



Statistics and Indicators on the Labour Market in the eEconomy

Towards convergence?

Current state and future ways of establishment based ICT- and labour market monitoring in Europe

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Why making a feasibility study on organisational panel surveys?

One of the main questions of STILE is: How can we measure the impact of information and communication technologies on the labour market? Politicians, researchers and employers themselves have an increasing interest in reliable information on trends in labour market demand, companies' skills requirement and ICT use. Technological progress that manifests itself in increasing investment in information technology also increases the productivity of high skilled employees. On the other hand a deterioration of the labour market position of low skilled employees emerges. The process of workplace re-organisation can be regarded as another explanation for the increased labour demand for high skilled employees and less requirement of unskilled personnel. Establishments recently introduced numerous organisational changes away from the traditional 'taylorist' organisation characterised by a centralisation of authority.

However, in comparison with the data available on the supply side of the labour market, the data available on the demand side are inadequate. Hitherto, various public bodies and research institutes have concentrated on surveying individuals. Establishment and enterprise data is systematically collected, but seldom with regard to employment, skills aspect, technological and organisational change as major variables determining these. Labour market researchers nowadays widely agree that macro-level informations should be supplemented by repeatedly collected data on organisational level, which allow explanations, conclusions and estimations in a longitudinal perspective by focussing on establishments as basic actors of the labour market, which - together with the labour force - generate structures and changes on the labour market. Jobs (and therefore employment) are created by enterprises or organisations, and they also do the destruction of jobs.

This report will therefore describe the potential for labour market research, being held by the analysis of organisational surveys. Although enterprise panel research does not have a very long tradition (Huys, Maenen & Promberger, 2002), it had already produced surprising results, which changed the scientific perspective on the labour market (see Ojo, 1994). Therefore meanwhile most of the early-industrialised countries conduct one or another kind of longitudinal data collecting and analysis on establishment level, but it is not easy to do any cross-national comparison so far. Though globalisation as well as the European unification process make it more and more necessary to consider labour market questions not only in the reference system of one single national economy, the cross-border comparability of establishment-level labour market statistics is still in a rather poor state. Organisational panels at national levels came to birth in many of the early industrialised countries since the 1980s and 1990s, but there has been not so much effort to come to cross-national comparison or at least to an overview of the use and widespread of this approach. Some of the few things done in this direction were the meritorious Eurostat activities in 1994 and 1995, based on the challenges of the European Commissions' White Paper on growth, competitiveness and employment. This can be seen as a starting point of the idea of bringing enterprise panel research to a cross-border widespread. STILE has taken up this idea, being confronted with the problem of developing adequate measuring instruments for the impact of information and communication technologies on the labour demand of establishments. This is the reason why the STILE project dedicates a whole workpackage to the feasibility of organisational panel surveys.

The approach of this STILE Workpackage 4 is not to develop and distribute a whole new surveying system, but - which seems to be far more fruitful and effective at present - to collect and condense current experiences with micro-level labour market monitoring all over the world, especially concerning the levels and effects of ICT use. The positive effects of this strategy not only result from avoiding double work, shortening development and testing efforts and learning from best and bad practice, but also from discovering and developing interface points between existing monitoring systems, which - in a further step - made it possible building a tool for public use out of the discovered experiences. This report summarises the relevant analytical steps and results at the end of STILE Workpackage 4 and tries to draw conclusions and suggestions for further activities in the field.

This will be done in several stages. The next section presents a summary of the results of benchmarking methods, concepts and blank spots of already existing establishment-level ICT and labour market research (chapter 2).

Then, the third section provides a contribution to overcome these problems by the development of a new digital instrument: The Digital Toolkit and Interactive Survey Website. Thus, researchers and policy makers are able to see what kind of indicators are measured in which existing surveys and even gain insight into the available publications (chapter 3).

Section four offers a practical strategy to contribute to various aspects of research at organisation level. The objective is to construct questionnaire items, which can be used in postal organisation surveys as well in face-to-face interviews. The working method for designing the module was to take the organisation as a starting point. Subsequently, the approach was to identify those labour market aspects of an organisation, which are most likely to change because of the implementation of information and communication technology (chapter 4).

In section five the results of an investigation of stakeholders' needs are shown, concerning the labour market and ICT problems. This is, because STILE regards the stakeholders on the labour market to hold key positions for further improvement of establishment-based labour statistics (chapter 5). Section six draws conclusions and tries to point out obstacles, chances and possible developments for a future integration of European establishment surveying on information and communication technologies and other items of interest (chapter 6), which then leads to suggestions for practical action towards this goal (chapter 7).

We hope our readers might consider taking up those results and suggestions for further discussion. If that should bring us one step closer to an improved labour market monitoring, being better able to observe the present socio-economic changes in order to enable proper political action towards economic stability, 'good work' and sufficient employment for the citizens of Europe, it would be what we intended.

Nürnberg, December 2002
Lutz Bellmann, Markus Promberger

Chapter 2

ICT and the labour market

Benchmarking establishment surveys throughout the world¹

Markus Promberger

2.1 Purpose and activities

The first step towards the Workpackage 4 goal therefore was a worldwide benchmarking inventory of establishment² panel surveys, especially of those dealing with ICT- and labour market items. Starting with Workpackage 4, we had to recognise, that there was little empirical evidence on what we planned to do.

Facing the lack of evidence we first had to collect information on possibly all organisation surveys concerned with labour market questions and/or information and communication technologies: There were not so much surveys with a real panel character, so we decided to enhance the perspective and include establishment surveys of any kind, dealing with labour market and/or ICT themes. Benchmarking organisational surveys had been done before only once and at smaller level in the approaching period of the STILE project, when Sels, Huys & Van Hootegem (2001) were focussing on organisational change in enterprises. Starting with STILE Workpackage 4, we had to enhance the search to cover mostly all existing surveys of interest. The collection or inventory should be the database for the following benchmarking process. Gathering data for the inventory took about the first three months of Workpackage 4, benchmarking and analysing blind spots and writing the results took another four months. OSA, HIVA and IAB did the data collection. HIVA and IAB produced the benchmarking inventory put on the website by OSA. Then HIVA conducted the blind spots analysis and developed the modular instrument, which is presented in chapter 4.

2.2 Benchmarking methods and concepts: brief results

Searching for establishment surveys all around the world we had to notice, that the use of this instrument is at present mostly limited to the early-industrialised OECD countries. But some of the former socialist countries are closing up quickly: Hungary is already conducting establishment surveys and at least Russia and China can be expected to follow soon. Our benchmarking includes thirty organisational surveys in eighteen countries in and outside Europe, includ-

¹ This chapter is based on the STILE milestone 4.1 report, which is available at the STILE website (www.stile.be) and part of the deliverable 4.1 (Huys, Maenen & Promberger, 2001).

² Organisation, establishment and enterprise are terms often being used synonymously, but they do not exactly mean the same. Organisation covers all activities being purposeful and showing a certain degree of temporal stability, be it profit oriented or not, government or private owned. Enterprise is a profit-oriented organisation, and an establishment is the basic local unit of business activities. Business and firm are nearly synonyms for enterprise, but an enterprise regularly means having employees or other 'members' more than the two other terms. Making a difference between those terms is important mainly in a technical sense for comparing the population of surveys, but not so much in a semantic sense, because the overlap between the terms is so big, that we can use them nearly synonymously at the present state of discussion. We were taking up the difference in the benchmarking inventory and in the survey website, where the technical aspects were of major importance.

ing five multinational surveys. Only twelve of them do have a panel character, the others are only cross-sectional establishment surveys, but with interesting questions on information and communication technologies or labour structure and demand at establishment level. Here are the main results and conclusions of our benchmarking activities in short terms:

In many existing surveys there is no adequate inclusion of small establishments within the research population. The same counts for the public sector and the services industry. This fact shows the future need for overcoming those restrictions due to the high relevance of those underrepresented parts of the economic landscape. Beyond that, a remarkable part of surveys suffers from a lack of accessible broad databases, of which the samples can be drawn. This may lead to sometimes 'invisible' restrictions of the population which might produce some kind of bias. Complete databases with correct informations are of course indispensable for adequate sampling procedures, but this is not always the case. However, connecting sampling procedures to government register data, may they derive from census, fiscal or social security sources, proves a 'good practice' way to overcome population restrictions. Another one, though not so well established yet, is to let questioned persons from labour force surveys identify the establishment they work at, which then could be questioned.

Most organisation surveys use samples stratified by size and sector, some of them add a regional stratification. Some establishment surveys add employee questioning or provide links to employee register data; which both allow a lot more possibilities for analyses than investigating establishments only. Additional employee questioning usually seems not to be subject to any access or confidentiality difficulties, as long as employees can decide themselves about participating in the enquiry and the questioning takes place outside of both establishment and working hours. Linking organisational surveys to employee register data has the advantage of total sampling and 'objective' data, but is limited to personal data of the employees and usually shows a non-neglectable time lag due to administrative procedures.

Choosing the right respondents in a questioned establishment seems to be a crucial problem of organisational surveys, which can best be solved by face-to-face questioning. A well-trained interviewer is able to select proper respondents in advance during the contact procedures, but a mailed questionnaire can be answered by nearly everyone, with only limited possibilities to estimate his/her reliability, for example by questioning the respondent's position in the organisation.

