profiles for training measures

As can be learned from this section, the Austrian system of qualification development is highly differentiated and complex. The overview provided also shows that there is no comprehensive system of qualification development nor is there a monitoring which would document ongoing changes and elaborate the main findings for political strategy-building. The different spheres of the VET system seem to be very disconnected in terms of exchange of findings and practices, as well as methodologies and standards applied.

070203 Methods, approaches, practices and tools used

Except for the methods drafted in the previous section, no further or explicit methods exist. Thus, the different VET spheres can be distinguished by characterizing the main characteristics of their particular approaches.

Apprenticeship training:
In the apprenticeship training system, again exchange of practice expertise is characterizing the process of qualification development. Recently, this main approach has been extended through the increased use of company surveys which provide direct findings on the qualification demand as articulated by the companies. Here, a trend toward sectors or trades can be identified: A recent company survey aimed at producing improved information for planning the training regulations for the new, modular apprenticeships in the wood industry (Archan 2007). The particular methods of qualification development, however, are difficult to describe since they are not formalized and may differ regionally due to particular priorities and routines.

VET schools and colleges:
At the level of VET colleges, the extent of informal procedures may be even higher, due to the different management of the institutional heterogeneity. As has been shown, the of methods range from workshops to conferences, however, there is no coherent set of methods which would be suited to characterise the working processes.

Universities of Applied Sciences:
At the level of the Universities of Applied Sciences, the ways how the findings of the demand and acceptance analyses are translated in to skills profiles and curricula are much incumbent on the professional expertise and the mastery of the experts involved, too. However, the accreditation guidelines contain a detailed catalogue of principles for qualification development which are obligatory for the development team and which serve the Fachhochschule Council as criteria in assessing a proposal for a study course. According to this catalogue, the applications for approval of study courses have to contain (see Fachhochschule Council 2006: 15):

a) A description of vocational fields of activity, including the main industries and examples of types of enterprises or organisations where graduates find employment

shall be named; the positions which graduates may fill shall be specified, and the jobs and tasks which graduates can realistically carry out shall be specified.

b) Furthermore, a description of qualification profile, including the knowledge and skills required to fulfil the jobs and tasks at higher-education level shall be specified. In doing so, technical and methodical skills as well as inter-disciplinary qualifications shall be taken into account.

Employment Policy:
Qualification development in the PES is highly imposed on a culture of collaboration and negotiation among regional labour market partners where special measures are concerned. This is the case in the regular tendering procedures for training measures by the regional PES and in the regional collaboration maintained by the regional PES units. The regional PES inform the training providers about the annual target setting which is usually based on national target setting by target groups. By tendering, the training providers are invited to develop particular concepts which are supposed to address the direct skills needs of labour market target groups and which are supposed to meet the demands of industry. Thus, training providers are forced to keep themselves up-to-date on the skills demands.

This procedure refers to the formal mode of ensuring the development of appropriate training measures. In addition, the PES maintains a number of other instruments to exchange on skills needs with all relevant groups. In this regard, the conferences on future qualification demand have already been mentioned. Yet, also the regional PES do implement a considerable range of events from workshops to regional conferences in order to discuss questions of skills demand and qualification development. Often, targeted events with selected training providers and companies are organized in order to scrutinize particular sectoral skills demands in greater detail. Examples are known from sectors such as the automotive sector, metal processing, electrical engineering and health care.

070204 Building partnerships and raising awareness

Since the main examples for partnerships in the different spheres of the VET system already have been drafted elsewhere, this section concentrates on the main initiatives at the level of VET schools and colleges. It is important here to stress that at the national level, the collaboration of politics, research institutes and consulters is an important source for spreading new ideas and concepts in the area of qualification development in general. This can be seen in the scope of the PES, which holds long-term cooperation relations with several research and consulting institutes and thus contributes to capacity building and the provision of sources for shared knowledge. This is important for facilitating the translational work at the level of regionalized labour market policy, too.

In the area of VET schools and colleges, the QIBB – VET Quality Initiative (*QIBB - Qualitätsinitiative Berufsbildung*) is an important carrier for new approaches and concepts in qualification development primarily in connection with quality assurance. The QIBB initiative makes also s strong point in 'enhancing the efficiency of the organisations' within the Austrian vocational education and training system and the creativity of all stakeholders in school-based VET. As it puts down in its mission statement, "this objective also involves the timely and energetic implementation of reforms of school organisation and curricula in connection with demoscopic, labour market, technical and content-related developments" (see http://www.qibb.at/en/home/info/mission_statement.html).

Another initiative which brings up a lot of topics concerning anticipation and qualification demand is the abf – Bildungsforschung Austria (http://www.abf-austria.at), which acts as intermediary between European institutions and national institutions and bodies in order to spread new concepts and facilitate exchange on all relevant topics of VET. With regard to anticipation and qualification development, the members of the Austrian ReferNet (www.refernet.at) do work independently as well as jointly on several studies and analyses concerning questions of qualification demand and development and developed plans for subject-matter related conferences.

Yet, it should not be overlooked that federations and non profit organizations contribute very much to awareness raising by making accessible the results of studies on skills needs as well as on the efficiency and the impact of training measures and career counselling for the advancement of employees and industry. An important example for a regional NPO is Waff – Wiener ArbeitnehmerInnen Förderungsfonds – a Viennese fund for the advancement of employees which contracts various institutes for labour market forecasting and analyses on the qualification demand. The results are published on the website of the Waff (www.waff.at). Another important example is the Federation of Austrian Industry which – be it in brochures or study reports - addresses continuously topics such as the foundations of teacher training (see Industriellenvereinigung 2007a), as well as future issues of education and training in general (Industriellenvereinigung 2007b) or the challenges of lifelong learning (Industriellenvereinigung 2004a) to name but a few topics covered.

Actually, there are many initiative institutions and bodies which bring up the relevant topics. However, there is a clear lack of an institutionalized mode of knowledge transfer which would ensure structured distribution of information and communication between knowledge providers (e.g. researchers, experts), policy-makers, school counsellors, teachers, vocational counsellors, companies and other stakeholders. At the moment, besides the institutionalized ways of qualification development at the various levels of the VET system, much depends on individual commitment of schools, counselling organizations and other organizations to keep pace with the ever growing stock of information on new skills requirements and, even more important, the translation into the various spheres of practice of qualification development. The informal structures of

communication work and the number of initiatives is growing, yet, there are some challenges in consolidating exchange of information and expertise by the means of structured processes of knowledge transfer between politics, education, science, and industry.

070205 Financing the development of new qualifications (INCL. STATISTICS)

As was mentioned in the section on the financing of anticipation activities, it can be said that within their scope the relevant political bodies and institutions finance activities of qualification development as a part of their regular activity. No specific instruments for financing qualification development are known except in the sphere of the PES, where some budget is spent on collaborative activities which also contain qualification development. For Austria, there are estimates on the turnover on training provision in certain fields of VET (including CVET), but there are no separate figures for the particular expenses for qualification development activities.

There is also no detailed information available on the private funding of qualification development, although the participation in respective activities is a part of the regular business of social partners but also of private companies be it large companies or SME's. Figures are known for the SME's costs for apprenticeship training but this is not significant for their participation in qualification development.

0703 Innovative pedagogies: General background

The question about innovative pedagogies (in the modern meaning) can be traced back until the 1990ies when new concepts of skills (e.g. methodical skills, personal skills, social skills) received increased attention. However, a consistent definition of 'innovative' pedagogy does not exist. In fact, several, primarily practice-oriented concepts exist which are not adjusted consistently to each other on a theoretical, systematic level. Due to the traditional input-orientation of the VET system, the informal practice concepts of 'innovative pedagogy' were put into perspective by the emergence of new concepts on skills and competencies driven by processes of economic, technological and societal change.

As in the apprenticeship system and in active labour market system the processes of anticipation and qualification development are very much entwined, the prevailing mode of modernization of curricula can be regarded as a sort of incremental *and* informal innovation process. At the level of vocational schools, the paradigmatic elements of the curricula for VET colleges are subjected to long-term changes, which are prepared and arranged by the responsible departments of the Ministry of Education, Arts and Culture. However, smaller curricular changes on subject matters often result from school trials and projects within the scope of school autonomy.

Curricula usually define the overall educational objectives as well as the more specific objectives for education and training. Due to the complex, highly differentiated occupation-oriented system of VET in Austria, curricula in the VET system do contain very specific definitions of requirements and training objectives of the respective occupation. Overall, curricula determine the principles of didactics and the subject matters, too. The subject matters are arranged according to school years defining which educational and training objectives are to be achieved per year during the course of vocational education and training. Curricula often define transfer possibilities and contain formal specifications on the number of teaching units (arranged by subject matters) for compulsory subjects and electives as well as voluntary subjects. For an overview on the teaching regulations for VET colleges see: www.berufsbildendeschulen.at/de/dlcollection.asp)

070301 Policy development in innovative pedagogies

In recent years, increased discussions on the necessities of reform in the VET system addressed also the need for innovation of pedagogies. The most important initiatives have been started addressing the upper secondary level. They main policy subjects of these

initiatives which were stimulated and still are maintained by the Ministry of Education, Arts and Culture are:

- e-learning & e-teaching
- didactics of mathematics, science and informatics
- project-centered work

E-learning:
After the take-off period of e-learning, there are several interim results and documentation on the various e-learning and e-teaching approaches at Austrian schools available in the meantime (cf. BMUKK 2006). In general, the agenda issues 'computer literacy' and 'information technology' are parts of the ministerial 'e-fitness initiative Austria' which pursues the following aims in IVET and CVET (see www.efit.at):

- Quick and flexible preparation, update and acquisition of new VET subjects and materials through use of new technologies
- Creation of new knowledge through use of new media, recognition and implementation of innovation potentials
- Access to education and training everywhere, anytime und for everybody
- Support and supplementation of elementary skills such as reading, writing and calculating

The particular initiatives are discussed in greater detail in section 07030301.

