

VOORBURG GROUP ON SERVICES STATISTICS

17th meeting

Nantes - 23th-27th September, 2002

Monitoring Competence in Enterprises - preliminary experiences from a pilot study

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SESSION 1 - Information Society Statistics

ABSTRACT

The paper reports about the experiences from carrying out a small scale pilot study on competence monitoring in enterprises. The survey was launched in order to study whether data about enterprises' competence resources management could be generated with a relatively simple questionnaire. The main aim was to test the feasibility of the adopted approach and to provide ideas of how statistics and potential indicators relating to human capital could be developed.

Monitoring Competence in Enterprises – preliminary experiences from a pilot study

1) Background

In the past few years, interest within human resources management has been focusing increasing on competence-related issues, which are assumed to constitute key factors for business performance, and enterprises are investing ever more in human resources development, i.e. personnel training and education. The conventional business accounts data provide very scarce information on competence resources and their development.

In spring 2002, a small-scale ad-hoc survey was launched in order to study whether data about enterprises' competence resources management could be generated with a relatively simple questionnaire. The main aim was to test the availability of such data and produce ideas of how statistics and potential indicators relating to human capital could be developed.

It should be emphasised that the exercise was put forward on an ad-hoc basis by a small group of statisticians interested in the topic. The leading principle for the survey design could be described as *a simple approach to a complex subject area*. The approach was partly stimulated by Eurostat's CVT¹ Survey 1999 carried out across European countries. In addition, the pilot was closely connected with the survey on the use of the Internet and e-commerce in enterprises², also designed to measure an area that is difficult to define in exact terms.

The subject area was considered very demanding but also highly interesting and crucial also from the business perspective. The pilot survey described in this paper represents one potential option for studying the area of competence resources. This report focuses on evaluating an approach based on the obtained main results.

2) Framework

Business accounts often consider the money spent on training and education as a cost although its aim is to improve and uphold the vocational and professional competence of a company in the long term. The skills and competence of employees are increasingly considered as strategic factors for business performance and success.

The competence resources used as *inputs* in companies' production processes consist of both *quantitative* and *qualitative* aspects. Furthermore, the qualitative part can be split into *formal* and *informal* employment qualifications.

Several variables related to employment qualifications are currently available from register-based employment statistics. These individual registers can also be linked with economic data at the business enterprise or local unit levels. The available employment data contain information on gender, age, level of education and pay. It is, therefore, possible to monitor in detail the formal characteristics of education within a selected enterprise.

¹

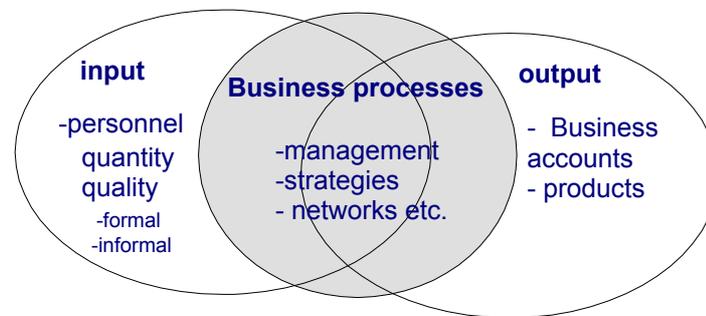
Continuing Vocational Training Survey

²

E.g. Annual harmonised surveys carried out in Nordic countries.

However, the informal characteristics relating to competence resources – such as individual skills, competence, occupational experience or training – usually fall outside the scope of the existing data. To shed light on this area, operational business surveys would probably yield the best results.

Figure 1: An input – output framework



The *output* of enterprises is well covered by existing accounting and product statistics. In addition, a number of output-related variables or indicators can also be derived from business accounts data. Referring to the figure above, the factual grey area consists of the business processes - e.g. organisation, management and investments in skills and competence - between the inputs and outputs. The existing data on these issues are scarce and business surveys combined with a collection of data concerning e.g. companies' training activities would appear a feasible solution.