One of the core problems of enterprise surveys is the relation between response rates, questioning method, questioning extent and research budget. Face-to-face-questioning produces highest response rates and allows a more extensive questioning, but is the most expensive questioning method. Combining face-to-face interviewing with written questioning modules to be filled in by the interviewee before or after the session seems to be a good way to keep duration, costs and partial non-responses a bit lower, especially if questionnaires are collected by the interviewer on the spot. Telephone questioning also can show remarkable response rates and is fairly cheap, but duration and therefore the extent of questioning is of course limited. This counts also for computer-aided telephone questioning, which makes the interview situation a bit more effective, but the time limits still are the same. Written questioning by mail produces the lowest response rates; even with personal or written reminders they are usually so low, that it is quite impossible to build up a panel. But the high diversity of approaches and research techniques found in the field provides us even with some 'best practice'-examples for written and mailed questioning. In case of legal answering obligations, which we find in many census-based systems, there are response rates that may equal even those of face-to-face questioning.

Building up a panel is the best way to collect data for longitudinal analysis. There are some ideas that it might even be cheaper than repeated cross-sectional surveying, due to lower sampling and access costs, but on the opposite one might argue, dropout rates can only be lowered by using expensive questioning methods. But the fact is clear, that cross-sectional analysis only does not allow to answer one of the core questions of today's labour market research sufficiently: In which way and under what conditions does the implementation and use of information and communication technologies affect the labour demand of establishments? Therefore a further encouragement of panel research seems to be indispensable.

Organisational panel surveys require in many cases to make use of face-to-face interviews in order to gain high response rates, adequate case numbers and to keep dropout rates low. Panel surveys built on mixed funding structures, including financial contributions of govern-

ment, interest groups and scientific organisations seem to have the highest temporal stability, which is crucial to monitor changes which proceed only slowly. Most establishment panels existing for a longer period show a somewhat modular questioning structure, consisting of themes inquired in every round, items which occur in a longer frequency and present-day topics questioned only once or twice. Most panel researchers regard it as essential to have one questioning per year, at least for the fundamental business data. The most outstanding reason for that is, that you have to make the questioning cycles much smaller than the business cycles to be able to control their effects.

At the current state of organisational survey research there seems to be a certain divide between surveys focussed on information and communication technologies on the one hand, and micro-level³ labour market research on the other hand. It has to be said, that many of the first ones have a poor methodological basis, showing low response rates, high dropout rates, unclear databases and a short life-period, while the labour market surveys do only suffer from a low inclusion of ICT themes. Therefore we have to conclude, that the best way to overcome those deficits would be to include an elaborated ICT questioning module to existing micro-level labour market surveys. Beyond that, such a module could be an excellent instrument to link and compare different national establishment surveys and thus form the next step towards a convergence of research activities with the aim of an improved monitoring of the European labour market on the demand side. But still some work is to be done.

2.3 Blank spots of current establishment-level ICT- and labour market research: a short overview⁴

Leaving behind the benchmarking of methods, concepts and design of the surveys we have to regard their contents. Beyond the basic problem mentioned above, that there is little inclusion of labour market items into existing ICT organisation surveys and vice versa, some more typical blank spots can be identified on the map of ICT and the labour market.

The first one is the *inter- and intra-organisational division of labour with regard on ICT*. As we know from lots of case study evidence, the borders of establishments and enterprises became weaker in the recent decade (see Baethge et al., 1994). New organisation concepts were implemented to make organisations more fluid and flexible and therefore able to react to changes in the environment, which does not only mean changes in economy, workforce and material life, but also in fashions and 'philosophies' concerning organisations (see Meyer & Rowan 1977; Starbuck, 1983; Ortmann, 1994; Promberger et al., 2002). Though the concept of the 'virtual company' is "most certainly an exaggeration" (Maenen, Huys & Van Hootegem, 2002, p. 52), information and communication technologies accompanying new organisation concepts can surely strengthen effects towards a higher permeability or indefiniteness of the borders of an organisation, may it be by outsourcing, insourcing, new forms of work like eWork or telework, by non-standard employment forms. But, so far, it is not clear, into what direction those developments go. By case study evidence we can observe both internalisation and externalisation effects, sometimes even in the same organisation (Van Hootegem, 2000), and the role of ICT in those developments is also not simple or single-directional, as is the influence of important conditions, like the market for skilled labour - from skilled workers to ICT experts - which is not only affected by ICT innovations and organisational change, but affects those changes vice versa. Beyond case study evidence, there is not much information on these topics in the current surveys of any kind, but there are questions on electronical inter- and intra-firm network participation and on the location of ICT experts inside or outside com-

³ There are some more conceptual differences worth to be mentioned. Often we find the term 'micro-level'-research or micro-data, which does not have a very clear definition. Even if we don't consider Anthony Giddens' fundamental critique on the 'micro-macro'-concept (Giddens, 1984, p. 139), we can still find a difference between economics and sociology in what 'micro' means. While economists usually regard the enterprise as the micro level of economy (Biffignandi, 1999), sociologists often see individuals as the micro-level of society. Some of the latter who do research on establishments and enterprises regard their subject to be on the 'meso'-level (Trinczek, 1989). In the following we'll use both terms with regard to the purpose.

⁴ This chapter is an extract from the detailed paper by Maenen, Huys & Van Hootegem (2002): Monitoring the impact of ICT on the labour market, Part 2 of Deliverable 4.1. If some of the facts and conclusions should differ from those in the mentioned paper, the author of this summary is responsible.

panies, which served as a base for developing and enhancing them to be part of the questioning module. Better explored due to being an 'old subject' are the relations between production concepts and ICT. When the first ICTs started to enter the establishments in a broader scope during the late 70s and early eighties, they were first implemented into direct production for the purpose of higher flexibility and lowering labour costs by supplementing and replacing human work, which was sometimes exaggerated to the concept of the 'manless factory'.⁵ Kern & Schumann (1984) pointed out, that the manless factory was far away from being real (and still is), but there are severe changes to work organisation and production concepts caused by the implementation of microelectronics. Then a huge and long debate started, shifting after some years from production to organisation while microelectronics crept over the brim of production and started invading clerical and administrative work as well as research and development, and later seized and restructured controlling, sales and purchase and at last major parts of the whole intra- and inter-firms communication. First consisting mainly of case studies, research turned to a broader empirical basis in the 1990s, therefore we can regard this field as well explored. There are specialised surveys and questions which try to connect the use of ICT to core problems of work organisation, like control, like centrality or decentrality, or taylorist versus non-taylorist strategies and structures, vertical or horizontal integration.

Not so well explored are the whole labour market dynamics in connection with the ICT use in organisations. Inflow and outflow, their forms and means, changing skill or occupational structures of labour demand and supply in establishments need systematical observations, as do the balances or disturbances in the relation of demand and supply with ICT-skilled employees. Can we really observe a 'digital divide', as possible new forms of labour market exclusion by a lack of 'digital skills' can be called? There is a definite lack of indicators concerning those items in current establishment surveys, and this is the core subject of developing new indicators for changes caused by information and communication technologies. The modular instrument will show later, how a first step to solve this problem by enhancing organisational survey research could look like.

⁵ See Brödner (1986) for a critical overview.

The Digital Toolkit and Interactive Survey Website

Amelia Román

3.1 Background

Workpackage 4 entailed an in-depth review of the existing enterprise surveys that are either panel in character or have questions related to the measurement of ICTs. The inventory resulted in a wealth of information that required a system of categorising both the types of indicators as well as just what was being measured. The three partners soon came to the conclusion that although many questions were being asked, most of the indicators measured the *readiness* of an enterprise and very few had already taken up the job of measuring the actual *impact* of ICTs within the organisation. Another problem was that good data within the central and eastern European countries was virtually non-existent. Much of this was because of the transition that these countries were going through from large state-operated companies to smaller privatised, commercial enterprises. The World Bank had done a total global survey of, for the most part, economic indicators of ICT investment. In order to both organise the information on these surveys as well as present it in a user-friendly accessible way, what better media to choose, than the Internet? The STILE survey website proved a challenging albeit surmountable task. The difficulty was twofold, as the purpose of the survey website is to give a comprehensive overview of the existing surveys that the STILE project was able to locate, as well as enabling researchers and policymakers to access all the information available on the surveys such as the name and address of the organisation responsible for execution, the years for each wave, background information on key modules and even publications of articles written using the collected data. Availability (both in terms of copyright as well as the actual form – written or digital) of the questionnaire is also stated. It is the intention of the Workpackage 4 research team to implement a system of downloading of the available survey questionnaires. For a more in-depth description of future plans, please see paragraph 3.4. Parallel to the development of the survey website, the information accumulated through the survey review proved to sometimes be anything but coherent. It is exactly this lack of transparency that was used to help in designing the Digital Toolkit. The Digital Toolkit provides a set of instruments for researchers to help them in developing their own set of survey questions to measure ICT. It leads them through the steps taken from abstract concepts to defining the actual indicators that they want to measure. An additional step was taken, not defined in the original project description, to link the survey website and the Digital Toolkit. In this way, researchers and policymakers are able to see what kinds of indicators are measured in which existing surveys and even gain insight into the available publications. Creating an interaction between the two sites enables the user to get a better image of both sides of measurement, the development of the indicator is in this way reflected in the actual accumulated data. It more or less forces the user to take all aspects of measurement into account, at least in the sense that they are certainly well accounted for in our digital overview. In paragraph 3.2 a more illustrative description is given of just how the Digital Toolkit evolved.