While there is not much information on the use of e-learning and e-teaching in the company-based part of apprenticeship training, the school-based part is under the responsibility of the Ministry of Education, Arts and Culture. Therefore, the vocational schools are integrated in the efit initiative:

E-learning at the CVET level is widely used and most training providers offer e-learning facilities. This is true for private, commercial VET providers as it is for non-profit institutions, which may also provide VET relevant courses, such as the Adult Education Centres in Austria (*Volkshochschulen*). Here, the political regulation is very low, since the development is driven by market forces primarily.

At the tertiary level, e-learning and e-teaching are topics which are addressed by most providers of study courses at a University of Applied Sciences use these approaches and maintain their own e-learning portals as well as further training opportunities for university teachers in e-teaching. There is no systematic evidence about the use of e-learning and e-teaching in other tertiary sectors or at the post-secondary level.

Where VET for unemployed people is concerned, the PES had an important role in developing quality criteria for e-learning and for integration of e-learning courses in the

standard training measures of active labour market policy. However, these systems are more market-driven than this is the case with VET schools and colleges, since training providers have a vital interest in offering innovative training approaches both to the PES and independent clients. Here, it should also be mentioned that a growing number of companies has started to integrate e-learning, particularly blended-learning approaches in company-based training programmes.

Regarding target groups, the e-learning initiatives do also encompass people with disabilities as well as prisoners, for which a concept has been developed only recently. There are not particular e-learning-related approaches for immigrants. The project-centered and practice-based teachings are not restricted to certain target groups in all levels.

Mathematics, sciences, informatics:
A very special and distinct achievement relevant to the VET colleges in particular, is the Initiative on the Further Development of Teaching in Mathematics, Natural Sciences and Informatics - IMST. Existing since 2004, the IMST initiative is organized as a fund which supports the schools in quick stimulation of innovations in teaching, in school development, and in professionalization as well as endogeneous development initiatives of schools and research on subject-related didactics (see http://imst.uni-klu.ac.at/programme_prinzipien/fonds). The IMST fund links subject matters with pedagogical topics such as learning with new technologies and media, elementary education and teaching standards, thematic orientation in the teaching, teaching interactions as well as exploring, researching and experimenting, and application-centered learning in combination with vocational training.

As regards the strengths and weaknesses, it can be said that there is good growth of the knowledge base resulting from IMST projects. Also, the policy of involving schools through competitions and awards develops successfully. One might argue that knowledge on the concrete operating modes and the impact of innovative approaches in the respective subjects become transparent only slowly. But this problem is particularly the case in areas where autonomy is big and where certain intermediary institutions are missing which could monitor the implementation of innovative pedagogies and process this information for distribution and further learning. It seems that the extremely growing number of different initiatives which have been complemented by projects, competitions and awards do have significantly increased the innovation potential in the school-based VET areas.

This is rather similar in the areas of active labour market policy where there is no institutional level between training providers and the provincial PES who contract the training measures. In these areas, knowledge is highly implicit and less elaboration of the particular changes has been achieved although the particular relevance of new pedagogical approaches is widely accepted and favoured. For instance, there is less systematic work on the operational mode of VET methods for the advancement of key skills. Among the few examples, there have been some case studies on the interdependencies between

communication skills, methodical skills, team skills and self-organized learning which are based on direct evidence from tangible settings where unemployed people were trained (Paier 2001).

Entrepreneurship education:
Entrepreneurship education has been a major concern of the General Directorate for Vocational Education and Training at the Federal Ministry for Education, Science and Culture for quite some time. It has been promoted by numerous measures, also in co-operation with other ministries and institutions (see www. http://www.bildungssystem.at/article/articleview/303/1/74). Entrepreneurship education is implemented most comprehensively in the colleges of business administration and it has become a content of the framework curricula for Business Administration Colleges in 2004. Entrepreneurial education is promoted throughout all subjects in these schools and colleges. Since several years, the special focus Business Start-up and Management was introduced at colleges of business administration (subject-oriented specialisation takes place mainly in years 4 and 5). This special focus is now offered by many colleges of business administration across Austria. Another area specialisation of colleges of business administration is Entrepreneurship and Management (where in-depth specialisation in Entrepreneurship and Management is offered for students in their 3rd year).

At the VET schools and colleges, the contents of entrepreneurship education are taught in the most differing subjects including Accounting, Business Administration, Economics, Economy and Law, Project Management, Quality Management, Marketing and International Business, Practical Training in Business Administration, Personal Development and Social Skills, Training Firm, Controlling and Annual Audit, etc. The most important 'location' for the education in training and operating entrepreneurial is the 'practice firm', an environments which provides real business processes.

Post-secondary courses in VET provided in colleges of business administration with the area specialisation Entrepreneurship and Management offer graduates of other school types a post-secondary four-semester specialist training programme. As demand for such specialist training programmes is still increasing, offers within the framework of school autonomy are expected to rise.

Depending on the school form chosen, students of VET schools and colleges have to do a project work in a team or as an individual work, whose aim consists in solving a concrete task from the fields of business or technology. This is a detailed, scientifically founded work where students apply the know-how they already acquired on the basis of a practice-oriented assignment. This project work must be documented and presented, and it is integrated into the final exam or Reifeprüfung and VET Diploma Exam as an exam subject.

Since 2002, a great number of school pilot projects have been carried out. Currently, about 40 Colleges of Business Administration from 120 in total participate in pilot projects. In

2006, a distinct Centre for Entrepreneurship Education was established for Business Schools and Colleges. The main objective of the Centre is to consolidate the experience from pilot project and act as a multiplier through consulting and further training for schools (see www.eesi-impulszentrum.at, 29.05.2007).

Project-centered work:
The concept of project-centered teaching was adopted as a response to the ever faster changes in technology, economy and society in the Austrian VET system around 2000. The method of project-centered teaching became an officially promoted method in 2001, when the Ministry of Education issued an accordant decree (BMWUK 2001) of teaching in connection with the growing autonomy of schools. The background consideration was to enable the teachers to develop the skills and qualifications require dynamically in order to support the students in motivation and competent life politics. The concept stressed particular teaching guidelines such as

- Differentiation according to individual needs and talents
- Gaining new insights an interdependencies and structure through exemplary learning
- Capability to self-organized learning
- Combination of theoretical and practical learning and experimentation

While this was formulated for schools in general, the relevance of project-centered learning is high in active labour market programmes and at the tertiary level, although for different reasons. In the training programmes of the active labour market policy, project-centered learning and teaching became important, since training measures were implemented more and more as a joint activity of training providers and companies. However, the knowledge accumulated on this sort of project-centered work style is rather tacit and the particular pedagogical properties of this approach and its benefits for CVET have not been explored in greater detail yet.

Project-centered work is also an important element of the study courses of the Universities of Applied Sciences at the tertiary level. Students are encouraged to do project-type work placements in companies. The study course provider is obliged to describe in detail the incorporation of the practical-work project in the curriculum, the particular targeted methodical-analytical skills, the objectives and quality standards as well as the standards for academic tutoring of the practical –work project (Fachhochschule Council 2006: 16).

COOL - Cooperative Open Learning:
In Steyr, Upper Austria, a school pilot has been established and institutionalized as an Innovation Center for Cooperative Open Learning. The pilot project responded to a situation of grate heterogeneity of students at the local Business School. A team of teacher searched for alternatives and developed the COOL approach which, in the meantime, is implemented in 50 Business Schools and Business Colleges. The main ideas of the

promoters behind the innovation centre are advancement of the student's independence, self-directed learning in order to improve individual responsibility and the advancement of social competencies. The latter is understood as the capacity to act competently in work relations and social relations. The concept of social competencies is not regarded as a thing which can be acquired as other bodies of knowledge, but as a capacity which is developed by persons involved in work relations and social relations (see http://cool.schule.at).

070302 Legal, administrative and institutional framework

Apprenticeship training:
The duality of vocational training is again reflected in a division of administrative responsibilities. The Ministry of Education, Science and Culture is responsible for vocational school matters, the Ministry of Economic Affairs and Labour is responsible for in-company apprenticeship training. The dual administration system is based on three federal laws: the Vocational Training Act (BAG), the School Organization Act and the School Education Act. Further responsibilities concerning in-company training and vocational schooling lie with the provinces (Länder)([1]). There are no particular legal provisions for the management of innovative pedagogies in the vocational schools. In the apprenticeship training system, the same legal regulations apply as was explicated in chapter 070102.

The curriculum of vocational schools is an outline, specifying objectives, content and procedures for planning and implementation of learning processes. It allows the independent and responsible educational work of teachers within the given scope. It is the task of the Regional Boards of Education to lay down both the number of lessons and the syllabi of the individual subjects for the individual grades within the given framework by additional curriculum regulations, where this is not specified by curricula. The syllabi usually include the training and teaching objectives, the teaching material and the teaching principles (see www.bildungssystem.at/article/articleview/299/1/73/#5b89)

For the introduction of new subjects as well as new pedagogical approaches, the BAG (§8a) provides opportunities for new structures such as 'pilot trainings' (*Ausbildungsversuche*) via decree. This law also contains a distinct opportunity (§8b) to arrange appropriate training environments and approaches for people with disabilities in terms of an integrative vocational training *(Integrative Berufsausbildung*). However, it does not contain distinct specifications on pedagogical objectives, methods and requirements.

VET schools and colleges:

([1]) The Parliament of the Provincial Government (or the Governor of the Province) acts as the authority for Vocational Education of the second instance. Financial support of vocational schools lies with the provinces. The costs for staff are borne partly by the provinces, partly by the federation.

With respect to the VET colleges (upper secondary level), again the particular scope for development - school autonomy and 'school trials' - have to be mentioned as important legally based opportunities for the introduction of innovative pedagogy. Another important source is, as has been mentioned earlier, the long-term development of paradigmatic subjects and pedagogical approaches by the Ministry of Education, Arts and Culture. At the upper secondary level, Austria has made good progress in introducing ICT in the VET. This is true for both the subject-level if ICT and for the level of pedagogical practice in terms of e-learning, e-teaching and the concept of virtual school which is explained in greater detail in section 07030301.