The success of a company is assumed to be closely linked with its business processes i.e. the way it is organised, and its management and development combined with the skills and competence resources in use. What are, in fact, the reasons why some companies perform better than others? The contents of the pilot survey relate to some of these issues. However, it has to be admitted that the subject area is very complicated and difficult to approach from the statistical perspective. To compile indicators monitoring the development in these areas is probably among the most relevant approaches.

3) Survey contents

The pilot survey was designed so as to yield enterprise level information to supplement the existing data describing the basic characteristics of employment qualifications. The survey consisted of four modules, three of them attempting to measure different issues related to skills and competence. As emphasised earlier, the pilot version was designed to be limited in scope and easy to respond to by enterprises.

The questionnaire could, in principle, be applied to any chosen activity. The objective was to provide some quantitative information of the frequency, volume and cost of personnel training within business enterprises. Nevertheless, most of the questions are qualitative ones relating to training and competence resources. The contents and structure of the questionnaire are presented in Table 1 below.

Table 1: Structure and contents of the questionnaire

<p>A) Background information</p> <ul style="list-style-type: none"> - Number of persons employed - Training taking place in the company (filter question) <p>B) Frequency and volume of training</p> <ul style="list-style-type: none"> - Frequency of training - Breakdown of training (internal vs. external) - Training cost as a share of personnel costs - Breakdown of training by field <p>C) Competence and business strategies</p> <ul style="list-style-type: none"> - Methods for the acquisition of skills and competence - Development of training during the past two years - Forecast development of training during the next two years - Executed or planned activities for monitoring competence resources - Importance of competence monitoring to company management <p>D) Satisfaction with and barriers to training</p> <ul style="list-style-type: none"> - Satisfaction with training activities - Factors hampering training activities
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Quantitative questions

The key principle in the questionnaire design was that companies should find it easy to respond to. Therefore, the gathered quantitative information was limited to a few questions in module B asking about the volume, cost and frequency of training. Quantitative data were mainly asked as percentage breakdowns, where qualified estimates sufficed.

The main question measuring the volume of training was B1, asking about the number of participants in training, number of training days and the training budget. The aim was to get a good overview of the intensity of training and education taking place in the company concerned.

The respondent enterprises were asked to break down the number of training days by field of education. The survey operated with the following aggregated classes.

- Marketing, sales and customer service
- Management and administration
- IT- including administration and security issues
- Production processes
- Languages and other personal skills
- Other training / education

Qualitative questions

The questions concerning business strategies and employee training could be answered by ticking a given alternative. Four of the questions referred to the strategic choices of the enterprise. The aim of the question concerning *skills and competence acquisition* was to indicate the main practices in this area.

Furthermore, businesses were asked to evaluate changes in the focuses of education / training during the past two years, as well as forecast future prospects for the next

two years. The changes were inquired by asking for breakdowns to internal and external training and by field of education. The same breakdown as in question B2 was applied. Combining data on the past and future would make it possible to identify both past and future growth areas. The objective of the question was to reveal the areas where training was most severely needed and also indicate the extent to which the company aimed to survive by exploiting internal resources for these purposes.

Only scattered information is so far available on how frequently or regularly companies use different tools for monitoring their competence resources. Question C3 inquired about the actual or planned use of:

- Competence charting of personnel at the **individual** level
- Competence charting of personnel at the **enterprise** level
- Human resources accounting
- Surveys of working environment, personnel, and the like
- Balanced scorecard or corresponding strategy indicator
- Own indicators for skills and competence evaluations

The next question C4 utilised the same breakdown to inquire about the importance of these tools from the company management's perspective. It would be quite reasonable to assume that if some of the measures mentioned above are used to monitor competence resources they are also of major importance as management tools.

The last section D included a question requesting evaluation of the success of or satisfaction with training activities. The question operated with the same classes of education as question C2, thus allowing comparison between the past and future success rates of the training activities concerned. It would also reveal the training areas of greatest disappointment.

