

ICTs and the Adaptability of Work Arrangements in the EU – Update 2002

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ABSTRACT

ICT-enabled new ways of working are in general associated with increases in flexibility, and as such are central to the European Employment Strategy. This paper compares the progress individual EU Member States have made with regard to the diffusion of flexibility on labour markets. In order to do so, the authors set up an index model that is in line with the key policy objectives of the European Community, which means using a radically different approach as compared to existing labour market flexibility indices such as the one developed by the OECD. The AWAI (Adaptability of Work Arrangements Index) consists of two elements: one subindex measuring worker-centred flexibility and another one measuring company-centred flexibility. Using a preliminary selection of variables (which is based on a theoretical framework conceptualising the nature of developments in work organisation) for calculation of both of these components, the authors calculated AWAI scores for each of 10 EU Member States. Comparing the results for both sub-indices shows that there are marked differences between both rankings, with some countries performing well in one subindex and below-average in the other. The paper aims to contribute to the development of a more differentiated view on how to measure flexibility of labour markets. It is here presented in an updated version using the latest available data at the end of 2002.

1. INTRODUCTION

A central strain of discussion on the Information Society concerns the way in which the organisation of work changes as a result of, or in interrelation with, the implementation of new information and communication technologies (ICTs). In a paper published in 2000, we outlined a first sketch of what they called the *AWAI - Adaptability of Work Arrangements Index* (Korte and Gareis 2001). This index was an attempt to quantify the dimensions of change in work organisation in EU Member States in order to enable comparison and benchmarking between countries. We compiled existing statistical indicators based on a theoretical framework of change in work arrangements, and then aggregated the data into a first version of a compound indicator (index).

The main rationale behind suggesting a new index was dissatisfaction with existing indicators that are used to measure flexibility of labour markets. Many of these are developed by economists and traditionally equal flexibility with employment protection legislation. An example is the OECD Labour Market Flexibility Index (Scarpetta et al. 2000). In our opinion, flexibility indicators like this which exclude worker-centred flexibility are at odds with many of the prevailing key objectives of EU and national policy making, namely the search for types of flexibility that benefit both employers and workers, and should therefore not be used as policy measurement tools.

What we were missing, in particular, was an indicator that represents the objectives laid down by the European Commission in the European Employment Strategy (CEC 2001a). According to this strategy the aim of employment policy should not be to only increase flexibility in labour markets, but to also aim at a high level of security and quality of work. The latter is believed to be the only way to ensure that IT-enabled changes in work arrangements are socially sustainable. For this reason, the Commission has started to use the term 'adaptability' as a policy goal rather than 'flexibility'. Boeri and Garibaldi (2000: 1) see as a main aspect of the concept of adaptability the "ability of a labour market to provide protection against uninsurable labour market risk". This risk is born either by workers, or by employers/companies, or by both. That means that both demand and supply sides of the labour market have to be mapped by the index which is to be developed.

Against this background, the suggested AWAI index aimed at the inclusion of indicators that measure worker-centred flexibility, e.g. teleworking, discretion over working times and weekly working hours and company-provided training. In the months since it was first presented in September 2001, we have discussed the approach with experts in indicator research as well as policy makers at the European Commission and nation state level. In the course of these discussions it became apparent that combining the two main aspects of flexibility in work arrangements, namely worker-centred and employer-centred flexibility, in one index may imply an undue degree of aggregation, and causes problems when comparing index results between countries. For this reason, this paper describes an update of the index model which is now made up of two separate indices for worker-centred and employer-centred flexibility, which taken together indicate adaptability of work arrangements in the labour markets of the EU. Comparing the country results of these indices against each other may give interesting insights into the relative importance of types of flexibility, i.e. the distribution of flexibility between workers and employers, in a given country.

2. A FRAMEWORK FOR INDEX DEVELOPMENT

This section elaborates on the different dimensions of change in the organisation of work, resulting in a framework that can act as the conceptual foundation for statistical measurement and benchmarking.