For the upper secondary level, there are several decrees issued by the Ministry of Education, Arts and Culture which have been important triggers for the growing use of ICT in teaching. It must be noticed here that most decrees become effective on the basis of the school autonomy regulated in the School Organisation Act. The first ICT-related decrees date back to the school year 2000/01. They referred to teaching with notebook/PC and were followed by several more decrees (see BMUK 2001, 2002, 2003). In 2003, a particular decree on 'Electronic Content for Schools in Austria – Development, Distrubution, Maintenance' (BMUK 2003) was issued. These decrees were complemented by detailed information on the principles of didactics in e-learning in Austrian schools (BMUK 2006) and a brochure on quality criteria (Kristöfl et al. 2006).

Tertiary level:
For the Universities of Applied Science, there are some provisions which are integrated elements of the quality assurance system. Other approaches such as e-learning are not explicitly mentioned in respective legal provisions, but are understood elements of the didactical portfolio at more and more Universities of Applied Science. There is also a strong linkage between quality assurance and innovative pedagogy. The guidelines (Fachhochschule Council 2006b) on the evaluation of the courses contain special sections on 'objectives of training and didactics' with formal specifications, without giving detailed information on particular pedagogical concepts.

Labour Market Policy:
Regarding vocational training in the active labour market policy, no specific legal foundations for innovative pedagogy exist.

There are no major differences between innovative pedagogies and curriculum development as the entanglement of the two activity levels is one of the major characteristics of the Austrian VET system.

070303 Practices of innovative pedagogies

Apprenticeship system:
There are many practice examples of innovative pedagogies at the various levels besides ICT and e-learning. In the apprenticeship training system, a wide range if innovative structures exists. Among the most important approaches there are the 'Joint Training System' (*Ausbildungsverbund*), the 'Inclusive Vocational Training' (*Integrative Berufsausbildung*), and approaches which extend the dual system for independent training providers (*Triale Lehrlingsausbildung*).

The joint training system is often used by companies which cannot provide the required facilities alone and therefore wish to share their resources with other companies. The system can also be used to train skills which are beyond an occupational profile determined in the training regulation. In any case, the training partners are obliged to lay down the training subjects in a separate agreement (see BMWA & WKO 2004). It must be noticed that the altered structural environment often triggers new priorities which again require new pedagogies such as the advancement of team skills. The 'Ausbildungsverbund Tirol' (a joint training system in the province of Tyrol) is a well-established example out of many where, on initiative of the social partners and the provincial government, more than 40 companies, the vocational schools, 11 training providers, the province government and the social partners cooperate (see www.ausbildungsverbund.at). A similar approach is represented by the Interplant Training Centres (*Überbetriebliche Ausbildungszentren – ÜAZ*) which have started recently in order to provide disadvantaged young people subject-matter skills and social competencies (Blum 2006).

The Inclusive Vocational Training was designed to enable young people in aquiring an apprenticeship certificate through extended duration of the apprenticeship training or training which concentrates on certain parts of curriculum. Inclusive VET is offered both as an apprenticeship training with a longer training period and as a VET programme imparting parts of the regular set of qualifications in order to provide access to the labour market to persons who cannot acquire an apprenticeship diploma. Companies may use the opportunity of tailored trainings in specific autonomous training establishments and part-time vocational schools to cater for individual abilities and skills (see http://www.bildungssystem.at/article/articleview/299/1/73/#936f).

The 'triale Lehrausbildung' is a concept which mainly is applied in the automotive sector. Against the dual system, where the apprenticeship is based on company-based training and school-based learning, an independent training provider overtakes training tasks of the company in order to strengthen the combination of theory and practice. Regarding pedagogy, this approach opens the space for new modes of learning which involve team-centered learning and project-based learning (see Lothaller & Neumayer 2002).

These approaches had impacts on the apprenticeship training system. One important impact is the raising of public awareness regarding the necessity to implement new training environments for different target groups and to accomplish this as a collaborative activity in order to respond to the impending shortage of skilled labour craft. Another impact is that these new environments make the apprenticeship training system more flexible. The particular impact on pedagogy seems to be a growing importance of social skills. Yet, it seems that this development is too short to deduce particular changes in the training methods themselves beyond the stronger orientation towards social competencies.

VET schools and colleges:
The VET colleges do have a lot of opportunities for implementing innovative pedagogies. Three major strategies of school-policy can be distinguished which have gathered way in the last years:

- ICT based education & training through elarning, e-teaching, and e-contents
- IMST – Initiative in Mathematics, science and technology
- project-centered education & training

ICT based education and training through e-learning and in combination with e-teaching and e-contents will be dealt with in greater detail in the next chapter.

Regarding the didactics in ICT, mathematics and natural sciences, the IMST initiative is one of the most far-reaching projects (see http://imst.uni-klu.ac.at). Stimulated by the Austrian results of the TIMMS study in the mid of the 1990ies, the Ministry of Education launched an analysis in 1998-99 to examine the reasons for the relatively bad results at the upper secondary level. Based on the results of this national analysis, the IMST initiative was created to improve the didactics in Mathematics, Science and Technology Teaching. The first stage (IMST^2) was implemented from 2000 until 2004. In the second period until 2006, a systematic extension was implemented (IMST3). From 2006 until 2009, the initiative will be continued under the label 'IMST3 Plus'.

The IMST initiative is carried out in collaboration of the Ministry of Education, universities, the Pedagogical Universities and schools. IMST is arranged in four programmes comprising regional and thematic networks, the fund for teaching and school development, gender network and the culture of examination:

- The *regional and thematic networks* aim at the advancement of subject-related and interdisciplinary exchange of experiences, the advancement of further training in pedagogy and setting priorities in mathematics, science and technology in the schools. Teachers use these networks to design and implement creative teaching projects in their schools.

- The *fund for teaching and school development* supports schools in innovations in teaching and in further training of teachers. A special target is to effectuate rapid innovations. Schools may submit project proposals to the fund, approved projects receive financial support, administrative support, and an advisory service of one of the six coordination teams.

- The *gender network* implements subject-centered initiatives which sensitize teachers for gender topics. Gender Mainstreaming shall be implemented as a structural element in all activities and, thus, the gender network is represented in all key measures and committees.

- Regarding the *culture of examination*, the IMST initiative reflects the existing situation and discusses new approaches. This measure is implemented by means of seminars for teachers, where they elaborate objectives of education and training, discuss competence concepts such as the PISA framework and try out new forms of examination.

The IMST initiative has a strong impact on the teaching practice in schools, but also at the system level. From the early project stages until 2006, three new types of organizations dealing with matters of VET emanated: (1) the Regional Centres for Subject-related Didactics, of which the first started its activities related to physics in the province of Styria, (2) the Austrian Educational Competence Centres (AECC) which are implemented at universities for subjects like German, mathematics, biology, chemistry and physics, and (3) the University Study Course on Subject-related Education Management (*Fachbezogenes Bildungsmanagement*) where teachers, network members and work group coordinators receive further training in education management for German, mathematics and natural sciences.

Additionally, many colleges make extensive use of other opportunities and thus contribute to a large scope of different practices. Besides the IMST subjects, the priorities which emerged as key issues are social skills such as team skills, self-organized learning, communication and presentation skills and others. As already mentioned, project-centered VET represents a sort of integrative master approach, which combines an environment where different key skills become conveyed. The most important principles of project-centered teaching are described in the decree issued be the Ministry of Education, Arts and Culture (BMUKK 2001): Orientation towards personal interests, self-organization and self-responsibility, goal-oriented planning and acquisition of social competencies.

Since these developments are rather young, only an interim assessment can be provided regarding the impact of these developments. Good progress has been made regarding the use ICT-related approaches in teaching and content development. The development concept of the ‘virtual school’ is culmination of a strategy which started with notebook classes in 2000 and now reached the stage where ICT devices and media are used as

content pools and communication tools. The next step of this strategy envisages learning management systems and knowledge management systems representing both pedagogy and organizational foundation of schools as ‘competence centres’ (Dorninger & Schrack 2006).

At the VET schools and colleges, the contents of entrepreneurship education are taught in the most differing subjects including Accounting, Business Administration, Economics, Economy and Law, Project Management, Quality Management, Marketing and International Business, Practical Training in Business Administration, Personal Development and Social Skills, Training Firm, Controlling and Annual Audit, etc.

Regarding entrepreneurship education, the curricula of part-time vocational schools and the curriculum of the college of business administration set forth a specific educational principle: ‘Education for entrepreneurial thinking and operating’, meaning that an entrepreneurial approach is promoted in all subjects

The main pedagogical approach for entrepreneurship education is the ‘practice firm’ or ‘training firm’. They are the training locations for entrepreneurial thinking and operating (see next page: "Training firms"): For a full year, students work in the training firm 3-4 hours a week to learn entrepreneurial thinking and operating. Training firms have real partner firms in the world of business. (This close partnership aims to encourage experience exchanges to simulate company practice). Foreign-language training firms are operated to improve foreign language skills.

Entrepreneurship education finishes with an entrepreneurial examination, which forms part of the master craftsperson exam or of the final exam the passing of which is a proof of professional competence, is a prerequisite for self-employment. The entrepreneurial examination is waived upon completion of specific school-based educational pathways (as laid down in Federal Law Gazette no. 210/1999 section 8), including vocational schools with commercial focus, business schools and colleges of business administration, colleges of engineering, schools and colleges of management and services industries, schools and colleges of tourism, etc.

Depending on the school form chosen, students of VET schools and colleges have to do a ‘Business Project’, a project work in a team or as an individual work, whose aim consists in solving a concrete task from the fields of business or technology. This is a detailed, scientifically founded work where students apply the know-how they already acquired on the basis of a practice-oriented assignment. This project work must be documented and presented, and it is integrated into the final exam or Reifeprüfung and VET Diploma Exam as an exam subject.

Also, project-centered teaching and learning is underway to become widely accepted and practiced. Further teacher training becomes an important topic now. In the future, more

systematic provision of teachers with skills will be on the agenda which enable them to act as facilitators and coaches of learning processes within an institutional framework which makes school an experience-based, self-organized, reflexive and application-oriented environment. The transformation of the 'Pedagogical Institute' into 'Pedagogical Universities' which has been started in 2006 will have to prove the system's capacity for endogenous change and innovation.