Finally, the purpose of the question about factors hampering training in the company was to reveal the main obstacles to employee training. The question related to the supply of personnel training and to economic factors.

4) *Evaluation of the approach*

Three business services activities were selected for pilot testing, i.e.:

- Legal services
- Technical consulting
- Accounting, book-keeping and auditing

In all these activities human skills and competence are regarded as vital for business success. Altogether 150 enterprises were chosen for the testing and the obtained response rate was 52% (78 accepted replies), which can be considered satisfactory.

In the following the core questions are evaluated on the basis of the pilot testing. The questions are divided into three categories by obtained response quality. The overall importance of the questions in terms of providing potentially useful data or indicators is also taken into account. The three question categories are:

- Questions to be included
- Questions to be included but modified
- Questions to be omitted

A) Background information

A1) Has your personnel been involved in training or education during the past year?

The question operates as a filter question and is considered relevant at least for small companies. Only a few enterprises reported not having had any activity in this area, and they were advised to go straight to the last question concerning factors hampering training activity.

Conclusion: The question should be included

The companies were also asked to give details of their accounting period and the number of persons they employed, which caused no problems.

B) Frequency and volume of training

B1) Frequency of training

The data concerning the volume of training have not been analysed in detail as yet, but it seems that the respondents have not given correct figures for the training costs per day. Obviously, some enterprises have given total costs instead of per day values. This question has been problematic to answer.

Conclusion: The question (b) should be further specified or optionally be omitted

B2) Breakdown of training (internal vs. external)

Giving the inquired breakdown of training between internal, external and collaborative with educational institutions did not cause major problems. The collaborative education was asked because it is estimated to have increased strongly in recent years. One out of six enterprises reported having had at least some training of this type, although external training was the most commonly used.

Conclusion: The question should be included

B3) Cost of training as a share of personnel costs

The question offered four options for reporting the cost of training as a share of personnel costs; under 1%, 1- 2%, 2 - 4% and 4% or over. The first three options turned out to be the most common ones, producing almost equal shares of the replies. Only a few enterprises reported having spent more than 4% of their personnel costs on employee training.

Conclusion: The question should be included. However, the percentages could be updated and the concepts clarified.

B4) Breakdown of training by field

The questionnaire used an "own" application of training field categories. The same categories were also used in questions C2 and D1, and the following comments on the classification also apply to them.

The contents of the categories were not defined in detail since most of them constituted a relatively clear entity. The questionnaire was designed from the very beginning to be applicable to any chosen activity and this caused problems with regard to business services.

The categories included one for training related to production processes, which are actually more relevant in the manufacturing industries. Several enterprises reported

having trained their personnel in their occupational field, which may naturally vary across the activities. Some of the respondents classified occupational training as part of “other” training while others included it in “production processes”.

Another consistency problem was that in question 4 enterprises sometimes gave the breakdown for training days by placing them in, e.g. two categories. However, some of the enterprises replying in this way gave estimations of the development during the past and the next two years and may also have estimated in Question D1 the success of / satisfaction with training that had not taken place according to question B4. Adding explanatory notes to guide the respondent could reduce these problems. As suggested below, question D1 is proposed to be eventually omitted.

Conclusion: The question should be included but modified by introducing a new category for professional training and by omitting the one related to production processes and by clarifying the contents of the categories. The same changes should also be applied to questions C2 and D1.

(Option 2: Delete the whole question and concentrate on the qualitative approach.)

C) Competence and business strategies

C1) Methods for the acquisition of skills and competence

Recruitment of new skilled employees and personnel training were clearly the most popular methods for acquiring skills and competence. Furthermore, about one fifth of the enterprises reported having focused training on special groups, supported independent studying, and co-operated /networked with other enterprises. The question appeared to function well and new items could flexibly be added to it.

Conclusion: The question should be included.