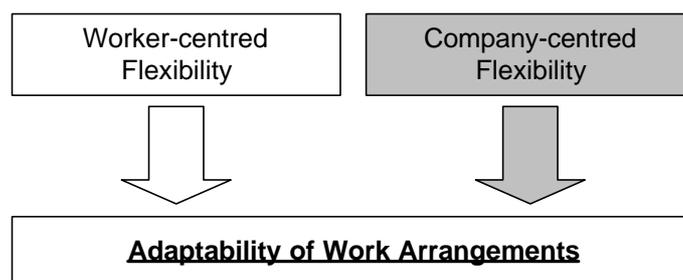
Most researchers agree that, although change tends to be gradual by nature, two distinct periods can be differentiated with regard to dominating social concepts of work in recent times. The first is the post-

WWII period of relative stability, the second is the period of economic restructuring that began in the first half of the 1970s, with an additional push in intensity in the 1980s and 1990s enabled by ICTs. Both periods were/are accompanied by what we want to call a work paradigm, i.e. a consensus about how work had to be ‘properly’ organised and supported by the socio-political framework.

At the core of the work paradigm which dominated the second half of the 20th century is what is called the ‘regular employment relationship’, typical elements of which are full-time, permanent jobs with a contract of employment, even and stable distribution of working hours over a fixed number of days per week, and long job tenures. The transition to the recent paradigm is believed to be characterised by developments toward greater flexibility of labour deployment. A changing economic environment together with shifts in social attitudes and the widespread application of ICTs have contributed to greater spatial, contractual and temporal flexibility, shifts towards more self-provided social security provision, the need for multi-tasking and significantly more dynamic (social) skill developments (Büssing and Glaser 1998).

However, although there is much evidence for a significant change in the work domain which may justify to speak of a paradigm shift, there is a danger present in the discussion about flexibility trends: This danger stems from oversimplification and inadequate generalisation of developments. All divergences from ‘regular employment relationships’ are treated much as being made from the same cloth. In reality, we may observe a number of diverse and possibly contradictory developments (Gareis 2001). In economic theory, a more flexible workforce means that labour can be better allocated according to where (and when) it can be used most productively. However, the term flexibility is problematic because it is understood differently in different contexts and by different people. Along somewhat similar lines, we have to take into account that the issue of flexibility always contains the question of how flexibility is distributed between the supply and demand side of the labour process. For this reason, we in this paper distinguish between *worker-centred* and *company-centred flexibility*, with some forms of flexibility falling between both extremes (compare Atkinson 1984).

The question of the distribution of flexibility is essential for judging what types of flexibility will be introduced in which parts of the labour market. High-qualified workers with skills that are in high demand on the labour market will, in general, be in a better position to ask for worker-centred flexibility, while the opposite is the case for less qualified workers. In this paper, we refer to the combination of both kinds of flexibility as ‘adaptability of work arrangements’.



The changes affecting work organisation can be further conceptualised by looking at its four basic dimensions (compare Hoffmann and Walwei 1999; Gareis 2001):

- working time;
- working place(s);
- type of contract;
- work content (applied skills).

Table 1 shows what increases in flexibility mean with regard to each of these dimensions, and distinguishes between worker-centred and company-centred developments.