Other levels:
For the Universities of Applied Sciences, project-centered teaching and learning may be highlighted as an important principle, too. Since there is no unified catalogues of didactics, the individual University sites may determine particular priorities.

For the scope of active labour market policy which covers the biggest part of CVET in Austria, not much systematic information on innovative pedagogies can be reported. Rather, there are numerous innovative initiatives which aim at the improvement of learning environments and the reception of learning subjects for special target groups such as low-skilled, elder people or prisoners. A predominant issue is the advancement of elementary competencies, which, depending on the target group's needs, may be dominated by learning by doing-approaches, or experience-based learning techniques.

07030301 e-learning in VET (incl. statistics)

VET schools and colleges:
E-learning at the upper secondary level comprises all those learning processes which allow students to work through prepared contents and learning sequences independent of place and time using electronic data media such as Internet technology, learning platforms or online services. E-learning became an important future of teaching development. There is also a strong conviction that e-learning has a great impact on the learning culture. The Austrian approaches in the area of VET colleges rests very much on constructivist theories of learning.

Since the late 1990ies, a wide range of initiatives has been implemented in the Austrian school system pursuing a strategy which aims at making schools virtual competence centres. In particular, there are several initiatives which interact and support an integrated strategy to strengthen Austria's e-fitness (see www.efit.at). The efit Austria initiative is an umbrella for further initiatives and projects promoted by the Ministry of Education, Arts and Culture. Here, the e-teaching and the e-learning initiatives are particularly relevant. The particular approaches comprise:

- e-learning and e-teaching: learning and teaching with new media (an in-service teacher training programme focusing on IT know-how; see the website http://www.e-teaching-austria.at)

- e-content: collaborative development of e-learning materials and contents (see www. contentcluster.at)
- ICT skills: the IT training campaign (IT training profiles of VET schools and colleges, see www.bildung.at)

These initiatives are combined and represent integrated components of the e-fit Austria-initiative addressing different levels of 'e-fitness'.

The e-teaching initiative is bringing about a new learning culture with comprehensive electronic support. Based on constructivist learning theories, it is the objective to raise the use of electronically assisted working and learning aids in the classroom and to promote self-learning and the acquisition of knowledge and skills independent of the teacher.

The e-learning initiative had its starting phase during 2002 and 2006. In this period, 50 VET schools and colleges participated in collaborative experimentation projects pursuing the objective to learn about the options of e-learning. Here, the cluster approach is of particular significance, since the exchange of experiences was supposed to contribute to the emergence of e-learning clusters and to the development of regional priorities. The interim spreading of the cluster schools proved this strategy to be effective (see http://www.e-teaching-austria.at/e-learningcluster/clusterschulen.php).

The basic ICT skills are covered to a large extent by the implementation of ECDL courses and tests. In addition, for the colleges of engineering, arts and crafts two special courses for informatics teachers have been carried out between 2003 and 2005. This further training comprised the main subjects of ICT like data bases, programming, networks, multimedia, operating systems and hardware & software (see http://www.e-teaching-austria.at/AINF). Several cooperation projects with private IT companies also contribute to the demand-oriented provision of IT skills.

The initiatives have been started about in 2000 and cover lower and upper secondary schools so far, but were not designed for CVET purposes. The interim results prove that the adoption of e-education and e-learning develops successfully. Some figures (latest available) may illustrate this:

- In connection with the e-teaching initiative (see http://www.e-teaching-austria.at), the project 'e-learning in notebook-classrooms' started in 2003 with 33 schools involving about 1500 students. In this project, students get a notebook where the perform school tasks in school as well as at home. The numbers increased until the school year 2003/2004 up to 131 schools and 9400 students (see http://www.efit.at/eeducation/default.asp). The implementation in the regular school system is planned due to its success.

- Until December 2004, 470.000 examinations have been made on the ECDL – European Computer Driving Licence, with 112.000 solely in 2004. About 100.000

students and teachers have passed the entire ECDL examination until now. In spring 2004, the ECDL initiative was extended to people with disabilities.

- Regarding e-learning, numerous teaching materials have been developed by external providers as well as by teachers and students and until 2004, 40.000 teachers took courses in one of the IT-related or traditional subjects adapted for e-learning and/or blended learning. The institutions responsible for teacher training received about 2 Mio EURO since 2001 for further the provision of further training courses for teachers, maintaining the education servers and information platforms containing materials on teaching subjects.

- Another important initiative is the so-called 'e-learning cluster' for the upper secondary level. The main objectives of this project are collaborative development and use of contents. It was planned to involve about 2500 teachers and 20.000 students - partly in connection with notebook classes - until the end of 2006 in order to further develop the didactics, the culture of learning and the use of new ways of communication. Parallel, it was intended to develop a didactical concept and education standards for all school sites. There is evidence that more than 300 teaching respectively course materials for different subjects have been developed until now. In the meantime, a comprehensive information platform with e-learning materials for a wide range of subjects is available (see www.schule.at).

In the meantime, the Pedagogical Institutes which are in charge the initial and further training of VET teachers prepare distinct e-learning strategies within their scope. The main objectives comprise a common platform for e-learning software, new concepts for seminars and improved exchange on the use of e-learning. Some Pedagogical Institutes already started to process the experiences on the use of e-learning in teaching of students and teachers. A good example is the symposium which the Viennese Pedagogical Institute organized in 2006. At this occasion, 38 selected best practice examples on the use of e-learning in Austrian schools were presented and discussed. The examples refer to all school types and refer to vocational schools (*Berufsschule*, the school-based part of the apprenticeship system) as well as to VET colleges. Due to the success of the first symposium, a follow-up will take place in October 2007 (see www.e-learning-center.at).

ICT and e-learning in VET do have several roles with regard to modernizing pedagogy. The most important roles are:

- The support for students for increasing self-organized learning activities
- The support of teachers for providing up-to-date teaching
- The autonomous and collaborative creation of e-learning contents
- The networking of schools and teachers both on didactics and content development

Labour market/Employment policy:
E-learning is frequently used in training measures funded by the PES as early as the late 1990ies when the first e-learning systems were adopted within the training system of the PES. At this early stage, the subjects of e-learning courses referred predominantly to basic computer skills and office application skills (Excel, Word), much less frequent e-learning courses for crafts were developed and provided (eg. CAD – computer aided design, electrical engineering). Among the target groups during the 'stone-age' of e-learning were females returning to the labour market after maternity leave, young people in apprenticeship training courses provided by the PES, and - less frequently – male learners in crafts courses (see Paier 2000). Many of the early e-learning systems were implemented as mere online courses and did not contain many elements of 'blended-learning'.

In subsequent years, the adoption of e-learning was extended and complemented by blended-learning approaches since it turned out that mere e-learning courses provide less motivation to the learners than approaches which combine e-learning with traditional face-to-face elements. The scope of e-learning subjects has increased significantly, too. In the meantime, e-learning courses cover additional subjects such as ECDL Basic and Advanced, Languages (e.g. English, Italian, Polish, Czech, Hungarian, Slovenian, Croatian), Office work, Accounting, EBDL, Project Management and Quality Management. There is also evidence from training providers that blended-learning becomes supplemented by self-learning centres, where learners adopt knowledge and prepare for face-to-face-courses.

Another project which is currently being evaluated provides e-learning for people who want to start a business. Thus, the use of e-learning experiences becomes extended to other subjects than it was originally developed for. This seems to be a natural development and can be regarded as an indicator for growing acceptance of e-learning. However, the resulting problem is that no systematized information on the actual usage (in sectors, school types, company types, by training providers etc.) exists. This also aggravates making reasonable statements about the impact of e-learning on the access to VET and drop out rates from VET. The current state of research on e-learning in the public sector of further training is characterized by rather general statements (Hofer 2005) and implicit knowledge by e-learning providers (Brandner 2005).

Other VET providers:
The Adult Education Centres in Austria implemented E-learning for a considerable range of subjects in recent years, too. Usually, the concept of blended learning prevails, with an allocation of 50% face-to-face learning and 50% e-learning. The subjects which can be attended and which also prepare for the Higher Education Entrance Exam (Berufsreifeprüfung) comprise German, Portuguese and other languages, mathematics, biology, media informatics, commercial information technology, business studies, arts and design, project management, train-the-trainer courses in e-learning and others. For detailed information on this sector of e-learning see: http://meidling.vhs.at/elopa/kursangebot.html.

Role of ICT and e-learning:
As far as the VET schools and colleges are concerned, it can be said that the direction of the hitherto successful development supports the emergence of 'communities of practices' as the appropriate environments, whereby practice refers to teaching, content development and reflecting this new opportunities for the further development of teaching and learning in this VET area. All in all, this triggers very much a process of double-loop learning which has been started in Austria with regard to the usage and implementation of e-learning.
Statistics on e-learning:
The percentage of Austrian enterprises using e-learning varies markedly between SME's (20% in 2006) and large enterprises (43%). Another difference is striking as the proportion of SME's using e-learning remains static from 2004 when 23% of SME's used e-learning to 2006, when the data set reports 20% SME's using e-learning. Regarding the short-term development, the usage of e-learning in large enterprises shows a greater acceptance; the actual usage was 37% in 2004 and increased slightly to 43% in 2006. However, this abstract data is difficult to interpret since it is likely that there are great differences between sectors as well as between occupational groups. Compared to EU 25, the usage of e-learning in Austria is about average both in SME's and large enterprises.

Concerning the use of the Internet in formalised educational activities, the proportion of young people age 16-24 increased from 27.9% in 2004 to 35.5% in 2006. This is about average compared to EU 25, and there is also not much difference with regard to the other age groups where the proportion of learners using internet in formalised educational activities in Austria is 8.3% in 2006 for the age group 25-54 respectively 0.3% for the age group 55-64.