C2) Development of training during the past two years / forecast development of training during the next two years

The question uses the same classification as question B4 and the comments presented earlier are relevant in this context, too. Furthermore, the question asks about the development of the ratio between internal and external training. In general, the respondents considered that during the past two years training had either remained unchanged or increased and that the forecast development for the next two years looked quite the same.

Most of the observations, therefore, located in the “unchanged” or “will increase / increased” alternatives. For analytical purposes it would be justified to re-scale the options by dividing the “increased / will increase” option into the two alternatives of “increased somewhat/will increase somewhat” and “increased considerably / will increase considerably”. In order to balance the question, the option “decreased / will decrease” could perhaps also be split in a similar manner, although these would be expected to comprise a fairly insignificant share of observations.

Conclusion: The question should be included but the categories modified as proposed in B4. Furthermore, the options “increased /will increase” should be split as proposed above.

C3) Executed or planned activities for monitoring competence.

C4) Importance of competence monitoring to company management

Both these questions use the same classification and are regarded as *core questions* providing information on competence monitoring and its relevance to company management. The questions appeared to be functioning well and showed that different ways for monitoring competence as well as pertinent indicators are already

being used. For example, skills / competence evaluations at both company and individual levels already appeared fairly widespread. Companies clearly had plans for developing their own indicators as well. The questions operate as a pair and new dimensions could be easily added.

Conclusion: Questions C3 and C4 should be included.

D) Satisfaction with and obstacles to training

D1) Satisfaction with training activities

The question about satisfaction was not considered successful. For testing purposes the question had a broad scale of options (5), which apparently failed to differentiate the companies and quite a number reported being “quite satisfied”. Inclusion of the satisfaction aspect may prove unfruitful. In addition, the problems listed in B4 also apply here.

Conclusion: The question should be omitted. If this aspect is to be included the approach should be reconsidered.

D2) Factors hampering training activities

The question contains six hampering factors to be evaluated. Too little time due to work pressure was clearly the factor hampering training most. The question was considered quite successful and could easily be updated with extra variables. A question of a similar type has functioned well for years in the annual survey of the use of the Internet and e-commerce in enterprises.

Conclusion: The question should be included.

5) Conclusion

The measurement of personnel training and competence resources is a rather complex area on which accurate information is difficult to obtain. Therefore, the pilot approach focused on qualitative questions which, according to initial experiences, appeared to function well. A similar kind of approach has previously been applied in the now well-established survey concerning the use of the Internet and e-commerce in enterprises, which also examines an area that is difficult to define in exact terms.

Most of the qualitative questions can be assumed to be answerable within a reasonable data supply burden. However, it is clear that quite often the quality of the replies is difficult to judge. Furthermore, basing on earlier experiences companies tend to exaggerate their future prospects and plans. To summarise, despite some problems the general experiences from the pilot survey appeared to be encouraging.

The survey could provide new data related to human capital to supplement the existing information derived from administrative sources and surveys. It can also be assumed that results of this kind could help to develop indicators on the subject area. The aspects the survey could clarify would include e.g. the following:

- * How widespread is internal training compared to external one. Which areas does training concentrate upon and to what extent.
- * What are the main methods for acquiring skills and competence.
- * How has training developed during the past two years and what the prospects are for the next two years. Balances between internal and external training and fields of training.

* What kinds of competence monitoring tools are being used and to what extent.
What is their strategic importance to company managements.

* What are the main factors hampering training.

ANNEX I: The Questionnaire in English

(rough translation)

Survey of Competence Resources in Enterprises

Unless otherwise stated, this inquiry concerns the above enterprise and the previous accounting period. Please do not fill in any group level information. Where supplying exact information is difficult, qualified estimates can be given.

A) Background information

Accounting period

Average number of persons employed converted to full-time equivalents persons

A1 Has your personnel received training or education during the past year? (Internal or external training, network training, seminars, conferences, etc.)