3.2 The creation of a new digital instrument

Within the STILE project, the chief mandate is to make an assessment of existing statistical indicators for measurement of the eEconomy and, wherever and whenever possible, advise in the adaptation of these in such a way that the resulting data collection is (internationally) comparable. Only in this way can the European Union ever hope to achieve a valid and comparable set of statistics on the knowledge economy. A precursor to designing the Digital Toolkit was a step backward in order to take a good look at the basic concepts behind the indicators. Although the panel survey review resulted in a large amount of information on survey questions for ICT measurement, it also made clear that ICT measurement was not in the least standardised. We continued to reduce until we arrived at a series of common denominators. Adoption of these principles led to a definition based on the industrial classes of revision 3 of the International Standard Industrial Classification (ISIC) as used by the United Nations. The classes included in the definition are as follows:

Manufacturing:

- 3000 - office, accounting and computing machinery;
- 3130 - insulated wire and cable;
- 3210 - electronic valves and tubes and other electronic components;
- 3220 - television and radio transmitters and apparatus for line telephony and line telegraphy;
- 3230 - television and radio receivers, sound or video recording or reproducing apparatus, and associated goods;
- 3312 - instruments and appliances for measuring, checking, testing, navigating and other purposes, except industrial process equipment;
- 3313 - industrial process control equipment.

Services:

- 5150 - wholesaling of machinery, equipment and supplies;
- 7123 - renting of office machinery and equipment (including computers);
- 6420 - telecommunications;
- 72 - computer and related activities.

Where possible, Member countries were asked to limit this class to include only the wholesaling of ICT goods as shown in the Manufacturing component of the definition shown above.

The ISIC coding proved to be the building blocks upon which we could further our work. The codes are used to categorise and differentiate amongst the many sectors of industry. Because the codes are used as a basis for UN, OECD, Eurostat and European national statistics institutes as well as all candidate countries, we could go back from derived variables to the actual indicators within most of the survey questions.

Another problem that arose was that a great deal of the high tech terminology was ambiguous. For this reason the *glossary of terms* was developed. Every term that we came across that needed any kind of explanation for the layman was added to the list. It helped us in better understanding the amazing expansion and implementation of ICTs within enterprises, uses that quite frankly, most of us are not even aware exist. It also helped to eradicate a number of redundancies that we had overlooked by simply not knowing that they were only different names for the same phenomenon.

Once the actual indicators being measured were named, these were listed on the Digital Toolkit. By clicking on the indicator, the user is linked to an existing survey question, questions or even modules measuring this indicator. In this way the user is taken step by step through the process of the basic concepts right on through to the question used in measuring the specific ICT. The next section describes the construction of the survey website which ran more or less parallel to the construction of the Digital Toolkit.

3.3 The workings of the survey website

A simple list of the surveys reviewed would have sufficed for a report, but in order to create something for use on the Internet, it must not only be informative, but concise, user-friendly and up-to-date as well. Because the World Bank Survey is executed in every country around the globe, we decided to start the survey website with just that, a globe. *The globe* acts as a search engine for all the surveys we reviewed. By clicking with the mouse on a part of the globe, one initiates a list of countries. By clicking on a country, a list of all surveys is shown for that country that is currently part of our review. The next step is to click on one of the surveys. This launches a complete overview of the survey, with contact addresses, subjects covered, wave years, availability of questionnaires and information on publications. It is imperative that this information be kept up-to-date. It's not just a question of updating hyperlinks so that the information continues to be accessible. It is just as important to keep refreshing the information on the surveys themselves in order to add waves, make use of additional types of indicators, list new publications, etc. The survey website gives an exhaustive summary of enterprise surveys around the world. It allows researchers and policymakers to access information on surveys and gives a birds-eye-view on just how and where comparative analysis is being done in ICT research. The next section explains how we just couldn't stop there and why we felt it necessary to go one step ahead in our undertaking.

3.4 Future plans for the measurement of ICTs through digital interaction

Although the project assignment was completed with the development of the survey website and the Digital Toolkit, we felt it necessary to integrate the two which would allow for a truly unique *digital resource tool*. The link was made at the level of the survey question on the side of the survey website. From the perspective of the Digital Toolkit, one goes from basic concepts regarding the measurement of ICTs to indicators and then on to actual survey questions, making a natural link to the survey in which the question was used a logical one. This essentially makes the circle complete. Researchers can see where their line of questioning will take them, how these measurements have produced data up to now and what kind of similar research is being done in their area. It inhibits the re-creation of the wheel while providing valuable information on the need for its evolution.

There's just one problem. This new digital instrument is not like an encyclopedia that can be placed on a shelf and occasionally consulted. The very nature of the *Digital Reference Tool* makes it imperative that the information is constantly replenished and revised. No provisions were made for this in the original STILE project. The European Commission was so gracious as to make possible the creation of these digital tools, it is now a case for the members to see the importance of continuing the work on into the future. In this manner the HIVA, in cooperation with Steunpunt WAV and the OSA are now working together to find funding on national levels to allow for the continuation of their work. The OSA will remain responsible for the administrative and technical updates of the website. The real work will be provided by the many users who access the website looking for the latest survey material. Their comments and information will allow for the constant update necessary to maintain this *Digital Reference Tool* into the future.

One of the greatest characteristics of science is the sharing of knowledge. The ultimate definition of the destruction of capital is the non-implementation, use and maintenance of human knowledge. The Internet, however criticised and susceptible to misuse, enables the spread of knowledge in a way never seen before. Much as the invention of the printing press initiated the opening of many hearts and minds to existing knowledge, leading us out of the dark ages and into enlightenment, the Internet also acts as a catalyst allowing for access and the spread of information at a mind-boggling rate. Access to this information is something about which the European Union is particularly concerned. It is essential that a lack of access to this new medium does not lead to new divisions in a world already suffering from an unequal distribution of resources. Access to information is the key to the information society. There is much work to be done. One of the best ways to start is take up a good measurement of what's already being used in order to provide a good inventory of what we still need to initiate.

A modular instrument for measuring the impact of ICT on organisations

Seth Maenen

4.1 Designing valid and reliable indicators

Workpackage 4 of the STILE project had the objective of contributing to various aspects of research at organisation level. One of the end products in this respect is a modular instrument designed to assess the impact of ICT at organisation level. It must be noted that the term 'end product' deserves some qualification, as a well balanced and informative indicator is often the result of an iterative process. In such a process indicators are designed and tested, and the results of this test offers feedback, which can subsequently be used for improving the quality of the indicator.

Unfortunately, this is not yet the case for the design of the current questionnaire items. In order to enhance the quality of the operationalisations, several precautions have been made. Firstly and obviously, in the design of the indicators several methodological rules of thumb for enhancing reliability and validity were taken in account. As far as possible simple and unambiguous language has been used, and questions were fully explained for the respondent. Also, care was taken that the questions were designed in such a way that the number of elements in each question was reduced as far as possible (see Arundel et al., 1998, Appendix A-II).

As straightforward as these simple and basic methodological rules are, it is often a difficult enterprise to put them into practice. This is because these rules frequently come into conflict with other rules of questionnaire design. It has been, for instance, of vital importance to keep the number of questions in the module as low as possible, in order to limit the burden for the respondent and not to jeopardise response rates. The challenge is then not only to choose precisely those indicators which are most essential for the assessment of the impact of ICT on organisations, but also to construct parsimonious indicators, which nevertheless provide a sufficient amount of information on the relevant variables.

A second tool for enhancing the reliability and validity of questionnaire items is making use of the results of existing indicators. An evaluation of the response rates and scores obtained by an existing indicator. High non-response on certain items may be an indication that the question was not well understood by respondents. Rephrasing or dropping the question is than appropriate. A lack of variance on an indicator may necessitate a similar conclusion as this reduces the explanatory variables of the indicator to zero. For several reasons this approach has not, or hardly been feasible, in our research project. The primary reason for this is not that the number of surveys which took up ICT indicators is negligible. However, the number of indicators offering a potential for assessing the labour market consequence of ICT implementation is rather limited. Additionally, the indicators should fit into the 'modular' design (see below) of the questionnaire, which was rarely the case. And even if the existing indicators were useful, it was not easy to obtain the variance and response rates for the relevant indicators.

A third tool was making use of the experience and the competences of our colleagues. Discussions among peers were in fact one of the primary sources of inspiration in the construc-

tion of the questionnaire items. This is again an iterative process, in which different points of view are often hard to reconcile. It is also a process which has perhaps not reached its final destination. The discussions have continued after the presentation of the module in a previous deliverable. The indicators which are presented as examples in this report are modified indicators, which have resulted from discussions among peers within the Workpackage 4 team, and some of them are therefore different from the ones presented earlier.