Striking enough are the relatively small proportions which are reported for people who use the internet for other educational courses related to employment opportunities. Here, the proportions for all age groups in Austria are significantly below EU 25-average and the differences did not decline much during 2004-2006. One reason could be the particular alignment of the active labour market policy in Austria which has a strong focus on further training in handcraft and trade for men, while for women there are traditionally more active training measures in clerical work and in trading. This coincides with the usage of internet in training measures and with the provision of e-learning courses within active labour market policy. The internet is still not much in use on traditional work places or in industrial environments and there are less contents for e-learning in handcraft and trade-related occupations which would foster the use of internet, too.

Regarding the access to internet at the place of education, the proportions of people having accessed the internet at the place of education at all age groups are below EU 25 in the data sets provided. Hence, when it comes to accessing internet at the workplace, age groups 16-

24 and 25-54 are slightly better off than EU 25 average, while the age group 54-64 again lacks behind.
However, these differences in accessing the Internet do not seem to affect the number of people who obtain IT skills by place of education or training. For Austria, where data is available for 2006 only, the numbers reported are slightly above EU 25 in all categories with 25% obtaining IT skills in formalised education institutions, 16% in training courses in adult education centres on own initiative and 22% in training courses and adult education centres on demand of employers.

07030302 Barriers to implementation

Development and implementation of new pedagogical approaches proceeded well at most of the different VET levels in recent years. The new, although a bit informal catalogue of new basic skills, the e-fitness strategy and the transformation of Pedagogical Institutes into Pedagogical Universities have been important steps which also fostered the modernization of pedagogies and triggered increased discussions on the objectives, methods and practices of VET.

However, there is a sort of path dependency which - in some respect - makes it difficult to resolve difficulties which are inherent to the structure of the VET system. Some major difficulties were analyzed as early as in 2001 which also affect the modernization of pedagogy; some areas have improved significantly, some difficulties still remain (cf. Lassnigg 2001):

- First, the VET system is characterized by a strong degree of legal regulation which governs the objectives of VET formally in a highly hierarchical manner on the one hand. On the other hand, several areas can be implemented autonomously and in a flexible way which also triggers a great variety of practices which cannot be made transparent easily. Thus, high complexity coincides with low transparency which again makes systematic capacity building on innovative pedagogies difficult.

- The relevance of the new catalogue of basic skills has been developed further in the last years. Actually, this development is not finished yet, since the challenge of arranging the different skills types and levels into a coherent system still remains. This would provide also an important reference for new pedagogies and the development of specific didactical approaches. Still it is a predominant task to develop a definition of the target results of VET processes in terms of output orientation and to increase transparency about goal attainment.

- The VET system has a very strong focus on the usability of skills in terms of occupational practice. The basic notion of competence is ‘being capable’ of something. This is strength of the Austrian VET system, but it also provoked an

understanding which assigned much attention towards the occupation-related aspects, and not as much relevance to the way these skills are imparted.

- In general, the transformation of the input-oriented VET system in Austria into an output-oriented system has started. There are still huge tasks to be achieved to turn around the system. A major challenge is to leverage the input-oriented governance principles which still characterize some initiatives. However, there are good examples where a greater transparency on means and goals is likely to be achieved.

- A major challenge is also the transformation of the concept of the teacher or the trainer. Here, the concept of the teacher as a facilitator and a companion of training processes receives growing attention and acceptance. In combination with project-centered teaching/training approaches this will increase the VET approaches which aim at the advancement of self-organization of students.

070304 Building partnerships

Regarding specific partnerships which foster the modernization of pedagogies or contribute to increased awareness about new pedagogies, there are important examples at the upper secondary levels and at the tertiary level. Also, in the employment-related VET sector and in the apprenticeship training system partnerships are well established. One prominent example is the *Stiftung*, a model for the training of unemployed people, where the collaboration of companies, training providers and the PES in defining the required skills is an important element in managing the impact of structural changes on the labour market (see Wagner & Lassnigg 2005). With regard to new pedagogies, these concepts do not seem to have a systematic impact, since the modes of implementation may vary according to regional and local tasks and settings. In the apprenticeship training system, the priority was rather on supporting the creation of new modes of collaboration ('joint training systems', extension of the dual scheme). Except the increased usage of e-learning, the development and implementation of new pedagogies was not a predominant aim in the last years, although there are many committed vocational schools which used numerous cooperation projects with companies for pedagogical experimentation and further development, too.

Strong partnerships have been established at the upper secondary level and at the tertiary level. The VET schools and colleges have established a wide range of different modes of collaboration. These are usually implemented within the school autonomy through projects, by internships of students or through integration of company employees as teachers in schools.

Another cooperation initiative is highly institutionalized in the so-called 'training firms' which mostly are a part of the curricula of Colleges for Business Administration and Business Schools (upper secondary level) but the idea of establishing and operating training firms is also catching on at other VET schools and colleges. There are currently more than 1,000 training firms in Austria, some in the field of adult education. Usually, the students attend the 'practice firm' which simulates real-life business processes once a week and work in the company. The didactical approach is not entirely new and exists as a regular part of the curriculum since 1993, however, it has to be mentioned since this learning environment provides a highly practice-oriented and successful pedagogical approach characterized by interdisciplinary, action-oriented and problem-oriented imparting of knowledge and skills. From the viewpoint of training the practice firm allows for true-to-business practice and professional and didactic reappraisal. This simulation of the economic reality supports the trainees' creativity, self-starting qualities, entrepreneurship, responsibility, teamwork, language skills - in a nutshell, those key qualifications that are also relevant for life-long learning (www.act.at/EN/page.asp?id=89). Here, there are partnerships with companies from different sectors which support the training firms with provision of further practice opportunities, know-how and mentoring for graduates.

In addition to the partnerships which where already drafted in earlier sections, some more partnerships shall be mentioned. Following the network principle since 2001, the so-called 'education clusters' (*Bildungscluster*) at the local level were created. Now, 32 clusters already exist and 11 are in development (see http://www.unternehmen-bildung.at). Usually, the social partners are involved as partners in the clusters as are local schools and companies from very different branches. For an example of the partnership composition, see the education cluster Wiener Neustadt, a city in the south of Vienna, where 28 partners from different sectors and educational levels, with the majority represented by companies, participate in the local network (http://www.bildungscluster-wrn.at).

Although the various projects carried out in these clusters do not have a distinct pedagogical alignment, the project mode itself provides opportunities for informal learning of students as well as teachers. Among the interesting examples, there are the "Business Experience Days", where teachers learn about organization and management of production, trade and service in companies. In another projects, senior experts provide practice seminars in schools on different subjects such as sales, teamwork, budgeting, project work, management techniques and others.

With regard to e-learning, the cooperation structures in the content clusters are good examples for cooperation within the VET system. For instance, the partnership of the "Contentcluster Süd" in the south of Austria consists of school councils, the Pedagogical Universities, the province governments, Universities and Universities of Applied Science and a private e-learning provider. The cluster defined three collaborative objectives: (1) Implementation of strategic activities across the different levels of the school system in the

field of e-learning, (2) Development of new, common projects and utilization of the specific resources of the partners, (3) establishment of the partnership as competence centre for alternative methods for teaching and learning in Austria and in neighbour countries (www.contentcluster.at).

At the level of IT skills, many cooperation projects have been developed in connection with the efit-strategy. Particularly strong cooperation relations have, for instance, already been institutionalized in the form of 'IT in Education GmbH' (IT in der Bildung GmbH) which is a company acting as a platform between schools, school bodies and companies. The range of partners comprise various ICT companies such as Cisco, telecom companies, Novell, Microsoft, Oracle, but also production companies, furthermore e-learning providers, the Chamber of Commerce, the Austrian Computer Society and the Ministry of Education, Arts and Culture (see www.it4education.at). Besides organizing conferences and meetings, development of teaching materials and more, the association maintains several sub-portals which cover important fields of

- www.edu.ecdl.at: The ECDL portal provides support for schools in teaching and examining ECDL skills including certifications and other basic computer skills
- www.cceco.at: the equivalent portal for business certificates in education and training
- www.ccit.at: The portal of the Competence Center for Information Technology which provides specific certificates from ICT companies

The legal foundations of the sub-portals are often associations where teachers from vocational schools and colleges and officials from school bodies are involved as members of the board of directors.

Within this encompassing collaborative structure, schools are invited to contribute to content development in special competition. Started in 2004, the L@arnie-Award is implemented in order to stimulate the creative bottom-up development of e-learning contents by schools.

As regards the tools used, the organizational modes of these networks and platforms are evident. The main approaches comprise web-portals, online provision of materials, courses and examinations, but also a number of conferences, expert meetings, regional networks as well as cooperation with local, regional and national authorities on different subjects. In most cases, teachers and students are addressed as end users, e.g. through supporting teachers in imparting ICT knowledge and students as acquirer of certificates. Additionally, the particular exchange of personnel is to be mentioned when company members provide expert sessions or workshops in schools.

It should be noticed that many of the initiatives drafted in this section have started rather independently. As these initiatives developed, the growth of linkages and exchange

relations is the case, as, for instance, business-related cooperation projects start making use of the e-learning contents provided by the content cluster. Here, the opportunities for synergies are rather good and the hitherto achieved developments promise interesting interactions in the future, too.

70305 Financing

Development and implementation of innovative pedagogies and curriculum developments usually are inherent activities of the partners involved. There are institutional provisions for experimental and developmental space, for instance through school autonomy. Within the framework of school autonomy, schools may modify parts of the framework curricula in terms of further specialisation in certain areas depending on their special focus. This includes a self- determined setting of days off as well as certain rights in financial matters (e.g. purchasing all kinds of teaching material). Since the development and innovation activities are immanent to the partners' resources, the different bodies contribute this way to innovation. This includes the contributions stemming from the social partners, of which the Chamber of Commerce contributes significantly to the development of the apprenticeship training system through its regular resources. There is no data available concerning the particular expenses on innovative pedagogies, neither for IVET nor for CVET.

