

New developments in the early identification of skill needs in Austria: the AMS skills barometer

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So far no observation instrument for the early identification of skill needs has been developed in Austria, mainly due to a lack of good macrodata on qualifications and occupations. There are some regular forecasting activities and many ad hoc studies have been done on specific branches or topics. Recently new instruments have been developed and better data are expected soon. There is a tendency to link skill needs analysis with quality assurance initiatives of education providers, and a trend towards presenting expert knowledge on skill needs to individuals. The latter trend is best exemplified by the AMS skills barometer, the first comprehensive online information system for developments in qualifications and job-market requirements in Austria. Trends in demand are represented according to 24 vocational sectors, 94 vocational fields, 600 occupations, and up to 5 000 different skills and competences.

1. Status quo and new approaches in Austria

1.1. Current approaches

Until recently, Austria could not claim to be innovative in early skill identification. But the past few years have brought some remarkable initiatives deserving international attention. To begin we describe the current Austrian situation, discuss its major deficits, then point out innovative approaches. Finally, we introduce one of the new instruments: the AMS skills barometer.

1.1.1. Regular surveys

Until recently, only two regular surveys worthy of mention were undertaken in Austria: *Micro-prognosis* (Synthesis, 2003) and *Lehrlings- und FacharbeiterInnenprognose* (projection for apprentices and skilled workers) (AMS, 2003). Both were commissioned by the Austrian labour market service (AMS), the latter being undertaken by AMS itself. Unfortunately, for forecasting future skill needs both surveys were not satisfactory.

The *Lehrlings- und FacharbeiterInnenprognose* mainly tries to foresee supply, meaning it forecasts the probable availability of apprentices based on existing numbers and demographic trends. It does not say anything about demand for apprentices, let alone their expected skills and competences.

The micro-prognosis is a short-term forecast on manpower demand, only roughly differentiating between occupational fields (represented by combined ISCO groups). There are no details on technical skills or personal competences in demand. The only information given on individual occupations is whether they are threatened by unemployment. Offering only general guidance

on labour-market trends, the micro-prognosis is not a tool for planning vocational education and training curricula.

1.1.2. *Ad hoc studies on skill needs*

On average one or two ad hoc studies on skill needs are undertaken in Austria per year; these are more or less publicly available. Most of these studies are commissioned by the AMS, some by the Federal Ministry of Education, Science and Culture, the Federal Ministry of Economics and Labour, the Austrian Federal Economic Chamber, the Chamber for Employees' Welfare, individual federal provinces and communes. Focus and frequency of these studies vary according to political demands; for example 1999-2001 analytical and prognostic activity for IT-personnel increased considerably. Basically the spectrum of studies is wide, ranging from medium-term estimations for skill needs in individual Austrian provinces, over-qualification deficits in SMEs of selected regions, to prospective skills profiles for individual educational fields (e.g. university graduates), trades and industrial sectors. All these initiatives share common ground – a comparative analysis of 13 studies⁽⁷⁴⁾ undertaken from 1994 to 1998 characterises them as follows: 'These studies are oriented on sectors rather than regions [...]. Only very few of them differentiate between sizes of enterprises. Gender and age variations are mostly neglected as well. When using official statistic data the time frame of analyses usually comprises the last two census [authors' remark: in 1981 and 1991]; the prognostic time frame usually is much shorter, mostly short term (one year) or medium term (five years)' (Hörtnagl et al., 1999).

1.1.3. *Forecasting demand for Fachhochschul-study courses*

Forecasting demand for *Fachhochschul*⁽⁷⁵⁾ graduates is part of the accreditation procedure and quality assurance system of Austria's *Fachhochschul* system. A new study course cannot be launched without having its future graduates labour-market chances evaluated by an independent institution. The first of these prognoses was undertaken in the early 1990s using very different methods. Altogether around 250 to 300 feasibility studies were commissioned during the past decade. Most ended up as a supplement to the respective applications for official approval by the *Fachhochschul* Council and were never made publicly available.

Forecasting demand for new *Fachhochschul* study courses has to be done according to standardised criteria laid down in the Rules for accreditation of the Austrian *Fachhochschul* Council (FHS, 2001). These studies usually aim at forecasting the labour-market relevance of the proposed new study course by checking demand for its graduates with potential employers.

1.1.4. *Forecasting demand for university studies*

Although there are also legal regulations recommending labour-market forecasting before implementing new courses of university study, jurisdiction and methodological regulations are far less rigorous than for *Fachhochschul* study courses. Between 1997 and 2000, the Federal Ministry of Science and Technology commissioned several labour-market surveys for new university studies; forecasting demand for future graduates was mainly done by comparing

⁽⁷⁴⁾ Among those are also regular surveys like the Micro-prognosis and Lehrlings- und FacharbeiterInnenprognose.