4.2 Designing a modular instrument

The modular character of this instrument is expressed in the design of the individual questions as well as in the design of the module as a whole. Firstly, in the design of the questionnaire, the 'establishment' is assumed to be the unit of analysis. However, this can be easily adapted, in order to make the questionnaire applicable to the 'company' or the 'enterprise' as a research unit. These adjustments will, not necessarily harm the value of the suggested indicators. Secondly, the proposed questions can, in principle, be applied to investigate the whole economy and all sizes of organisations. Obviously, there may be an important variation in the data obtained by some of these indicators, in relation to these variables. Still, detecting this variation may be rewarding in itself. Some indicators, however, may be less relevant for questioning very small organisations. Nonetheless, the empirical questions for which of this module seeks answers, are relevant across all sectors of the economy and across all sizes of organisations. Thirdly, with regard to the respondent, the module certainly requires a respondent with a good general knowledge on the organisation. As different aspects of the organisation are questioned, several respondents, each most knowledgeable on these different aspects, are likely to maximise the reliability and validity of the obtained data. However, in the design of questions, asking for much detail was avoided, so that one fairly 'knowledgeable' respondent should be able to answer all the questions with an acceptable degree of validity and reliability. A fourth point concerns the questioning method used. The objective was to construct questionnaire items, which can be used in postal questionnaires, as well as in face-to-face questioning methods. The latter, however, will yield higher general response rates, as well as higher item response rates. The design of the module attempts to minimise the complexity of the questionnaire items, and to maximise the item response rates, as well as to maximise the analytical potential of the data generated by the items. Still, this is always a precarious balance, which is difficult to find. In this respect, an emphasis has been put on continuous variables, in which the respondent is asked to fill in percentages. In postal questionnaires, this objective may be at odds with the objectives of reliability and validity of the collected data. Face-to-face questioning methods can allow to extend the length of the questionnaire, and may as well permit to increase the complexity of the design of the questionnaire. The decision taken with regard to this issue is up to the individual researcher. Fifth, subjective questions, in which the respondent is asked to give his opinion on the research issue, are avoided. And although an subjective impact assessment by the respondent can be valuable for investigating research topics which are difficult to operationalise in numerical indicators, this was considered to be inappropriate for the present objectives. Because the module should be useful in studies which are conducted once only, as well as in (repetitive) cross-sectional surveys, but most importantly, also in panel surveys, the choice was made to construct indicators aiming at factual information, which relates to the present situation in an organisation. On the one hand, in panel surveys, the historical dimension is inherent to the research design. On the other hand, subjective assessments may severely harm the reliability of the obtained data, because it is likely that the questionnaire is filled in by different respondents in the successive waves. The proposed indicators, may nevertheless prove to be useful in other research designs as well. Related to this is the issue of the reference period for which the respondent is interrogated. Generally, the questions apply to the present situation. When another reference period is required, the module leaves it up to the researcher to determine this period. For the sake of reliability, this period is nevertheless better kept short. How short this should be, is in part related to the questioning method. Finally, although the module may be most valuable as a whole, the indicators can be implemented individually. All indicators could individually yield valuable information on the use of information and communication technology in organisations or on the impact of information and communication technology on aspects of the internal and external

labour markets. On the other hand, the module can also be supplemented by a number of other indicators, yielding an enhanced analytical capability.

4.3 Themes covered and variables measured in the module

The working method for designing the module was to take the organisation as a starting point. Subsequently, the approach was to identify those aspects of an organisation, which are most likely to change because of the implementation of information and communication technology. These organisational aspects can be classified according to four themes, all having labour market relevance. These themes are the inter-organisational division of labour, the intra-organisational division of labour, the behaviour of organisations on the external labour market and the strategy of the organisations on its own internal labour market. These themes will be discussed in the following subsections.

Inter-organisational division of labour

New information and communication technologies may enable efficient and effective co-ordination between networks of organisations. Whether the full, ICT mediated, potential for re-localisation and outsourcing of organisational functions is being used still has to be assessed. The implications for the structure of the labour market and the skills profiles required by employers are obvious. Moreover, organisations which have made the choice to implement this new technology need, in one way or the other, professional skills in order to put and keep this technology into operation. This, again, has obvious labour market relevance, and a couple of indicators in the module are designed to measure this.

Are activities related to the creation of ICT installations executed by your establishment (*creating refers to all technical activities and decisions by which the establishment obtains the technology - ICT installations refer to all technological devices apart from telephones and fax machines, capable of displaying, processing, storing and/or transmitting information*)?

- Yes
 No

(If yes) Who is *primarily* responsible for the creation of ICT activities within your establishment?

- This is mainly done by own employees
 These tasks are mainly performed by employees of the wider/mother company
 These tasks are mainly outsourced to an external company or to self-employed persons
 Others, specify
 No, these activities are not relevant for the establishment

Does your establishment execute activities related to the implementation of ICT installations (*implementation refers to all technical activities or decisions by which the establishment makes the technology operational - ICT installations refer to all technological devices apart from telephones and fax machines, capable of displaying, processing, storing and/or transmitting information*)?

- Yes
 No

(If yes) Who is *primarily* responsible for the implementation of ICT within your establishment?

- This is mainly done by own employees
 These tasks are mainly outsourced to an external company or to self-employed persons
 These tasks are mainly performed by employees of the wider/mother company
 Others, specify
 No, these activities are not relevant for the establishment

Does your establishment execute activities related to the maintenance of ICT installations (*maintenance refers to all technical activities or decisions by which the establishment keeps the technology already in place operational, including problem-solving, user assistance and upgrading activities – ICT installations refer to all technological devices apart from telephones and fax machines, capable of displaying, processing, storing and/or transmitting information*)?

- Yes
 No

(If yes) Who is *primarily* responsible for the maintenance of ICT within your establishment?

- This is mainly done by own employees
 These tasks are mainly outsourced to an external company or to self-employed persons
 These tasks are mainly performed by employees of the wider/mother company
 Others, specify

- No, these activities are not relevant for the establishment

Intra-organisational division of labour

A second theme relates to the way in which activities are structured internally in an organisation. The central theme is how the functions of employees change due to the implementation of ICT, and for what kind of tasks ICT is actually applied within an organisation. Therefore, an indicator aiming to obtain information on the general production structure of the organisation was adopted, as well as a few indicators which attempt to get a grasp on the tasks which are executed by employees and the role that ICT plays in the execution of these tasks. The latter is given below as an example. Useful additions to this kind of indicators would be indicators providing information about the repetitiveness of the various tasks for employees.

Who is primarily responsible for the following tasks in your establishment?

- Preparatory tasks (determining the work method, work sequence, time scheduling, division of work)
- Executing employees
 - Supervisory staff or line management
 - Specific indirect function or department
 - Not applicable
 - Is ICT used by these employees for the execution of these preparatory tasks?
- Supporting tasks (quality control, adapting working methods, budget control, maintenance of tools and machines)
- Executing employees
 - Supervisory staff or line management
 - Specific indirect function or department
 - Not applicable
 - Is ICT used by these employees for the execution of these supporting tasks?

Then a few questions are adopted which aim on the one hand at finding out for what ICT is used from the point of view of employees and from the point of view of organisations. In the former case, the aim is to find out how the technology is used by employees as a tool. In the latter case, the aim is to find out to what extent ICT is employed to steer the production process and to take over the decision-making processes of employees. The latter indicator is given below. This particular indicator is fairly complex. However, its design was based on the simplification of an indicator from the PASO-survey, and the item response was a higher than 70%. An effort has been made to reduce the complexity of this indicator in the hope of increasing the response rate.

An executing employees' regular activities can be divided into producing goods or services, and making decisions on how to do that. How are ICTs involved into both of these activities of your employees? (*Decision making does not mean managerial decisions of any kind. What we mean is the kind of everyday decisions occurring during a persons normal working procedures.*)

- Regarding the mere producing activities:
Is ICT autonomously taking care of subsequent steps in the production process?
 - No, ICT does not autonomously take care of production steps
..... % of the employees
 - Yes, ICT takes care of a limited number of steps of the production process
..... % of the employees
 - Yes, ICT autonomously takes care of subsequent steps of the production process
..... % of the employees

- Regarding the decision-making activities of the executing employees:
Does ICT independently make decisions in the course of the production process?
 - ICT is not involved
..... % of the executing employees
 - ICT is mainly used as a decision support, concerning
..... % of the executing employees
 - ICT is mainly taking over the decision making
..... % of the executing employees
 - Does not apply to because these employees are not involved in decision making at all
..... % of the executing employees

Development of the internal and relations with the external labour market

A scale was developed for assessing ICT skills in organisations. This scale was used to develop indicators for the ICT skills of newly hired employees, as well as for measuring the level of ICT skills of all current employees and for assessing the complexity of ICT skills provided by means of training. In the example below the scale is applied for measuring the inflow of digitally literate personnel. With respect to training additional indicators should provide additional information on the amount of resources devoted to training and the extent in which the skills developed by the training are company specific. The underlying logic of these indicators is that the development of the internal labour market is a functional equivalent for the recruitment of employees with the desired skills on the external labour market. Using the same scale of ICT skills, the inflow of digital skills from the external labour market can be monitored. The same instrument can also be used to monitor what kind of ICT skills were possessed by those employees who have left the organisation. This will allow to assess whether organisations pursue a strategy of refreshing their human resources by disposing of obsolete skills and attracting new up-to-date skills.

- What was the required level of ICT skills in the recruitment of employees? Please indicate the proportion of employees for each level of ICT skills.
- Advanced ICT skills: non-routinely developing, implementing, or maintaining ICT installations, hardware or software
..... % of hired personnel
 - Complex ICT skills: being able to work non-routinely with software programs for the execution of a wide range of complex tasks
..... % of hired personnel
 - Moderate ICT skills: being able to execute specific tasks non-routinely with aid of dedicated software packages, or workplace programming of computer-controlled devices
..... % of hired personnel
 - Simple ICT skills: being able to use ICT installations for simple routine tasks; display or input digital information
..... % of hired employees
 - ICT skills were not a selection criterion
..... % of hired personnel

This indicator could generally be used as a measuring instrument for the skill structure of ICT employees' flow, be it for recruitment or any kind of inflow, as well as for outflow, be it 'brain drain', redundancies or others.