Public-private partnerships indeed seem to stimulate and support discussions on innovative pedagogies to a certain extent. This is the case with regard to the e-learning initiatives and the corresponding collaborations which do have an impact on the mode of teaching and contribute o further development of pedagogies. There is no systematic evidence that other partnerships such as the education clusters do have a similar impact, although it can be assumed that there are positive effects through reinforced knowledge exchange between schools and businesses.

The funding instruments for particular initiatives on innovative pedagogies and curriculum development at the upper secondary level (VET schools and colleges) are mainly depending on the priorities defined by the Ministry of Education, Arts and Science which stimulated many initiatives and maintains the ongoing activities. Usually, the regional governments do not contribute significantly to development activities, except for the Universities of Applied Science which are financed by the provincial governments.

Sponsoring by private companies may happen in all areas and levels of the VET system, but there is no information available on this topic in general.

0704 Innovations in teacher training

In Austria, a differentiated structure for initial and continuous training of teachers exists.

a) The initial teacher training is implemented at two levels: (1) the Pedagogical Universities, which qualify for education and training in the vocational schools and VET colleges; (2) the Post-secondary Colleges of (Vocational) Teacher training which become parts of the Pedagogical Universities; (3) the Pedagogical Institutes at the Universities which qualify for education at the Academic Secondary Schools (*Allgemeinbildende Höhere Schulen*), the Universities and the Universities of Applied Sciences.

b) The continuous training of teachers is organized at the Pedagogical Institutes, which also maintain departments for "Vocational Education" (*Berufspädagogik*). In addition, there are several subject-matter seminars and courses which are offered for further training.

The Pedagogical Universities are the result of an important reform process transforming a rather heterogeneous set of 51 institutions for initial and continuous training of teachers into eight public Pedagogical Universities and one University for Agrarian and Environmental Education. The transformation will be finished this year and all Pedagogical Universities will start their activities according to its legal foundation, the University Act 2005 (Hochschulgesetz 2005). Yet, it is too early to asses the impact and the benefits of this reform process for teacher training.

One important difficulty of the old system was the close entanglement of teacher training with the structures of school system which effectuated in a very heterogeneous teacher training system which was aligned to particular school types (Buchberger et al. 2004). The consolidation process may facilitate standardization and capacity building also with regard to the development of an encompassing reference system for pedagogy and didactics.

Though, there have been numerous and continuous innovation projects in teacher training. Among the most important are

- the QIBB initiative – VET Quality Initiative (Qualität in der Berufsbildung)
- the IMST initiative
- the e-teaching initiative as one part of the e-fit-strategy

The IMST initiative lists more than 40 projects in different subjects or didactical topics which are carried out, but it is difficult to assess the particular impact on innovation in teacher training (see https://imst.uni-klu.ac.at/links). The same is true for the e-teaching initiative. A good impact on innovation in teacher training can be expected from the QIBB

initiative. Among its aims, the "further development of pedagogical, subject-matter and administrative competencies" is emphasized as a part of human resources development in schools (see http://www.qibb.at/de/home/info/matrix.html).

There are several projects aiming at the further development of teacher training in different sectors and levels, but the projects are dispersed and no information based on systematic monitoring is available at the moment. The professionalisation of teachers is also one of five strategies which a national high-level expert group, the 'Future Commission', has recommended to the Ministry of Education, Arts and Culture in 2005 (Haider et al. 2005). Among other topics addressed in this report, the commission proposed an initial training concept which consolidates the widespread courses for teaching professions based on the continuation of the positive elements such as the practice experience of the former Post-secondary Colleges of Teacher Training and the research alignment of the university education (Future Commission 2005: 70). With regard to the CVET of teachers, the commission recommends linking the professional advancement of teachers with continuous further training and to document the trainings in a teachers' portfolio (76). Furthermore, the constitution of a permanent Federal Agency for Quality Development and Quality Assurance or a Centre for Education Standards, Quality Development and Innovation in the School Sector" was proposed (41) which should - in cooperation with regional networks – should be in charge of implementing a monitoring of output-related indicators. The report does not contain very specific remarks on innovation in teacher training, however, the following general approaches mentioned can be considered as important references for innovations in teacher training:

- Strengthening of output-orientation
- Diversity of teaching methods (e.g. self-organization, open and cooperative learning)
- Improvement of teaching methods
- Systematic feedback on learning targets
- Quality feedbacks among teachers
- Evaluation skills

Thus, innovation topics are addressed. Due to political changes, it is not clear to which extent these proposals will be implemented within the new organizations for initial teacher training. With regard to continuous improvement of teacher training, some of the Pedagogical Institutes pursue a research-oriented strategy. The results of this strategy are used for the further development of pedagogical concepts and for the preparation of new teacher training courses such as "Education Management and School Development" (see, for instance http://www2.pi-stmk.ac.at). The foundations for further development have been established. As was mentioned in chapter XXX, the major challenge will be to implement a concept of the teacher as a facilitator and a companion of education and training processes.

A special example of further teacher training is the specific post-secondary teacher training programme with the title Entrepreneurship and Management aiming at in-service teacher training for teachers of business subjects at all school types (5 one-week seminars) has already been organised several times; it has been commissioned by the Federal Ministry for Education, Science and Culture and developed by the In-Service Teacher Training Colleges of Vienna and Carinthia together with experts from business schools and colleges of business administration.

The subject Entrepreneurship and Management, which aims to teach the required entrepreneurial know-how, has been designed also for the pilot project College of Business Administration for Business Computer Science and the post-secondary VET-course for Business Computer Science.

0705 INNOVATIONS IN ASSESSMENT

The further development of examination practices is a central topic of the actual and future development. Here, the QIBB – VET Quality Initiative (*QIBB - Qualitätsinitiative Berufsbildung*) defined the main objectives in a comprehensive way, but there have been important initiatives which started already earlier, too. They shall be discussed in this section after depicting the main principles of the QIBB initiative on examination.

The QIBB VET Quality Initiative:
The QIBB initiative defines 'securing quality and transparency of examinations' as an important objective (see http://www.qibb.at/home/info/matrix.html). Here, a significant step towards output orientation is made currently by defining the criteria for performance and assessment in greater detail. After the standards will have been developed, the school communities will be informed about the learning objectives and the requirements for final examinations shall follow country-wide standards. These goals shall be achieved through several measures such as the development of standards, requirements for examinations and other measures.

The initiative aims to ensure goal attainment through definition of indicators addressing relevant topics such as the provision of learning objectives for all schools and the 'existence of competence models for final examinations and selected subjects' in the schools. To this end, evaluations will be carried out; this includes the survey of competence models, too.

Within the QIBB initiative, a particular pilot project under the responsibility of the General Directorate VET has been started to define education standards which, in fact, will contain subject-matter related learning objectives, too. The implementation of education standards is based on some main considerations: The education standards shall concentrate on the requirements for problem-solving capacities as well as learning and teaching. They also define the objectives for pedagogy and didactics in terms of the learning results desired which shall follow subject-related and interdisciplinary concepts of key competencies. Principally, the concept of education standards shall ensure the acquisition of basic qualifications in schools. In particular, the education standards consist of a competence model for each subject and of standards which are substantiated through exemplary tasks. Currently, there are six work groups developing education standards for the following subjects respectively subject areas: German, applied mathematics, English, economics and law, informatics, and sciences. In the first development stages, a clear trend emerged, which favours a concept of standards focussing on action-orientation and problem solving-orientation as guiding paradigms (BMBWK 2006b).

Apprenticeship training:
In the context of the modularisation of the apprenticeship training, there are some proposals regarding a stronger linkage of the special module with the Higher Education Entrance Examination (*Berufsreifeprüfung*), which provides access to tertiary education. It is also taken into consideration to link the Special Field Examination (*Fachbereichsprüfung*) either with the entire system of modularized apprenticeship training or with the special module as an extension. In both cases, this could be a special examination consisting of project work, presentation and a technical discussion on the respective area of the apprenticeship trade. In addition, an opportunity for additional examinations in related occupational fields is envisaged in order to support vocational mobility (see Archan 2006). These topics are currently in discussion and there has not been an change in the actual assessment practices so far.

In the apprenticeship training system, the modularisation initiative will also result in greater clarity about the numerous apprenticeships and there will be increased opportunities to create new combinations. This may lead to new combinations of certain elements of apprenticeship trades, however, it will not be a direct result of innovative pedagogies but the result of a stronger demand-orientation. In former years, a considerable number of new apprenticeship trades have been implemented particularly with respect to new demands stemming from ICT. Among the new apprenticeship trades which have been implemented since 1997, there were, for example, the Electronic Data Processing Technician, the Media Technology Expert, the Communication Electronics Engineer and others. A fine example for the convergence of technologies which has caused a new apprenticeship trade is “Mechatronics”, a combination of mechanics and electronics. These trades may serve as examples for technology-triggered and subject-related changes in the training regulations.

VET schools and colleges:
Regarding the VET schools and colleges, discussions on assessment practices and actual changes have been started in recent years. A very important trigger has been the efit initiative and many changes are due to the increased use of e-learning and e-teaching tools. Primarily, it is the mode of making tests which changes in a growing number of schools with regard to subjects which can be integrated in the ECDL-fields. Here, a growing number of computer-based and online test tools are in use. Thus, the efit strategy can be regarded as an example for an integrated strategy triggering changes in teaching, learning, development of teaching materials and in assessment practices in the long run.

In addition, the IMST initiative has to be mentioned since one of its ‘central measures’ is dedicated to reflection and changes of the ‘culture of examination’. The first networks and project groups have started with further development of the culture of examination in 2004/05. The main objective of this part of the IMST initiative is to develop alternative assessment concepts which complement the efforts on innovative pedagogy in order to achieve the goals of modern education. Among the examples of this specific approach,

there are exploration studies on the state of examination practices in schools (Koenne 2005), where the focus was on the evaluation of the examination culture in upper secondary schools. Another example for capacity building is the seminar concept which reached about 800 teachers in seminars so far where they reflect existing assessment practices and try out alternative concepts. The seminar participants act as multipliers for topics such as functioning of assessments and their consequences, performance appraisal, alternative methods for assessments and their practicability, benchmarks and more (see also http://imst3.uni-klu.ac.at/7_zentrale_massnahmen/prk/seminare).