Table 1. Types of increases in flexibility of work arrangements

Dimension: Time	
<p><u>Worker-centred:</u> More freedom to choose working times attuned to personal preferences and family requirements. <u>Role of ICTs:</u> <i>Coordination between co-workers made easier via powerful asynchronous communication media and computer-supported collaborative work technologies.</i></p>	<p><u>Company-centred:</u> Bringing supply of human capital in line with the temporal requirements following from business, e.g. times of customer demand, machine running times, optimal utilisation of capital invested. <u>Role of ICTs:</u> <i>See left-hand side.</i> <i>Utilisation of work products being produced in other time zones made possible using computer networks.</i></p>
Dimension: Space	
<p><u>Worker-centred:</u> More freedom to choose work location(s) attuned to personal preferences and family requirements. <u>Role of ICTs:</u> <i>Computer networks enable collaboration regardless of distance.</i> <i>Digitisation of work inputs and outputs enable these to be transferred via ICTs instead of physical transport.</i></p>	<p><u>Company-centred:</u> More easily changeable configurations of human capital without actually moving people from one place to the other. Bringing workers closer to the market (customers) without shutting them out from company-internal communication flows. <u>Role of ICTs:</u> <i>Same as left-hand side.</i></p>
Dimension: Contract	
<p><u>Worker-centred:</u> Choice in available job options, including option to stay at the current employer. Being able to choose different types of work contracts (e.g. employed work, self-employment) without the choice affecting social security provision and other main benefits from employment. <u>Role of ICTs:</u> <i>Establishment of electronic markets make work as freelancer technically easier.</i> <i>Maintaining contact with clients and collaborators in spite of geographical distance made easier.</i></p>	<p><u>Company-centred:</u> More freedom in adapting human capital resources to the requirements following from business, in particular fluctuations (quantitative) and changes (qualitative) in demand; changes in the regulatory environment, etc. More freedom to sack unwanted staff and more possibilities to find the skills needed on the labour market. <u>Role of ICTs:</u> <i>Integration of freelancers made easier through computer-supported collaborative work and telework.</i> <i>Improvement in the efficiency of the recruitment process through electronic work exchanges.</i></p>
Dimension: Content (Applied skills)	
<p><u>Worker-centred:</u> Broader and constantly updated skill endowment to make it possible to work in greater variety of work contexts. Job enrichment and job enlargement. Participation in decision making, in particular with regard to change management. <u>Role of ICTs:</u> <i>Rapid development in application of ICTs speeds up the skill life cycle, making continuous learning more important than ever.</i> <i>e-learning makes access to learning material and training offers easier.</i></p>	<p><u>Company-centred:</u> Broader and constantly updated skills mix in staff to be able to adapt quickly and accurately to variations in demand that follows from business. Handing responsibility over the achievement of work targets to workers (Management by objectives). <u>Role of ICTs:</u> <i>e-learning technologies make training workers easier and cheaper.</i> <i>HR management systems make managing skills in the staff easier.</i> <i>Workflow systems make management by objectives easier.</i></p>

3. DATA SOURCE AND SELECTION OF COMPONENTS

Based on the framework outlined in the previous section, we selected the component statistics listed in Table 2 to construct the revised AWAI Index. In the following we will briefly discuss each of these components.

Table 2. Indicators for measuring adaptability of work arrangements (AWAI)

Dimension	Indicator (source) ¹	
	<i>Worker-centred flexibility</i>	<i>Company-centred flexibility</i>
Time	Voluntary part-time working (LFS)	Part-time working (LFS)
Time	Discretion over working time in job (SIBIS)	Workers with atypical working times (evening, night, weekend work and working long hours) (ESWCs)
Place	Home-based teleworking (SIBIS)	Tele-cooperation (SIBIS)
Place	Telework feasibility (SIBIS)	Mobile teleworking (SIBIS)
Contract	Self-reported job security (SIBIS)	Employment Protection Legislation Indicator (OECD)
Contract	Average job tenure (OECD/LFS)	Workers with temporary work contracts (excluding voluntary and contracts for training) (LFS)
Content	Participating in work-related training (lifelong learning) (SIBIS 2002)	Enterprises offering training (CVTS 2000)
Content	Participation in decision-making concerning changes at workplace (ESWCs)	Management by objectives (ESWCs)

Dimension: Time

Flexitime, part-time work and credit time arrangements are only three examples of a declared general move away from stability in working times (the so-called 9-to-5 job) towards models that are supposed to be more in line with the requirements of business in increasingly volatile markets, as well as the personal preferences of employees. Flexibility in this regard can take the basic forms of:

- more flexible choice of regular working time per day, month, year, etc.;
- more flexible choice of the distribution of working hours across daytime, week, months, etc.;
- greater working time variability (which might be attuned to the demands of business, e.g. shift work, or to the preferences of workers, e.g. flexitime).

Part-time working is in general considered to be one of the most visible of developments towards greater flexibility in working arrangements (CEC 2000: 29-42). The specification of the hours worked may originate in preferences of the worker, the company, or both depending on the overall labour market situation (e.g. unemployment rates) and business imperatives. Government such as in the Netherlands have developed a strategy of promoting part-time working with the attempt to reduce unemployment rates and offer work opportunities to those not able to work full-time (especially women). In contrast, some Nordic countries such as Sweden and Denmark have explicitly sought to convert part-time jobs into full-time jobs as a means of gender mainstreaming (Hoffmann and Walwei 2000).