⁽⁷⁵⁾ *Fachhochschule* is a university of applied science.

available data on the labour market (graduation figures of individual study courses, unemployment data of the AMS) and interviewing selected labour-market experts.

1.2. Evaluating the current situation

Largest deficit of the current situation is the absence of regular studies focusing on changes in professional fields and the national labour market at the level of individual occupations and skills and competences. Although the micro-prognosis and the prognosis for apprentices and skilled workers might live up to usual standards for anticipation of skill needs research, neither of them really make any predictions on the level of individual occupations or skills, and both only deal with selected parts of the labour market. This lack of regularity and continuity in Austria's attempts at skill needs anticipation in general might be due to labour-market politics which have recently become more short-sighted, with interest lost in prolonged and continuous research. Many clients and contractors are active in the area or in ad hoc studies, but their output varies considerably in its analytical and descriptive quality. Beside the sometimes problematic scientific quality of these studies (Hörtnagl et al., 1999) these attempts also suffer from a lack of methodological diversity.

Macroeconomic forecasts as well as quantitative and qualitative enterprise surveys are most frequently undertaken, but, for example, analyses of job advertisements were not carried out until recently (see below). Without going into detail, the low degree of cross-linkage and systematisation between individual forecasting activities and their outcomes is particularly striking. This might partly be due to the many different taxonomies in use (several 'home made' for ad hoc purposes), which render comparisons impossible; there might also be a certain disregard for the work of other members of the scientific community. Also lacking is reference to national and international studies. The minimal cross-linkage might be the reason for the lack of methodological diversity and general opacity of the whole skills forecasting scene in Austria.

The studies have a limited horizon for planning and action, especially on design and development of vocational education and training. Concrete, useful and transferable recommendations for action are rare. There is also a discrepancy of interests between prospective contractors – researchers focusing on analysis – and clients – political decision-makers interested in recommendations for action. Further, studies so far were mainly addressed at a small circle of experts; others were excluded by the manner of publication and type of presentation. Finally, there is a lack of useful data in Austria. There are no statistical data on continuous vocational training, the national framework of qualifications is unsatisfactory and therefore the whole area of informally acquired qualifications (and thereby the real state of qualification of Austria's labour force) remains in the dark.

1.3. Recent approaches in Austria

Recent approaches to international research trends (Tessaring, 2003) counteract the above-mentioned deficits. Take the example of job advertisements analysis. It shows how a new research topic/method can widen the spectrum of national skills forecasting. New entities of analysis can be detected within regional skill demand surveys. The AMS skills research portal proved the trend towards networking. The AMS skills barometer as well as the link between a

vocational aptitude test and a regional skill needs survey exemplifies a trend towards presenting research outcomes to a larger user group than experts and political decision-makers alone.

1.3.1. New research topics/methods – job advertisements analysis

Until 2000, job advertisements analysis was not used to detect skill demand in Austria. Although the AMS has commissioned skills advertisements analyses for quite some time, these studies – only on occupational fields – were mainly used to compare manpower demand recorded by the AMS with that advertised in the press. Skills and competences demanded in these job advertisements were not analysed. Recently studies focused on this qualitative information (e.g. Paier and Beidernikl, 2002; MMO, 2002; Informationscouts, 2002). Although these studies are not able to forecast skill needs of the future they are still remarkable due to their extremely high level of detail and their up-to-date data (quarterly updates), thus recommending them as sources for skills trends especially relevant for those who have to react quickly to changes in demand, for example institutions involved in vocational training.

1.3.2. New entities of research – regional skill needs analysis

Taking labour-market intervention in the form of vocational counselling for enterprises as a starting point *OeSB Unternehmensberatung* and its spin off *Prospect* developed a mix of methods (ÖSB-Prospect, 2001), aiming at providing relevant information on regional labour-market developments to decision-makers. Usually regional (a district or a regional combination of districts) employment and labour-market developments within certain economic sectors (mostly those central to the regional labour market) are analysed and skill needs are identified through expert interviews. Via telephone interviews with representatives of selected enterprises, manpower demand and particular skill needs are discussed; current job openings and foreseeable replacements are considered as well. This special mix of methods allows for designing skills profiles of future employees in selected economic sectors thus also indicating possible training needs. Unfortunately, this method does not allow for a quantitative estimation of manpower and training needs at national level.