4.4 Conclusion

The objective of Workpackage 4 was to offer a thorough contribution of assessing the labour market consequences of ICT diffusion in organisations. Although there are strong arguments in favour of demand-side research in order to investigate this issue, the number of organisation surveys adopting sufficient ICT-related indicators are disappointingly limited. The modular instrument is in fact an attempt to close this information gap. In this section a few examples of the constructed indicators were given. The total number of indicators adds up to 26, of which four are filter questions which asks whether and for what purpose ICT is applied. Further, seven indicators try to get a grasp of ICT-mediated inter-organisational division of labour and another six indicators aim at information on the internal production structure and work organisation. Last but not least, five indicators have been designed to monitor an organisation's behaviour on the external labour market and four to monitor the internal labour market. All these indicators can enhance the analytical potential for monitoring the impact of ICT on the labour market and hopefully can offer an added value to most research on organisation level.

Chapter
5

Investigation on stakeholders' needs

Markus Promberger

5.1 Context

As the aim of STILE Workpackage 4 is not only to benchmark existing surveys and to offer indicators for measuring ICT use in establishments and their relations to the labour market, but also to search for ways towards further cross-national convergence of establishment panel surveying, a study of stakeholders' needs was conducted as a fourth step of Workpackage 4. 'Stakeholders' in the context of STILE are interest groups and collective actors on the labour market, which means labour market authorities, trade unions and employers federations (see also Westphalen, 2001). Due to time and budget restrictions we decided to focus on actors, which in fact do act at supranational level. This means: supranational authorities which govern, regulate or observe the labour market and supranational employers federations and trade unions. Though our definition of 'stakeholders' does not include academic labour market researchers, they play a crucial role in producing and transferring knowledge on the labour market, so we decided to include some academic research institutes, which do cross-national research in Europe, but are not part of STILE.

Their needs are investigated by two means. Firstly by conducting non-standardised face-to-face interviews with twenty outstanding experts from eight stakeholders' organisations, secondly by analysing published and unpublished documents.⁶ First of all, our results show, that more needs to be done in the field of stakeholders, if we want to achieve further progress in establishment based monitoring of ICT and the labour market. Moreover, if we look at the very close and short time schedule of STILE and Workpackage 4 it had to be clear, that the 'stakeholders' needs' investigation could not be an exhaustive and comprehensive catalogue but a raw inventory of needs as a base for conclusions for further actions. Therefore our research was quite sufficient for collecting data and getting a raw inventory of stakeholders' needs concerning establishment-based labour market and ICT research, but it cannot be more than a first step of establishing contacts and raising stakeholders' support for a future convergence of cross-national establishment surveying in Europe.

5.2 Employers' needs

Most of all, employers federations tend to stress the meaning of the enterprise as a basic unit not only on the labour market, but also within economy and society as a whole. Enterprises, managers and entrepreneurs are seen as key actors to employment, technological and economic innovation. So anything seems right, which underlines the meaning of enterprises. But, for the traditional type of employers representatives, that's enough. What goes on behind the

⁶ Due to German data protection laws we have to avoid all possibilities to identify single persons questioned and single institutions, so there will be no direct presentation or quotation of documents or interviews, except from public accessible material.

doors of establishments is nobody's business except the owners. Nevertheless, questioning managers on their opinions is a good thing, just remember the OECD worldwide business environment survey, the German 'business climate' survey and things like that. The employers federations' relation towards scientific research and knowledge differs a bit from the unions. Scientific departments or real scientific expertise are not so widespread in employers federations, but there is a lot of co-operation, may it be personal or interorganisational relations with economists and specialised economic institutes in and outside universities. Newcomers as well as the younger generation of actors in the employers federations gained their academic degrees there, and that is also, where they usually get in contact with enterprise surveying or even enterprise panel methods, which are seen as crucial or indispensable by empirical economics, econometrics and/or labour economics. We can formulate an agenda of needs of employers federations concerning labour market research, which tends to be strongly overlapping with needs and interests of certain types of economic research.

- 1) Identifying obstacles for business activities, esp. obstacles within the labour market, labour legislation, social security system. International comparison is quite a good instrument for that, just remember the newspaper ranking lists concerning labour costs, working hours and things like that.
- 2) Measuring the influence of certain business conditions, management strategies, collective agreements, shop floor representation or whatever on the enterprises' economic performance, by statistical methods. Just to mention: there is also a generation gap in the scientification of management methods, they switched from being an art or philosophy to being a kind of science. Frederick Taylor did this at the beginning of the last century by making manual or physical labour a subject of scientific control, and the modern econometrics do that by evaluating modern business strategies.
- 3) Asking members/managers for their attitudes and opinions. For example towards the public employment services in Germany, towards new legal activities, business expectations and so on.
- 4) Detect future developments on the labour market, early warning system for misdevelopments, such as a lack of skilled labour, IT skills, the thing which they call 'overregulation'.

So far, all that tells us that we can find good chances and support for establishment-based monitoring systems among employers federations. We still have to do some more research to the employers federations to confirm those findings. But labour market problems and changes are clearly not at the top of their agenda, as long as those problems don't inhibit business activities. This is a major difference to the unions and to government authorities.

5.3 Trade unions' needs

Trade unions are important interest groups on the labour market, organising the interests of the labour force. One may say, their influence is declining a bit at present, due to the changes within world economy and the labour market, facing a substantial job loss in the traditionally well unionised manufacturing industries and some job growth in the services, knowledge- and 'eEconomy' with their specific obstacles in organising the labour force. But in their long history there were periods of crisis as well as periods of success, and the unions are well aware of the changes and try to do their best in adapting themselves to new conditions, such as the growth of clerical work, non-standard employment forms, telework and services industries. There are even some first observations which judge the unions' crisis to be overcome, for example in the US (Adler & Turner, 2001), and the first crisis (Gründerkrise) of the New Economy shows many chances for organising the new labour force - and there is already some success. In spite of well-known comments on which interests the unions do in fact organise - due to organisability, traditional barriers, historical shifts and interests of the organisation itself and its professionals - it cannot be denied, that labour unions play a crucial and active part in organising, structuring and regulating the labour market, founded on a more than 100-years tradition of collective bargaining, agreements and fights for legal regulations of work in Europe.

Labour Unions in the EU countries show many differences in their organisational structure. There are three basic types of unions: In France, Italy, Spain and Portugal we have different

unions trying to organise the same part of the labour force, reflecting the basic or traditional structure of the system of political parties. That means, we usually have Christian or catholic labour organisations, as well socialist and communist ones in those countries, being in a sometimes heavy competition to organise the labour force. The German labour movement, having the same structure until 1933, tried to learn from history and re-founded itself after 1945 (with some exemptions of minor importance) as a system of sector-related unions, organising all workers with no respect of religion or political orientation, unified in one central unions federation. In the UK and Ireland we have an astonishing heterogeneousness of professional or crafts unions, sectoral and general unions, being bundled into a Trade Unions Congress - which gave the organisational pattern for major parts of the English-speaking labour movement all over the world.

In every country unions try to influence markets and politics by shop floor representation, establishment or company negotiations, local, regional, national and sectoral bargaining, and by trying to influence politics on every level. The outcome is a very heterogeneous system of custom and practice, collective agreements on any level and legal regulation, differing strongly from country to country. And, we have to commit that labour market regulation is a thing which still is mainly limited to the single member states: Though we face the beginning of common action towards an integration of actions on legal level since the Nice and Lisboa conferences, there are no relevant cross-border negotiation structures,⁷ no collective bargaining, and not even a kind of co-ordinate action in collective bargaining, which is of any relevance. An expert told us: "There is something called 'European co-ordination of collective bargaining activities' in the X-industry,⁸ but in fact it does not take place".

Despite all those differences in organisational patterns and negotiation structures, European labour unions have to act under conditions getting more and more similar. Globalisation and economic change lead to a relative homogeneousness of problems related to work, employment and worklife within Europe, and the division of work between national and international level of trade unions' activities leaves many practical points of differences, like collective bargaining, behind at the level of the national unions. Of course, there are differences between the national trade unions being members of the ETUC, concerning practical policy, but they don't seem to affect their analysis of labour market problems and labour market observation. So it was easy to reconstruct a unions' agenda on improving the labour market monitoring, including the following subjects:

- 1) detailed statistics on working hours, which includes flexible hours, overtime work, working hours per year, nightshift work and weekend work;
- 2) intensity of work;
- 3) 'lifelong learning', education, vocational training and further training requirements, opportunities and activities;
- 4) shop-floor and establishment-level representation/industrial relations;
- 5) indicators and statistics for the quality of work;
- 6) definitions and concepts for recording labour market changes on the way to a knowledge society;
- 7) only limited informations available on the social effects of labour market changes;
- 8) labour market effects of the new economy;
- 9) new technologies, organisational change and the labour market;
- 10) hidden unemployment.

It is quite interesting, that there are lots of needs on the unions' agenda, which could easily be solved by using, enhancing and developing establishment based monitoring systems, and this does definitely not only count for the ICT-related questions. But the *unions and their scientists do not make much use of the existing establishment surveys, and they identify a lack of information on this subject* – which on the one hand result from the surveys' limited cross-national comparability and other problems we wrote about in the Workpackage 4 inventory report. But on the other hand, all the union experts were very familiar with qualitative research and with using highly aggregate statistics or labour force surveys, but not so with enterprise or establishment surveying. In a minority of cases those rejections of establishment surveys are even

⁷ Except some local examples, mainly local cross-border activities e.g. in the Lorraine-Alsace/Saarland area.