At the level of VET schools and colleges, the development of new qualifications and skills profiles emerging at the upper secondary level is important. This is often a direct result of creating new skills profiles within the scope of school autonomy and school pilot projects, thus it is not a mere result of introducing innovative pedagogies but of providing special environments for development processes, too. The development of new qualifications and skills profiles is primarily a result of new combinations of subjects. In the meantime, some of these new qualifications have been implemented within school pilot projects, such as a 5-year course on 'Sports Technics' (http://www.tgm.ac.at/index.php?id=247) combining mechanical engineering, sports facilities, application technology and bionics; other examples at the upper secondary level are 'Logistics', and 'Enterprise Management with Training Profile on Environmental Economics' (*Betriebsmanagement mit Ausbildungsprofil Umweltökonomie*). In the 4-year VET courses, there are other examples such as 'Customer Care' or 'E-Commerce and Web-Design' (see http://www.berufsbildendeschulen.at/de/dlcollection.asp, 29.05.2007).

Tertiary level – Universities of Applied Science

With respect to the Universities of Applied Sciences, there is a special decree of the Fachhochschule Council based on the Fachhochschul-Studiengesetz which regulates the evaluation of assessment practices. The specifications mainly refer to formal aspects of examinations. The main trend at the tertiary level (including Universities of Applied Sciences as well as the 'regular' universities) aims at a stronger individualization of learning processes with support of new learning technologies. Currently, an important project is carried out in order to explore the opportunities for the creation of 'e-portfolios' in terms of self-organized learning environments at the tertiary level (http://www.fnm-austria.at/ePortfolio/Start). This shows a strong focus on the learner currently, however, increased considerations on the modes, requirements and quality of examinations can be expected for the future, too.

CVET/Employment policy:

No particular information is available regarding the impact of new pedagogies on assessment in the VET courses provided in active labour market policy.

As was mentioned, there are several initiatives under way which aim to strengthen the learning outcome approach. As these developments are gathering way currently, there no

broad impact in terms of redefinition of qualification standards can be discovered yet. Regarding national assessment and accreditation standards for certifying qualifications in VET, no standards exist.

070501 Innovations in evaluation and quality monitoring

At the moment, there are no comprehensive quality-monitoring mechanisms in place to evaluate anticipation processes. This is true for the entire VET system. In addition, there is no such explicit monitoring system for the CVET areas. However, as was mentioned in earlier sections, several initiatives and programmes have been started in order to put anticipation as well as qualification development in a more systematic way. The activities regarding demand analyses for the modularisation of apprenticeship trades, and, in particular, the demand and acceptance analyses carried out by the Universities of Applied Science must be mentioned here.

The quality initiatives do contain certain elements of quality assurance which are applicable to anticipation processes and qualification development, too. Some of these elements are more informal, while others are mire standardized. The most important quality initiatives for VET schools and colleges are:

- Q.I.S – Quality In Schools: development of school programme and (self-) evaluation at the location (see. www.qis.at; support is provided by *Qualitätsnetzwerk* (Quality Network, an interactive online magazine)
- The QIBB initiative – quality in technical and vocational education and training: working and steering groups of teachers and managers in their function as multipliers; the aim consists in setting up a quality development and assurance system for VET.
- Location-based development of quality concepts and objectives at all levels of school organisation

Regarding the monitoring of qualification development and innovative pedagogies in VET schools and colleges, there are two approaches which have to be mentioned here. Firstly, there are curricula evaluations since 2001. These evaluation target changes in curricula based on surveys of qualification demand and assessments of the curricula through teachers (see Lassnigg & Markowitsch 2005: 151). Secondly, regarding school-based VET (including the school-based parts of apprenticeship training), the Ministry of Education, Arts and Culture has started a quality assurance initiative with various quality development processes established at all levels of the school system over the past few years. The joint and systematic treatment of quality issues at the school location – which forms an integrated part of school culture – is regarded as the prerequisite and starting point for ensuring a future-oriented school system at a high level (see http://www.bildungssystem.at/article/articleview/325/1/69/#c6f0). Here, it is again within

the CIBB initiative, where the Ministry of Education, Arts and Culture has issued mission statements, descriptions of quality objectives and handbook of quality assurance for the main types of VET schools and colleges (see http://www.qibb.at/downloads.html).

There are no specific provisions for organising the evaluation of innovative pedagogy. Within the quality initiatives mentioned, further development of teaching by improving learning environments and teaching methods is a professed objective. The methodical sets provided for teachers in the Q.I.S. initiative contain elements of quality assurance for the further development of pedagogy. The pool of instruments explicitly refers to methods such as providing feedback among teachers, criteria for self-organized learning processes, or templates for observation of teacher-based feedback and learner-based self-organization (http://www.qis.at/qisfb.asp?Dokument=31). These efforts can be regarded as first steps towards the development of a systematic, transparent system for quality assurance of innovative pedagogies. The recent QIBB initiative therefore defines up-to-date skilled teachers, state-of-the-art VET pedagogy and implementation of schools as learning organizations as important aims for the future (http://www.qibb.at/home/info/matrix.html).

0706 INNOVATIONS IN GUIDANCE AND COUNSELLING

Guidance and counselling at VET schools and colleges is provided by specially-trained teachers, who are available for information and guidance, preparation for decision-making, assistance and individual advice to pupils (see http://www.bildungssystem.at/article/articleview/325/1/69). One to three teachers at every school are active in this field, depending on the number of students. Educational counselling teachers work with feeder schools, educational counselling teachers at lower secondary level and other advisory services for school leavers (Public Employment Service Austria, the representative body of university students Austrian Students' Union, etc.). In addition, the Regional Education Board offer psychological counselling for VET schools and colleges which also includes vocational guidance.

The primary tasks of the VET counsellor are (1) information in terms of support of orientation and preparation of decision-making, and (2) career guidance and assistance with personal problems, as regulated in a decree from 1994. The concept of guidance is still very much linked with psychological assistance (see http://www.schulpsychologie.at/inforat/bibinfo.htm, 10.06.2007) and a stronger differentiation in terms of a separate qualification profile for VET counsellors seems to be eligible. Usually, it is a teacher from a VET school or college who becomes qualified for a VET counsellor through further training. Some Pedagogical Universities (formely the Pedagogical Institutes) provide further trainings following modularized approaches. A 2-year further training course at the university level is offered by the Federal Institut for Adult Education (http://www.bifeb.at/veranstaltungen/Seminare/bildungsberatung_lgv7.html) which primarily addresses counsellors and trainers in adult education. Private providers offer courses in vocational counselling, too. There are no standards for the training of Counsellors and, as a consequence, there is no systematic information available on the use of innovative pedagogy for the training of VET counsellors.

In addition to special further training courses, there is external support at hand for VET counsellors who practice guidance and counselling in VET schools and colleges. Among the most important external support institutions, there are the Vocational Information Centres (*Berufsinformationszentren*) maintained by the PES at about 60 locations all over Austria. Additionally, the information centres maintained by the Universities' Student Union (*Hochschülerschaft*) become more and more important. The Universities of Applied Science do provide counselling for interested pupils, too. The Ministry of Education, Arts and Culture supports counselling through country-wide information events and fairs (see www.bestinfo.at).

In the scope of CVET, the Public Employment Service provides many counselling services by itself and in collaboration with external counselling organizations and VET providers.

This is done partly in terms of a clearing-activity at the early stage of registering as unemployed on the one hand. On the other hand, particularly in case of difficult placement, a development plan is worked out in cooperation with the PES counsellors. As far as specific VET guidance is concerned, the PES collaborates extensively with external providers, which, based on their knowledge on regional demands, develop realistic VET perspectives with their clients. Recently, the PES has, as a part of its research and development activities, edited a handbook on methods of general vocational and labour market guidance (Steiner et al. 2006) which compiles more than 90 guidance methods.

Also, the social partners (particularly the Chamber of Commerce and the Chamber of Labour) provide a wide range of personal counselling activities in a considerable number of locations. More and more, online provision of counselling becomes an important issue. Here, it should be noticed that private providers, partly in combination with web-based job exchanges, or in the form of career coaches fulfil tasks of vocational counselling, too. However, an elaborated system of interactive counselling based on common standards is still to be achieved and this could be an important step towards a new level of vocational counselling.

All in all, there are legal foundations for vocational counselling at all relevant school levels. The publicly funded counselling and information centres which are maintained by the PES are widely used by schools, too. A coherent qualification profile for vocational counsellors does not exist and the further training of counsellors is still to be improved.

Regarding the development of new guidance approaches, there is no information on particular activities, be it in the school-based VET sector or in the CVET sector.

0707 THE EUROPEAN AND INTERNATIONAL DIMENSION

Austria's collaboration at EU and international level comprises several activities. One important activity is the exchange of the QIBB Initiative (VET Quality Initiative) with other countries, which also facilitated the transfer of the CQAF indicators to national conditions (see BMBWK 2006c). Accordingly, indicators referring to CQAF #7 (destination of trainees after training), and CQAF #9 (mechanisms to relate developments in labour market to VET-systems) are likely to provide an impetus for reinforced attention towards anticipation and qualification development, since the Austrian quality assurance systems emphasizes the output orientation as compared with older approaches to quality assurance. The same is true with regard to the CQAF indicator #8 (utilisation of acquired skills at the workplace, from the viewpoint of employer and employee). Here, Austria adopts European Frameworks and contributes to the further development through sharing knowledge and experiences.

The Ministry of Education, Arts and Culture is active since 2005 in organizing events which aim to support the implementation of the ECVET and the development of a National Qualification Framework (BMBWK 2005: 24). Regarding the ECVET, the Austrian Europass Centre is another example for important contributions to the development of a European Qualification Framework in Austrian (see www.europass.at). Furthermore, the Austrian NQF- National Qualification Framework, prepared by a national consultation process in autumn 2005 is currently in its initial stages of implementation, based on a broad commitment expressed at the kick-off conference which took place in April 2007 in Vienna (see www.qibb.at/home/info/nqr.html).