Yes No If no, go to question D2

B) Frequency and volume of training

B1 Frequency of training

- a) Total number of full-time equivalent training days days
- b) Cost of training per training day (incl. salary), qualified estimate is acceptable euros
- c) How many persons participated in training persons

B2 Breakdown of training days

- | | | |
|---|----------------------|--------------|
| a) Internal training | <input type="text"/> | % |
| b) External training | <input type="text"/> | % |
| c) Training organised in co-operation with educational institutes | <input type="text"/> | % |
| TOTAL | | 100 % |

B3 Please give an estimate of the cost of training as a share of all personnel costs, incl. wages

- under 1% 1 – 2% 2–4% 4% or over

B4 Breakdown of training days by field

- a) Customer service, marketing and sales
- b) Management and administration
- c) IT (including security and administrative issues)
- d) Production processes, etc.
- e) Languages, presenting and other personal skills
- f) Other training

	%
	%
	%
	%
	%
	%
	%
TOTAL	100 %

C) Competence and business strategies

C1 Methods in use for the acquisition of skills and competence

	Not at all	Some- what	Much	Don't know / Not applicable
a) Training is offered to current employees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Training is focused on special groups	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Basic education is offered to trainees, unemployed, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Independent studying (e.g. distance learning via the Internet) is supported	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Skilled and qualified employees are recruited	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Co-operating and networking with other enterprises	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Functions requiring special expertise are outsourced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C2 Has training in the following fields increased, remained unchanged or decreased during the past two years and how do you expect it to develop during the next two years (tick box)?

Past two years	De- creased	Un- changed	In- creased	Don't know / Not applica- ble
A1) Internal training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A2) External training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B1) Customer service, marketing and sales	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B2) Management and administration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B3) IT (including security and administrative issues)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B4) Production processes, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B5) Languages, presenting and other personal skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B6) Other training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Next two years

	Will decrease	Will remain unchanged	Will increase	Don't know / Not applicable
A1) Internal training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A2) External training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B1) Customer service, marketing and sales	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B2) Management and administration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B3) IT (including security and administrative issues)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B4) Production processes, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B5) Languages, presenting and other personal skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B6) Other training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C3 Executed or planned activities for monitoring competence resources?

	Used in 2001 or earlier	Planned for 2002	No activity or plans	Don't know / Not applicable
Competence charting of personnel at individual level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Competence charting of personnel at enterprise level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Human resources accounting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Surveys of working environment, personnel, or the like	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Balanced scorecard or corresponding strategy indicator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Own indicators for skills and competence evaluation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C4 Importance of competence resource monitoring to company management

	Not very important	Quite important	Very important	Not used / Not applicable
Competence charting of personnel at individual level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Competence charting of personnel at enterprise level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Human resources accounting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Surveys of working environment, personnel, or the like	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Balanced scorecard or corresponding strategy indicator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Own indicators for skills and competence evaluation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

D) Satisfaction with and barriers to training

D1 Satisfaction with personnel training activities

	Dissatisfied	Fairly satisfied	Quite satisfied	Very satisfied	Don't know / Not applicable
A1) Internal training	<input type="checkbox"/>				
A2) External training	<input type="checkbox"/>				
B1) Customer service, marketing and sales	<input type="checkbox"/>				
B2) Management and administration	<input type="checkbox"/>				
B3) IT (including security and administrative issues)	<input type="checkbox"/>				
B4) Production processes, etc.	<input type="checkbox"/>				
B5) Languages, presenting and other personal skills	<input type="checkbox"/>				
B6) Other training	<input type="checkbox"/>				

D2 Please evaluate how much the following factors hamper training activities

	Not at all	Some-what	Much	Don't know / Not appli-
Low motivation for learning new issues in the company	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Scarce supply of suitable courses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Management do not support training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
No time due to heavy workload of personnel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Present personnel skills adequate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Training too expensive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments to the approach and contents of the questionnaire

Contact person

E-mail Telephone

Thank you for your reply!