⁸ Original name replaced by author.

based upon prejudices to be less reliable because managers won't tell the truth, or managers and economists belong to 'the other side'. But the majority of union experts shows a good and promising open-mindedness and willingness to support activities towards this new instrument, hoping for answers on crucial labour market questions.

5.4 Labour market authorities

EU-Authorities have of course a fundamental interest in developing cross-national statistical systems. This is for two reasons: First, there is the scientific needs of politics, which permanently needs to be fed with statistics and facts, and, as we all know, economics and social sciences derive from the needs of the absolutist state and its democratic successors for information and data on population and economy as a condition for state action. The relation between science, nation state and supranational institutions, and the trend towards a widespread of academic skills within the recent decades enhanced scientific expertise in governmental authorities. In this case, knowledge on new methods in statistics and economy infiltrated from universities and scientific institutes into governmental bodies during the recent decades. Second, nation states and supranational governments have to deal with problems or even to step in or to help, if problems arise out of the economic and technical change.

Therefore, there is a lot of statistical work done by the European Commission. If we focus on labour market statistics, the main-used cross-national databases consist of individual or household data, such as the Community Labour Force Survey (CLFS) or the European Community Household Panel (ECHP), sometimes supplemented by specialised surveys like the Continuing Vocational Training Survey (CVTS) or the surveys done by the European Foundation for the Improvement of Living and Working Conditions in Dublin. Searching for the reasons of unemployment, for the types and stability of unemployment, for conditions of employment stability, indicators for the quality of work and many other things, a lot of advanced analysis can be undertaken with such databases, for example the recent 'Employment in Europe 2002' report (European Commission, 2002). But talking to EC experts, they point out, that there are not only some blank spots to be filled, but real missing links:

There is a clear need to supplement individual labour force data by repeatedly collected enterprise/establishment data, because at present there is only limited possibility to connect information on individual employment or unemployment with problems of productivity, training, innovation, management strategies, personnel policies, business conditions and labour demand in enterprises. The best data source would therefore be a combination of establishment and workforce data on micro level, like the employer-employee datasets, which already exist in some countries. And there is also a clear need to do that not only in a cross-sectional but also in a longitudinal perspective, due to the process character of enterprise and individual behaviour.

Until now, we have a lot of national enterprise data in Europe, collected by the national statistics authorities, some cross-national commercial business surveys like the UPS or the Grant Thornton EBS, also some specialised cross-national enterprise surveys like CVTS, Sowing, EPOC, Emergence, funded and supported by the European Commission. Many of them do meriful work and provide substantial answers, but only to specialised or limited questions. None of them is the 'whole in one' real thing to fill in the 'meso' gap in the European labour market monitoring system, both in a cross-sectional and especially in a longitudinal dimension of analysis. The EC undertook various efforts to improve that situation, starting with the Eurostat 'enterprise panels' conferences in 1994 and 1995, funding, co-promoting or participating in research projects and conferences like the 1996 to 2001 CAED Conferences on Analysis of Economic Microdata (for example Laaksonen, 1997; Biffignandi, 1999) or projects like Emergence, STILE, NESIS and others. However, though moving into the right direction, the situation has improved only slowly. We'll come back on the reasons for this later in our conclusions chapter, but it is worth to be mentioned here, that there might be a way out.

5.5 The role of scientists, scientific institutions and networks

Meanwhile there are quite a lot of scientific institutions concerned with cross-national comparison of labour market problems, be they more economically oriented, sociologically or multi-

disciplinary, be it universities, government-owned or private research institutes. Generally, their needs are not differing much from those of the other stakeholders. But they deserve some extra attention, due to their key role in the diffusion of scientific knowledge, skills and methods into policymakers, giving them a kind of catalyst function in the improvement of political problem solving in general, and also especially in the improvement of labour market observation systems.

A Europe-wide scientific community has developed in the recent decades, of which those research institutes are a part. This does of course not mean, that the national scientific communities have all merged or disappeared, because the major part of research budgets in Europe still consists of national-level research funds. But there are strong overlaps between national and cross-national scientific communities, which are even growing. One of the results of the stakeholders' investigation is the crucial role of scientists in using, developing, enhancing and improving statistical monitoring instruments of any kind, be they members or advisors of stakeholders organisations, policymaking institutions and authorities, or academic experts and researchers. Scientists and their work tend to be crossing not only national borders, but also the borders between research institutions, universities who do not only research but also teach, labour market organisations and government authorities. This can clearly be supposed to be an outcome of the development towards a knowledge society and we suppose, that it proves to be one crucial 'instrument' or better actors group to enable changes in the labour market observation system in Europe. The way this happens deserves some more attention. Usually, institutions conducting research at EU-level have their projects at least partially funded by the Commission or related authorities. As this type of research is basically comparative, it requires co-operation of more participants than one or two institutions only. It is said, that the average number of project partners ranges at about seven per project. This structure lead to the development of cross-national scientific networks, which can have more formal or informal character, loose or tight coupling, high or lower temporal stability.

Those networks and their members, be it on national or cross-national level, have some more functions than simply doing and organising research. *First*, they are also *evaluating* research – who's participating in one project might be referee to another. But not enough, they might be even evaluating practical policy. *Second*, they organise and participate in *scientific debates*. *Third*, they are involved into *decisions on research* structures, funding programmes and research aims. *Fourth*, they are *advising policymakers*, be it by formal research, by providing a kind of labour market for experts for hire by political actors, or by informal connections. *Fifth*, many of their members contribute as *teachers* to the education of students and junior researchers, be it during the research itself or by teaching activities at the universities. *Sixth*, they regulate a relevant part of the *labour market entry of freshly educated academics* who are later bound to enter policymaking institutions and organisations. There is an ongoing debate on the causes, effects and efficiency of this system (e.g. Bosch, Kraetsch & Renn, 2001), which can be seen as a core structure of the knowledge society, self-regulating to a huge extent, but that is of course not the STILE question. It is just to say, that scientists, cross-national scientific institutions and networks are to be seen as key actors and structures of knowledge production and distribution, a fact we have to take into account if we want to improve the labour market monitoring system in Europe, making it able to properly observe changes caused by the implementation of information and communication technologies.

However, this 'scientific system' is not homogeneous. There are certain borderlines which are to be taken into account, if we want to use its structure to improving labour market monitoring. The first one is the line between national and cross-national research - but this is not a border, which can't be crossed. We have the strong impression, that cross-national research was expanding a lot during the recent years, accompanying the European unification procedures. Many labour market researchers nowadays could simply not afford doing no cross-national research. Second, there are borders between the certain scientific disciplines, which means in our case, the borders between social sciences, economics and econometrics. To say it first, those boarders are getting weaker. But they might be partially responsible for the only slow progress of developing cross-national establishment monitoring instruments in the past, if we regard them together with the third borderline, which exists between scientists and stakeholders' organisations. As pointed out above, the scientific system includes both working scientific researchers and scientists and academics in stakeholders' organisations. But the latter differ from the first by their need to apply scientific results in policymaking and communica-

tion with other parts of the society. As all those borders are not geographical ones but between ways of thinking and acting due to different social functions, crossing them requires not physical movement but translation activities. And the second type of borders also needs to be crossed by translation: Econometrics, for example, are a discipline which is very advanced in statistical methods analysing establishment panel data, but their results are often presented in a way suitable for the narrow but international academic community, but not in every case for applied science and policymakers. Academic sociology, on the other hand (maybe especially in German speaking countries), tends to develop an analytical language of its own, often not easy to be understood by other disciplines and policymakers. In national contexts, there are usually enough persons and networks who are serving as translators or messengers between the subsystems of science, but at cross-national level this has to be enforced – which is one of the background problems that led to the necessity of implementing user-involvement aspects to the EC research programmes. Our results lead us to the following thesis: If a change of structures is intended, the need for translation activities at the internal and external borders of acting groups, organisations or ‘systems’ increases, because standard procedures are left behind and a new necessity arises to increase the level of information, the level of acceptance, support and the willingness to act.

5.6 Summary

Among Unions, Employers federations, EU policymakers and scientists, there is definitely a need for continuing, enhancing and intensifying research on the European labour market, and there are still many blank spots to be filled with information, of which ICT is just one.

Though many efforts in developing cross-national data and comparability have been successful, especially in labour force and household monitoring, there is still a lot to be done concerning the establishment level. Therefore we identified the necessity to fill in the ‘meso’ gap in labour market statistics amongst the stakeholders, but parts of their organisations still show limited awareness, what ‘meso’ oriented instruments can do. Thus the gap sometimes stays unrecognised. If such awareness is existing or can be raised, there are really ‘open doors’ for developing and establishing meso-level monitoring instruments. But the greater the practical orientation of individual actors is, the more do monitoring methods (like organisational panel surveys) have to be backpacked by current themes (like ICT). The stakeholders’ needs investigation helped to identify specific obstacles hindering a convergence of European establishment surveys, but also showed ways on which it might be possible to get closer towards cross-national comparability of establishment data, to which we’ll turn in the following chapter.

Chapter
6

European establishment surveys

Obstacles and opportunities on the road to cross-national convergence

Peter Ester, Markus Promberger and Amelia Román

6.1 The long road to closing the ‘meso gap’

The benchmarking inventory of organisational surveys shed quite a bit of light on the methodological, conceptual, and empirical diversity of the existing surveys, both within and beyond Europe. Moreover, it not only directly pointed out this diversity, but also analysed it, made it accessible publicly via the STILE website and Digital Toolkit, and in this way exposed it to scientific discussion. The comparison also led to the development of a public-use questioning module concerning ICT and the labour market relations of establishments, which is intended as one more step towards the much needed improvement of cross-national comparability of establishment survey data.