Through transnational projects, Austrian institues contribute to the further development of the ECVET system, too. A fine example is the VQTS project on Vocational Qualification Transfer System which was awarded the EU Lifelong Learning Award in Gold this year (see www.vocationalqualification.net). Another project is promoting the peer-review approach, following the idea that processes and outcomes of VET provision need to be integrated in the quality assessment processes and peer reviews are an appropriate means to facilitate and exchange expertise (see: http://www.peer-review-education.net).

There are numerous other projects, which were and still are carried out with the support of the responsible Ministries, the social partners and a growing number of companies. The address all relevant topics of quality assurance or

The strengthening of teaching entrepreneurship is also an acitivity which is embedded in European collaboration networks. The Austrian IFTE - Initiative of Teaching Entrepreneurship was founded in 2005 and it is a partner of the European Network for Teaching Entrepreneurship. The Network is an interface between national and regional

initiatives and initiatives in other countries and in the USA (see http://www.ifte.at/netzwerk.php?page=vorstellung).

Austria participates continuously in international competitions (e.g. EU Contest for Young Scientists) and in international benchmarking projects, too. This is understood as an expression of the openness of the education system to enhance the quality of the system by "learning from the best". For about ten years, Austria has consistently taken part in OECD Thematic Country Reviews (e.g. "Adult Education" or "Quality and Equity") and OECD international education assessments (e.g. PISA) and IEA (e.g. TIMSS23). As responses to the PISA survey from 2003 have shown, this is able to release considerable potential for change (see BMBWK 2006c).

Since CVTS II in 1999, Austria contributes to a better understanding of the qualification demands as perceived from the companies by implementing the national parts of the CVTS survey. Last not least, Austrian schools, research institutes and counselling organizations are very active in developing and implementing projects at the European level. In recent years, project topics addressing topics such as ECVET and ECTS received growing attention.

070701 Europeanisation of VET curricula

There are many cooperation projects at the level of students' exchange, school partnerships and networks as well as cooperation at the institutional level. For instance, the ACES – Academy of Central European Schools programme aims at supporting the establishment of a Central European network of schools and is designed to enable a sustainable dialogue and cooperation of young people and to create a continuous network of knowledge, learning and innovation (see http://www.iz.or.at/start.asp?b=380&sub=1342). Among the objectives of this programme, there is the further development of innovative ways of teaching and learning in Central Europe in order to contribute to the process of European integration and the promotion of European Citizenship.

Participation in the European Global Education Peer Review Process is another important intiative. The initiative was initiated in the framework of the Maastricht Declaration on Global Education in Europe (see www.iz.or.at/start.asp?b=380&sub=861). This process highlights good practice and engages in critical review of Global Education policy and provision in member states of the Council of Europe. Countries reviewed so far include Cyprus, Finland, the Netherlands and now Austria.

It is difficult to assess to which extent the European and international dimension in VET curricula is addressed in these initiatives. It seems that they represent a condition for a more in-depth cooperation on these topics. With regard to some new qualifications and skills, it must be emphasized that certain subjects have received important impetus from

international cooperation. Entrepreneurship is a good example, here. Recent initiatives have also increased the opportunities for students become involved in European partnerships and encounters which contribute to political education (see: www.europawochen.at). Initiatives like these are first steps, but seemingly there is no systematic exploitation of the experiences from projects, initiatives and other programmes in terms of bi- and multilateral curriculum development. Thus, there is still a broad space for rigorous strengthening of the European and international dimension in VET curricula. All in all, the awareness about the growing needs for Europeanization is very high in Austria and the institutions and bodies active in the VET sector support these processes actively, but there are several particularities which hinder the internationalization of VET curricula. Among them, there are institutional characteristics of curriculum and qualification development. Here, the strong emphasis of sticky knowledge and local expertise within school autonomy and the strong position of regional players in the further development of teaching regulations for the apprenticeship training may be regarded as barriers for internationalisation, while being advantageous for other aspects of national development processes.

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www.ams.at > The portal of the PES Austria

www.ams-forschungsnetzwerk.at > The sub-portal of the PES Austria to the Austrian 'Research Network', with links to relevant studies and publications in the scope of the PES and to 50 research institutes

www.arbeiterkammer.at > The portal of Austrian Chamber of Labour

http://bis.ams.or.at/qualibarometer/berufsbereiche.php > Website of the 'Qualification Barometer' of the PES

www.bildung.at > The e-learning portal of the BMUKK

www.bmukk.gv.at > Website of the Federal Ministry of Education, Arts and Culture (since 2006 the successor of the former BMBWK, Federal Ministry of Education, Science and Culture)

For certain documents, please visit the archive of the predecessor > http://archiv.bmbwk.gv.at/

www.bmwa.gv.at > Website of the Federal Ministry of Economics and Labour

www.bmwf.gv.at > Website of the Federal Ministry of Science and Research

www.cool.schule.at > The Innovation Centre for Cooperative and Open Learning

www.eesi-impulszentrum.at > The Innovation Centre for Entrepreneurial Education

www.fhr.ac.at > Website of the Fachhochschule Council (Council of the Universities of Applied Science)

www.efit.at > Web.portal of the BMUKK for e-fitness Austria, addressing the e-issues: Education, Science, Training, Culture, Administration, Learning

http://www.e-teaching-austria.at > The e-teaching portal of the BMUKK

http://imst.uni-klu.ac.at/ > The website for innovations in mathematics, science and technology

www.refernet.at > The website of the Expert and Reference Network for VET in Austria

http://www.iv-net.at/ > The website of the Federation of Austrian Industry (for VET topics, see > Medien/Publikationen > Publikationen > Bildung, Innovation & Forschung)

www.wko.at > The portal of the Austrian Chamber of Commerce

Glossary

(in accordance with a more comprehensive glossary, see http://www.bildungssystem.at/article/articleview/298/1/67)

Apprenticeship-leave examination
Final examination at the end of the apprenticeship period, before a committee of employer and employee representatives: practical and theoretical examination with a written and oral section. Lehrabschlussprüfung

Apprenticeship trade / apprenticeship training
See 'Dual system'.

Autonomy
Schools/colleges can choose between special focuses of the curriculum, develop their own profiles and respond to regional requirements (total number of weekly lessons may differ).

Berufsreifeprüfung
Provides general higher education entrance qualifications for leavers of the initial vocational training system (e.g. holders of the apprenticeship diploma, graduates of VET schools), based on accreditation of prior learning; taken as external exam, i.e. without prior school attendance.

BMUKK – Federal Ministry for Educucation, Arts and Culture
The senior administrative authority for all school-based education and training pathways, among other functions.
> formerly, the BMUKK – Federal Ministry for Education, Culture and Arts
> formerly, the BMUK – Federalö Ministry for Education and Arts

Educational counselling teachers
Specially trained teachers at VET schools and colleges providing educational guidance and vocational information and assisting students.

Fachhochschule – University of Applied Science
Provide high-quality professional and scientifically founded, university-level training for specific occupations (duration: a minimum of 6 semesters; ISCED 5A). Entrance requirements: higher education entrance qualifications or relevant professional experience; acquisition of academic degree (FH).

Higher Education Entrance Examination
Enables those without a Reifeprüfung Certificate or a Reifeprüfung Certificate and VET Diploma to undertake tertiary level studies in a particular field.
Studienberechtigungsprüfung

Part-time vocational schools for apprentices (ISCED 3B)
Part-time school attendance as mandatory part of the dual system during the apprenticeship; different organisation forms exist. Berufsschulen

Post-secondary colleges of teacher training
Teacher training for primary, lower secondary, special needs and pre-vocational schools;

ISCED 5B; conversion to university-level is planned. Pädagogische Akademien

Post-secondary colleges of vocational teacher training
Teacher training for part-time vocational schools for apprentices and for VET schools and colleges in the following subject areas: occupation-related applied theory and hands-on experience in engineering, arts and crafts, nutrition and home economics and word processing. Berufspädagogische Akademien

Post-secondary courses in VET (ISCED 5B)
For students with a general higher education entrance qualification: provides theoretical, provides skills and competences equivalent to that of a VET college; final diploma examination; 4-6 semesters of occupation-specific training. Kollegs

Regional Education Board
Federal institution (education authority) at regional level, i.e. in every federal state, commissioned with various tasks particularly with the implementation of legislation and school supervision.

Reifeprüfung and VET Diploma Examination
Final examination of a VET college: double qualification with general higher education entrance and professional qualifications allowing immediate entitlement to jobs on the executive level. Reife- und Diplomprüfung

Special training focus / area specialisation
Specific occupation-oriented focus offered by VET schools and colleges within the framework of school autonomy in a selected programme starting in year 1 or 3 of VET.

Trade, Commerce and Industry Regulation Act
Federal legislation; specifies under which circumstances persons are entitled to take up a trade (requirements to exercise self-employed professions and take up entrepreneurship).

Training firms
Model of a real business at a school or college within the framework of lessons to illustrate internal procedures, external business relations, and other business cultures; depending on the school type, training firms are recommended or form a compulsory part of commercial training at VET schools and colleges.

VET colleges (ISCED 3A/4A) - Berufsbildende höhere Schulen / BHS
For high-level initial VET as well as a well-founded general education (duration: 5 years); end with Reifeprüfung and VET Diploma Examination (EU recognition). Acquisition of general higher entrance qualifications and specific professional qualifications, depending on programme type, for jobs on the executive level (double qualification).

VET schools (ISCED 3B) - Berufsbildende mittlere Schulen/ BMS
For initial VET and general education (duration: 1-4 years); 3-to-4-year programmes end with final examination.

VET schools and colleges / VET school sector
Comprises part-time vocational schools schools for apprentices (attendance mandatory), VET schools and colleges, post-secondary courses in VET (including pilot projects and

school-based courses for people under employment), and post-secondary colleges of social work. Berufsbildende mittlere und höhere Schulen / BMHS

Vocational Training Act
The statutory framework for the company-based training of apprentices. Some provisions of the Vocational Training Act also refer to VET schools and colleges.