1.3.3. Networking – AMS research network⁽⁷⁶⁾

The success of the German FreQueNz shows, that linking individual activities and institutions in early identification of skill needs significantly increases its value. In 2001 Austria followed this example – again initiated by AMS – and started to interlink private and public research institutions by organising a yearly conference (*Qualifikationsbedarf der Zukunft*)⁽⁷⁷⁾ and providing a communication tool, the AMS research network. This web-based platform lists all relevant institutions in labour-market research and early skills identification in Austria, announces current events and provides an overview of recent research results by listing national and international publications (most available for download).

⁽⁷⁶⁾ Available from Internet: <http://www.ams-forschungsnetzwerk.at/> [cited 18.5.2006].

⁽⁷⁷⁾ *Qualifikationsbedarf der Zukunft I* took place on 28 May 2002 and is documented under <http://bis.ams.or.at/forschungsnetzwerk/dokumentationQBZ.pdf> [cited 27.4.2006]. Information to the follow up event of 18 October 2002 is available from Internet: http://www.ibw.at/html/projekte/proj_nat/ams/aktuell_fs.htm [cited 27.4.2006].

1.3.4. *New forms of presentation – the AMS skills barometer*

It is its innovative presentation rather than the mix of research topics or forecasting methods that is remarkable about the AMS skills barometer⁽⁷⁸⁾. Since it represents Austria's most ambitious and innovative initiative in early identification of skill needs, let us look at it in more detail.

2. The AMS skills barometer as an example of innovative instruments in Austria's skills identification research

In 2002 the AMS entrusted 3s and ibw⁽⁷⁹⁾ with the development of a system for continuous and comprehensive observation of developments in skill demands at the level of individual occupations (micro level). Although there was a need for a tool able to inform diverse user groups in a concise, reliable and easy to understand manner about current labour-market needs, such a system did not yet exist in Austria. The following questions should be answered by the system:

- 1) how many vacancies are there for certain vocations, vocational fields or sectors?
- 2) are there regional differences?
- 3) how do experts rate labour-market trends for certain vocations, vocational fields or sectors?
- 4) is there particularly strong demand for certain skills and competences in some vocational fields?
- 5) which trend developments in skills and competences are forecast by experts?

In February 2003, the AMS skills barometer went online, and has been maintained, developed and regularly evaluated ever since. We now want to describe this information system by discussing its envisaged user groups, its structure, current developments, some of its major problems as well as the results of the two evaluations undertaken so far.

2.1. Aims and envisaged user groups

The AMS skills barometer aims to inform the broad public via Internet about current and future qualification trends in a comprehensive and structured manner. From the beginning it was intended to use and compile available data – rather than construe a new instrument of observation. The AMS skills barometer represents an instrument of presentation rather than of analysis.

The following user groups should benefit from this innovative information source on labour-market trends:

- (a) political decision-makers;
- (b) people active in educational and vocational counselling, labour-market counsellors;
- (c) journalists;
- (d) decision-makers in education;

⁽⁷⁸⁾ Available from Internet: http://www.ams.at/neu/1216_458.htm [cited 27.4.2006].

⁽⁷⁹⁾ For details on 3s Unternehmensberatung and ibw – Institute for Research on Qualification and Training of the Austrian Economy refer to their website: <http://www.3s.co.at> and <http://www.ibw.at> [cited 27.4.2006].

- (e) decision-makers at enterprise level;
- (f) employees, job seekers, potential customers of vocational education and training facilities;
- (g) AMS staff at all organisational levels.

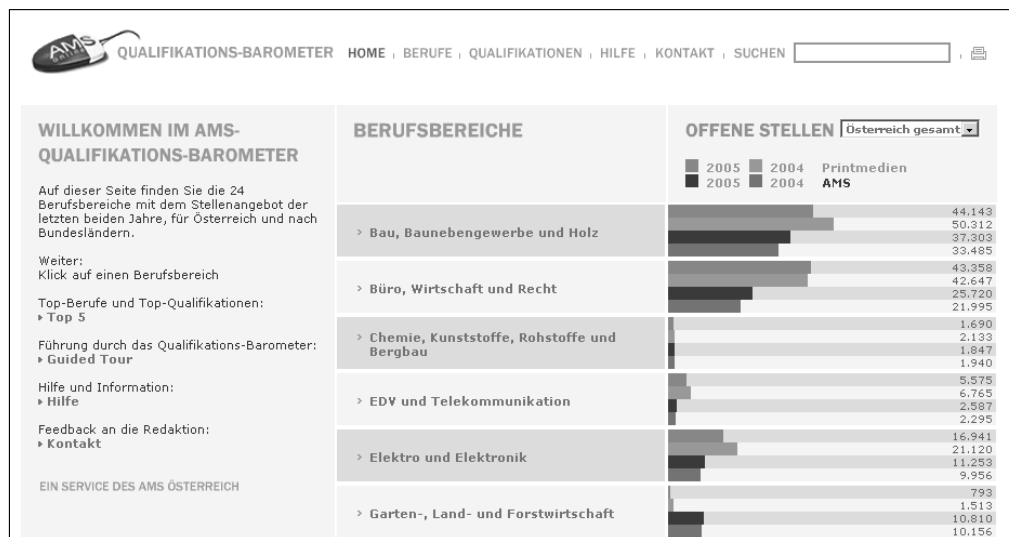
2.2. Structure of the AMS skills barometer