Moving towards a convergence of European establishment monitoring is not only a matter of methodology and survey-techniques. More than ever, data collections and research of this kind are subject to political interests and practical needs of the actors on the labour market, which therefore were also part of our comparative study. The results of the stakeholders’ needs investigation show, that there is in fact a lot of practical necessity for developing an establishment-based monitoring system, not only to measure the impact of information and communication technologies on the labour market, but even in a more general sense, to monitor problems concerning ICT in the coming years. The types of problems may manifest themselves as a lack of skilled labour existing in spite of generally high unemployment rates, as is the case in Germany. It may be the different use of non-standard employment across the European nations, or labour migration, which one might expect will only increase in the future, partially due to the enhancement of the European Community. Each of those various labour market problems has aspects which strongly concern the labour force structure, supply and demand in establishments and other organisations, which clearly makes closing the ‘meso gap’ an issue for the long-term agenda. As we showed in the benchmarking inventory of organisation surveys, various countries have developed establishment-based monitoring systems in the past two decades, ranging from single or repeated cross-sectional surveys over panel surveys to linked data-sets, combining establishment information with employee data. But the development towards a European establishment survey or at least cross-national comparability, is not proceeding as quickly as the European unification process itself. It is for this reason that we feel the reasons behind this needed to be investigated as well as how that situation could be improved.

6.2 Contradictions, similarities, obstacles, and opportunities

Among unions and employers’ organisations, there is a traditional distrust of establishment surveys. Some union activists feel that establishment data are less reliable because they are

based on the results of questions posed to management rather than to the employees. And managers, according to the unions, are likely to respond in ways that primarily reflect their economic and political interests rather than objective facts. Bearing that in mind, a number of union members and social researchers met this challenge by developing surveys in which workforce representatives were questioned. There is some experience with this option in Germany, especially concerning the shop-floor regulation of working-hours, following sector-level collective agreements (Promberger, 1994; Herrmann et al., 1999) and flexible scheduling in general (Seifert, 2001; Promberger et al., 2002). Research showed that when compared to management questioning on the same topics, most of the contradictions observed were a result of different sample structures due to size and sector (Bellmann & Ludewig, 2000). Thus, having in fact found no bias between management and employees, is a good argument that this distrust can be overcome.

Employers' organisations also show a specific distrust concerning questioning enterprises. This is related to the attitude of many entrepreneurs not wishing to allow anyone to look too closely into one's business. This attitude can still be found in privately owned enterprises of any size, but particularly in small and medium-sized enterprises all over Europe. *Le patron, il patrone, der Herr im Haus* or similar expressions in other European languages represent a still existing feature of business life, distrusting unions, regulatory authorities, the media or any other kind of uncontrollable outside publicity – like opinion polls. But the situation may change, if needs and opinions of the employers are themselves part of the survey, in a descriptive and neutral way – and if the employers' organisations recommend participation in the survey. Employers and their organisations may then view this as an opportunity to voice their needs and interests to the public.

Beyond specific distrusts, unions and employers' organisations also have *different perspectives* on establishment survey content. The employers want a focus on the identification of business obstacles and on measuring the influence of business conditions such as management strategies and collective agreements on output and performance. The labour unions stress issues that will provide the kind of information that will enable them to improve the conditions and quality of work, the employees' economic situation, alleviate unemployment and adaptation to economic changes. This leads to slightly different requirements concerning the data collected: unions tend to demand more data on the working conditions in the establishment, and employers' organisations tend to place more emphasis on the business conditions. But the similarities seem to be more numerous than the discrepancies. To a certain extent both sides need similar basic data on sector, size, performance, organisational change, ICT use, labour force supply, demand and turnover, wages and working hours. Based on these *common interest* data their different perspectives become relevant at the stage of analysis, and not so much in designing the survey and the data collection phase.

There is a certain *lack of information* among some actors concerning establishment surveys. Because this data collection method is much younger than individual or household surveys and only recently left the laboratories of economics and social science, it is not commonly known what purpose it serves. The dissemination of knowledge concerning the establishment-level survey approach has, up to now, followed three specific paths. The first path is that of modern labour economics or econometrics at the universities which have educated a part of the younger generation of stakeholders' economic experts. The second path follows the 'sociology of work, industry and organisation', which tries to overcome the limitations of case-study research, followed by those stakeholders' experts who have strong personal connections to this research discipline either through education or profession. The third path is taken by the 'senior experts' within the stakeholders' organisations, who simply know by experience about the lack of evidence concerning cross-national establishment research and search for approaches to alleviate this. Working concurrently of those three paths there are the more traditional methods used by economists of the old (model building) schools, sociologists being familiar with case study research and databases from individual or household surveys, and the wide range of policymaking experts, who are in fact professionals in using scientific results but work separately from scientific field- and paperwork. That there is a certain lack of statistical information is very well known, *but* that meso-level surveys provide a method to eliminate this problem is not widely known. Once informed about these methods, many stakeholders' organisations, quickly recognise their potential and enhance the spread of this knowledge within their organisations by inviting researchers to participate in various activities. Among the actors

questioned in stakeholder organisations there is a strong correlation between an increasing distance to scientific work and the need to have a method to 'piggyback' on a theme of interest. In other words, if we take the actors not following the three paths into account, methods can more easily be 'sold' by themes than on their own. The goal of a convergence on European establishment data can, at least in the near future, only be aimed at, if it remains a kind of 'side effect' – for example by providing better possibilities to measure the impact of ICT on establishments' labour demand.

A generally very helpful condition for raising awareness and support for establishment based labour market monitoring is the fact, *that scientists and academics* play an important role as experts in stakeholders' organisations. Also in the trade unions, we find scientists and science-oriented academics at least in the second row, standing directly behind the 'labour leaders'. This might be judged as a result of an intra-organisational selection of proper interview partners, but when we looked at the status of these individuals, we found that most of them aren't just scientific assistants but rather, persons belonging to the centre of power within their organisations. This seems to be a result of how the knowledge society has changed skill structures and power resources in political organisations. Having a 'say' in matters has a great deal to do with a combination of business knowledge and excellent networks.

If we leave the considered actors behind, we still can identify some major obstacles, which result from the specific structure of cross-national policymaking in Europe. There seems to be one problem in particular as to why the European supranational labour market organisations and authorities could not force the process of closing the gap more quickly, and it consists of two interconnected parts. The first one is the necessity of EU administrative action which comes close to legislation, for implementing (parts) of a statistical labour market monitoring system. This should not pose any real problems, as it has been dealt with by many European or overseas countries before. However, in certain cases even this may turn out to be a sizeable hindrance as was the case of the debate on the German census in 1984. If we leave the national level, the situation gets quite complicated because of the second reason. This is the well-known heterogeneity of interests, which is stabilised or even enforced by the specific federal structure of the European Community. In addition to the interest groups on the labour market – unions, employers' organisations and the government, we have the European nations, each of which have their own specific interests, standing alone or forming strategic alliances with others. This competition of nations not only affects the EU authorities, but the large interest groups on the labour market as well, where, to complicate matters even more, the leadership changes over every few years to another national state. Nation states in Europe are much stronger and quicker decision makers than the EU government.

The very nature of this structure inhibits and impedes the process of (rapid) change. One might argue that other parts of the world have the same problem, take for example the US which also has a federal structure. However, the US has had some two hundred years to negotiate the centrality-decentrality problem of government whereas the EU is only just beginning the negotiations. Also, the US has for more than a century now established its identity much more in terms of a nation-state whereas the EU primarily identifies with the status of a federation of nation states.

6.3 Official top-down implementation or bottom-up convergence: two approaches and their chances for success

One way to get closer to a European establishment monitoring system would surely be to initiate efforts towards creating the basis for an official establishment census/survey system, similar to the existing household or labour force surveys. However, this is a procedure that leans towards legislative action. In such a case based on legal prescriptions, Eurostat could develop

a kind of establishment census or survey, similar to those in Canada and the United States,⁹ allowing for the linkage of yearly data to a longitudinal data set, and possibly even allowing for a connection to employee surveys. But, as previously stated, legislative or any other official action is considered to be a long and tedious route. Another possibility would be a convergence of existing establishment surveys on national levels, similar to the aims of the STILE project, by means of comparing methods and contents, by offering solutions to special questions, by exposing the results to scientific debate, and by intensifying the relations between science and stakeholders. This method of working is similar to that of an ant where lots of little steps lead to convergence, in this case, of establishment monitoring from the bottom up. It seems that nearly everything which had been done in respect of this so far, and any success which has been reached until now, is in fact a result of this 'convergence from the bottom up' strategy. And, if we take Weick's (1969) model for organisational change into account, following existing paths to a certain aim is easier and more rational than building completely new ones.

Nevertheless, this strategy faces its own difficulties. Firstly, by bringing together various existing establishment surveys from all over Europe, one is confronted with many different concepts, definitions, sampling procedures, methods, and research questions. Making them visible and therefore operable for comparison was the first aim of the STILE Workpackage 4. This of course, was just a first step towards the solution for the *problem of integration*. Offering a public-use survey module is in fact preparing for a second step, which could be taken if the module is implemented by other researchers in enterprise surveys.