The path laid out by the system's structure always leads from the general to the more specific, thus detailing information hierarchically. At the highest level, to be viewed when entering the system (Figure 1) a review of last two years' job openings is given (data provided by AMS and MMO's quantitative job advertisements analysis)⁽⁸⁰⁾. This information is available for the whole of Austria as well as for its nine federal provinces.

Labour-market trends and qualification needs are described in text as well as in tables providing the latest figures on job openings at the level of vocational fields and individual vocations.

In addition to quantitative data on job openings, labour-market experts describe the present situation as well as trends in text (not depicted here) and with the help of symbols (arrows and bullets, see Figure 2). Their assessment is based on a wealth of diverse sources (see below for details); 24 vocational sectors, 94 vocational fields, as well as 600 individual vocations and more than 200 skills and competences (the latter two described in tables only) are dealt with. Additional information on skills and competences – for example, definitions and more than 4 500 narrower terms – and information sources can be read back on demand.

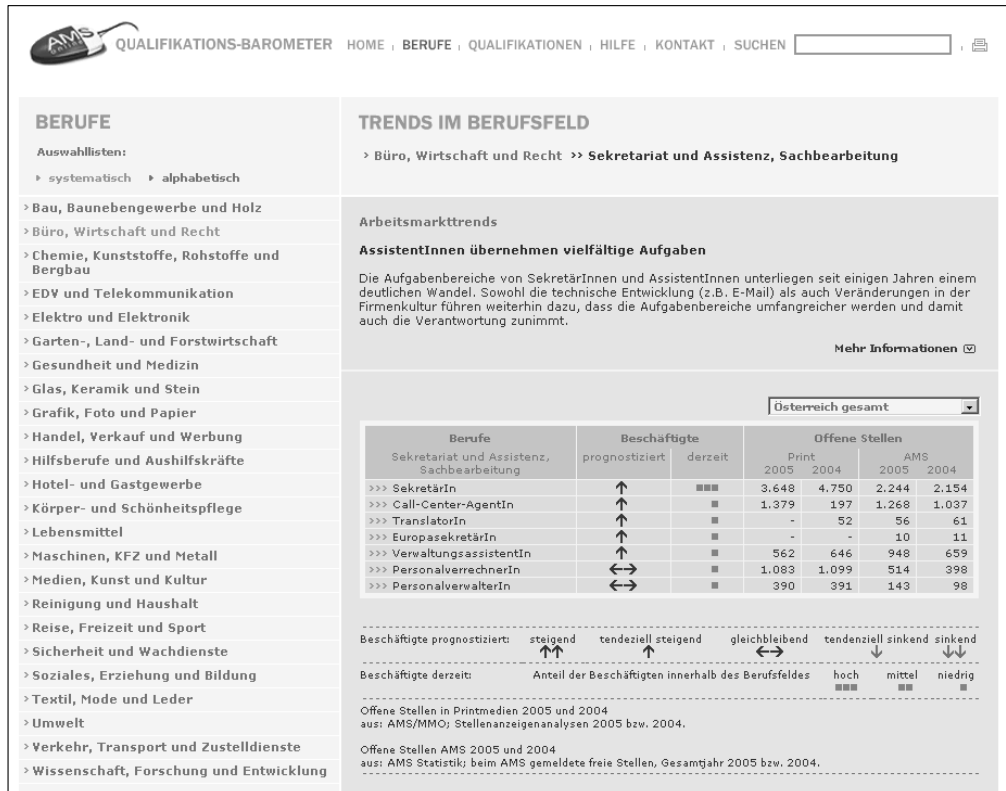
Figure 1: Start page: available job positions by vocational sector



Source: AMS Österreich.

⁽⁸⁰⁾ For details on MMO – Media & Market Observer refer to <http://www.mmo.at> [cited 27.4.2006].

Figure 2: Labour market trends and job openings for every vocational sector and field



Source: AMS Österreich.