Secondly, as long as there is no 'official' European establishment survey, all establishment research efforts are periodically threatened by the danger of extinction if they do not manage to change and adapt to new themes and subjects in the rhythm of funding cycles and research programmes. This is not so much a problem for research trying to find mid-range answers to present-day questions. But there is a persistent or only slowly changing common structure underlying the European economy and labour market, consisting of socio-economic change from agriculture or manufacturing to services, which also means a change in skills and work culture, demographic changes, technical progress leading to changes in labour structure and demand, and social integration. These underlying structural changes give birth to the current labour market problems of yesterday, today, and tomorrow – be they unemployment, ICT or the ageing labour force. We have the chance to get a wider research perspective and better explanations for our present-day problems if we accept, that those underlying persistent questions require persistent research with longitudinal options, including current themes but not exclusively focusing on them. In the case of labour force or household research at the EU level, consistent research activities have been established during the recent years. But in the case of establishment research, a solution for the *problem of continuity* is still far away, its shape quite unclear – and the question remains, how and to what extent the strategy of 'convergence from the bottom up' can contribute.

At this point, coming to the end of both this report and STILE Workpackage 4, it seems worthwhile to consider just what such a solution to the problems of integration and continuity of establishment research could look like. Reaching a state of more continuity is first and foremost a problem of adequate *funding*. As empirical examples show, there are two ways to solve this. The first one is to establish an official European establishment panel survey by action of the EU authorities. This solution however, appears to be one for the later rather than the near future. If official implementation at the highest level is not currently possible, and we are acting presently at the lower levels of national establishment surveys and a beginning punctual cross-national integration, we should probably look for an intermediate level of action.

Maybe a possible solution would be to bring all or many interest groups together for funding a kind of 'non-official' establishment panel survey. This method of co-operation has been taken by at least two big national panel surveys (Germany and the Netherlands), each existing

⁹ Statistics Canada succeeded in merging the incredible amount of more than 200 sector-wide establishment surveys to a unified establishment survey. The United States Bureau of the Census recently managed to build a longitudinal database from various establishment surveys, of which the Annual Survey of Manufacturers and the 5-years Census of Manufacturers are the oldest, existing since about 1972, though limited to the manufacturing industry. Even the Peoples Republic of China is presently busy with its first agricultural census, counting not people but units of production, and a first establishment census is intended to follow, replacing the old sector report system.

for more than ten years now. Possible partners would not only be researchers and research institutes, but also labour market organisations, research foundations and government authorities. One may argue that by doing this at the EU-level, a conflict of interests could develop which might never produce any results. There may of course be some validity in this argument, but two things should be considered. The first is, what could be called the 'crowded house' effect, which simply states that the more people are inside the shop, the more want to get in. In this manner, if a group of important key partners in science and among the stakeholders could be mobilised, the others would follow simply through their own interest. Second, the diversity of interests could be limited by a consistent pre-structuralisation of the discussion, done by experts, as well as a set of measures like a de-coupling of problem solving and bargaining procedures could simplify negotiations. Scientists are bound to play a key role in those proceedings as translators, problem solvers and access persons, because their internal diversity of interests seems to be the lowest of all possible groups involved, and scientific networks are obviously not limited to scientific institutions but have the potential to enlarge their networks more and more to stakeholders' organisations, changing their character from a pure scientists' network to a science, knowledge and application network. In the following chapter, we will try to transform this idea into a preliminary *strategic action plan*.

Before we do that, we should move to the other problem of a convergence of cross-national establishment surveying, the issue we called the 'integration problem'. There is some evident intercorrelation between the continuity problem and the integration problem, namely: ensuring continuity is only possible by raising the degree of integration, otherwise it would not make sense, because anyone involved in the continuation would want to see progress in bringing all the pieces a bit closer together as a kind of 'return on investment'. But the present day patchwork of organisation surveys in Europe is a strong precondition which makes it quite impossible to establish a whole new survey alongside the existing ones, which - in the worst but very likely case - includes the same (larger) establishments a second time. This creates the necessity to integrate the *existing* national establishment surveys more comprehensively, which is a procedure that might cause conflict with national stakeholders' interests. There are two ways around this problem, both of which should be followed. The first one is to invite important national stakeholders to participate in an upcoming European establishment panel support group. The second one is to enhance standardisation efforts on the existing establishment panel surveys. One good step is to support the existing efforts by suggesting themes of current common interests to be implemented as questioning modules for those parts of labour-market oriented establishment surveys which are permanently used for providing basic information. We can presuppose wide overlaps and suspect relatively easy negotiations, due to the large extent of 'non-intended' analogies which are already existing.

We hope, that the activities and outcomes of STILE Workpackage 4 will not only demonstrate the state of cross-national establishment research on ICT and the labour market, but also shed some new light on the potentials and possible paths towards the future development of European establishment-level research, which shall help not only to close the 'meso-gap' of European labour market statistics, but also to provide substantial information needed by European policymakers to enable them to take up the challenge of socio-economic change at the beginning of the 21st century.

Chapter 7

Strategic action plan

The aim of STILE Workpackage 4 was not only to produce information on the present state and obstacles and chances for further development of an establishment based monitoring system on ICT and the labour market. The results should also be leading into a plan of suggestions for practical activities towards a further convergence.

Drawing together what we pointed out in the stakeholders' needs investigation and in the conclusions chapter, further strategies should follow five paths:

- 1) Raising the degree of information on results and possibilities of establishment panel research, mainly with regard to current themes among stakeholders, policymakers and to those parts of the scientific community, being interested in labour market research but being more peripheric to establishment panel research.
- 2) Enhancing practicable offers to labour market researchers all over Europe to use standardised and 'converged' modules and instruments for their own purpose in questioning establishments. Not only, if ICT problems are concerned, but also for basic labour market questioning.
- 3) Intensifying scientific debates and enhancing especially multi-disciplinary scientific networks on labour market research, be it on methods or themes.
- 4) Intensifying and enhancing contacts to stakeholders' organisations, to develop a better interface between research and application with the aim to include them more intensively into the existing or newly developing networks, once becoming able to build more persistent structures which can be used for practical support.
- 5) Following 4, building a participants, funders, users and supporters group, which enforces the negotiations for further convergence, maybe even leading to a 'unified' main section of the existing establishment panel surveys.

According to this, a range of measures would have to be taken, ranging from next steps for the coming years, to steps which can be expected only in a longer run – the latter necessarily having to stay more indefinite at present.

- 1) *Dissemination* of the STILE Workpackage 4 results to scientific institutions and stakeholders' organisations, on the one hand by *maintaining the website* for a period of several years, on the other hand by *means of publications, workshops and conferences*. All those means should bear in mind not to stay limited to scientific media and contacts in the narrow sense, *but to include media as well as experts and scientists from stakeholders' organisations*. Suitable negotiations with stakeholder organisations have been taken up by the Workpackage 4 lead partner.
- 2) Taking the chance provided by the dissemination activities *to raise the degree of information, and to collect support* for further activities, maybe concerning still the ICT subjects, for example cross-examining the national-level results on ICT impact on establishments' labour demand, maybe enhancing the thematic field.
- 3) *Developing plans and raise funds* for further *theme-related cross-national research*, using and creating establishment panel data, and herewith, as an intended side-effect, *enhance knowledge and discussions on the relevant methods and instruments*.

- 4) All those activities should lead to the *emergence of a multi-disciplinary network of researchers and stakeholders*, out of which a core supporters group could possibly form itself. This network should include researchers from all kinds of interested institutions, be it data users or data producers, stakeholders' experts from unions, employers federations, labour market authorities from EU member states and the EC authorities. The means for that would be a set of smaller and larger co-operation and comparison projects, conferences and workshops
- 5) When the discussions and activities may once reach a certain state of intensity, a first '*standardisation workshop*' could take place, preparing or making a step from just offering standardised modules to a self-obligation of participants to use them in their surveys, maybe firstly to conduct a common project, later on to converge the surveys with respect to longer duration.
- 6) There would have to be a *certain division of work* between *holding big results conferences* with all interested groups, *smaller funders and supporters conferences* (participants and stakeholders) and *quite small 'fine-tune' and working conferences* for those who in fact conduct the surveys.
- 7) One of the last steps presently suggestable would *be establishing a stable cross-national supporters group*, having a *core unit* promoting and co-ordinating the further convergence of European establishment panel research from project to project, or maybe even with a kind of constant funding. Experiences on national level show, that there may even be some fluctuation not doing any harm to the structure, as long as the nucleus is persistently working.

Attachments

8.1 List of Workpackage 4 documents and deliverables

- D4.1 *Is ICT transforming the world of work, and how to know about it*, edited by Rik Huys, Geert Van Hootegem, Seth Maenen and Monique Ramioul in September 2002, consists of three parts: the inventory report (M4.1), a subsequent analysis of blind spots in current ICT- and establishment-level labour market research, and the questioning module developed out of this (M4.4).
- D4.2 *The Interactive Survey Website and Digital Toolkit* (M4.2), by Amelia Román and Peter Ester, available on the website www.stile.be.
- D4.3 *Towards convergence? Current state and future ways of establishment based ICT- and labour market monitoring in Europe*, edited by Lutz Bellmann and Markus Promberger, is the Workpackage 4 final report, containing summaries of M4.1, M4.2, D4.1, D4.2 and the full versions of M4.3 (study of stakeholders needs) and M4.5 (strategic action plan).

8.2 List of Workpackage 4 participant institutions and researchers

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