2.3. Information sources

The content of the AMS skills barometer rests on a mix of diverse information sources, which were evaluated, selected and interlinked in a structured manner: official statistical data, surveys and forecasts on skill needs and labour-market trends in Austria (regional as well as national); job advertisement analyses commissioned by AMS; expert interviews (human resource managers of leading enterprises, personnel advisors, managers of vocational education and training institutions, representatives of professional associations), specialised books, articles from relevant journals, etc.

To be selected as a source for the AMS skills barometer studies have to be relevant (focused on labour market and skills trends within Austria as a whole or its regions), methodologically valid and up-to-date (or at least contain information that is still valid).

2.4. Methodological problems and strategies to solve them

2.4.1. Information sources

One of the main problems for compiling the AMS skills barometer is integration of diverse data sources, especially resulting deficits in consistency between individual research statements.

Quality and focus of sources vary considerably, thus rendering final conclusions difficult. The different taxonomies in use are a particular challenge. For integrating official statistics and job advertisement analysis, and structuring the online information sources of the AMS, a taxonomy for vocations (*AMS-Berufsgruppenstruktur*) as well as for skills and competences (*AMS-Qualifikationsklassifikation*) has been developed in preceding projects. The latter has been made available as a comprehensive and up-to-date structuring and information device on vocational requirements and can be used outside the context of the AMS skills barometer as well.

The method used in job advertisement analyses (their usefulness has been discussed above) has major deficits: job advertisements usually mention only a small spectrum of technical skills necessary for a particular job opening (mainly surplus or trendy ones). New skills can only be identified if job advertisement analysis is repeated over a longer period using the same method and taxonomy. Presently the AMS skills barometer is not able to make use of these long-term surveys of job openings. Therefore, it was necessary to put more emphasis on other information sources – namely studies on skill needs and labour-market trends and expert interviews.

Available studies only analyse some vocational sectors (e.g. ICT and business economy) and fields, often only providing general information on individual vocations and skills and competences – too general information for an instrument dedicated to describing labour-market trends at micro level.

There is also a considerable delay between realising the need for research (a change in skill needs) and availability of results. There are also numerous and diverse methodological problems in many skill forecasting studies, for example their lack of scientific rigour and their deficits in drawing conclusions for planning and action.

2.4.2. Selecting and interpreting information sources

Another methodological challenge arises when (and if so, in what manner?) assessing the individual estimations given in different information sources. How to deal with conflicting statements? Is it a privilege for the editors of the AMS skills barometer to decide which research results are to be taken seriously and which are not? How to reach necessary conclusions to form a unified picture of skill trends? Should it be left to the user of the AMS skills barometer to decide on conflicting trend statements? The broad range of envisaged user groups appears unwilling to deal with conflicting information. Therefore, we decided to evaluate and condense the information available and present it in a uniform and easy to understand manner – hoping to have simplified a complicated matter without being simplistic.

2.4.3. Heterogeneous user groups

The AMS skills barometer is a web-based information tool accessible to a broad range of users. Most probably do not have any previous experience of socioeconomic research or taxonomies. Providing them with technical information that is at the same time comprehensive, concise and easy to understand is a challenge. Have we met that challenge?

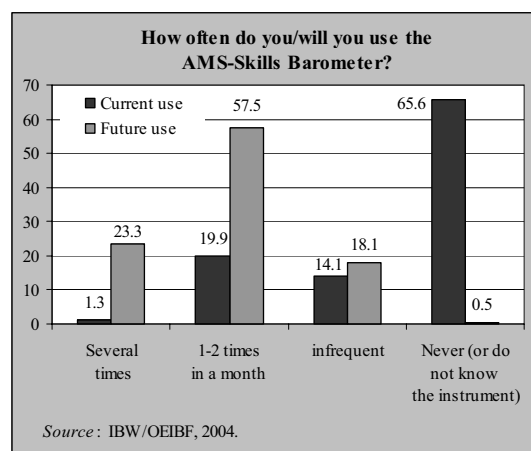
2.5. User evaluation

In a evaluation undertaken in 2004 about 200 decision-makers for labour market, education and qualifications (such as representatives from social partner organisations, ministries,

vocational counsellors and researchers) were interviewed by telephone and asked to use the AMS skills barometer. More than half had not used the AMS skills barometer before.

Those having used it before, used it once or twice per month at most. When asked if they would use it in the future, their answers were encouraging: more than half plan to use the instrument once or twice per month and almost none cannot imagine not using it at all in the future (Figure 3). When asked ‘will you further recommend the AMS skills barometer (e.g. to colleagues, clients, etc.)’, 98 % declared they will recommend the instrument to others.

Figure 3: Evaluation of the AMS skills barometer 2004: expected future use



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