¹ LFS = Community Labour Force Survey (quarterly); ECaTT = Benchmarking Progress on Electronic Commerce and New Methods of Work (1999); ESWCs = European Survey on Working Conditions (1990; 1995; 2000); ISSP = International Social Survey Programme (annual)

Table 3. Part-time work in Europe

	Part-time workers as % of total employment (2001)	Share of involuntary as % of all part-time workers (2000)	Voluntary part-time workers as % of total employment (2000)
Austria	17.6	10.7	15.2
Belgium	18.2	22.2	16.1
Denmark	20.2	13.6	18.7
Finland	12.2	34.7	8.0
France	16.4	26.8	12.4
Germany	20.3	12.0	17.1
Greece	4.0	43.7	2.6
Ireland	16.5	16.2	14.1
Italy	8.4	35.6	5.7
Luxembourg	10.3	7.2	10.5
Netherlands	42.2	3.5	39.8
Portugal	10.8	23.5	8.2
Spain	8.1	22.8	6.3
Sweden	24.1	23.2	17.5
U.K.	24.9	9.7	22.5

Data: Community Labour Force Survey 2000/2001

Source: Eurostat 2001, 2002; own calculations

This shows that, from a worker-centred point of view, caution should be taken before interpreting high levels of part-time work as a sign of labour market adaptability as it can be a sign for the incapability of an economy to provide enough full-time jobs. In fact, the majority of EU workers consider the level of job security to be lower in part-time in comparison to full-time arrangements (Gasparini 2000). For this reason, a more accurate indicator of worker-centred flexibility would be the rate of *voluntary* part-time work. From the company-centred view, *every* part-time worker increases the supply of workers willing to work flexible hours, so the appropriate indicator here is the share of all part-time workers in a national workforce. The Community Labour Force Survey questionnaire (Eurostat 2001) includes questions on the reason for part-time work, which can be used to calculate the share of voluntary part-time workers in EU countries (see Table 3). The Netherlands are far ahead with 40% of the labour being voluntary part-time workers, followed by the UK, Denmark and Sweden. On the other extreme we find countries like Italy and Spain with roughly 6% voluntary part-time workers, and Greece with barely 3%.

Apart from part-time jobs, companies show much interest in *non-typical working times* to get working hours in line with production and service schedules. While traditional shift-working in manufacturing is declining (in absolute numbers) together with the decreasing workforce employed in these sectors, it is being extended to sectors where it has been non-existent previously (Brewster et al. 1997). Workers who are deployed at the front-office, i.e. have direct contact with customers, are the first to be exposed to the requirements resulting from extended opening hours and 24 hours a day, 7 days a week customer service strategies. In Sweden and Finland, which are among the EU Member States with the highest share of employment in the service sector, there are already more women than men engaged in shift-work. Indeed, workers with "atypical working times"² (the indicator chosen for inclusion in the AWAI) constitute already the majority in all EU Member States.

From workers' viewpoint, the other major aspect of time flexibility is *discretion over working time*, i.e. the extent of discretion over working times. The most prominent model involves a core daily working

² Working at least once a month at night, on a Sunday or Saturday; or at least once a week more than 10 hours per day or at least 2 hours between 10pm and 5am.

time, around which individual working hours can be arranged according to individual or company requirements. More advanced models have shed the core working time altogether. Flexitime models, like part-time working, are supported by ICTs through improvements in management and monitoring technology, and more powerful asynchronous communication media such as e-mail and voice mail which have liberated routine communication and workflow in organisations from the dependence on face-to-face interaction (and, by implication, fixed working times). Discretion over start/finish of working day was selected as indicator because other models (such as freedom to choose days worked per week or months worked per year) are much less widespread.

Table 4. Discretion over working time and atypical working times in Europe

	Discretion over changes in start/finish of working times, as % of total in paid work* (2002)	Workers with atypical working times as % of total employment** ³ (2000)
Austria	41.8	60.1
Belgium	46.1	59.0
Denmark	45.2	52.8
Finland	54.1	63.6
France	44.9	62.8
Germany	52.8	56.4
Greece	44.9	79.8
Ireland	38.9	63.8
Italy	52.8	69.9
Luxembourg	40.9	56.2
Netherlands	51.3	54.0
Portugal	34.4	56.3
Spain	32.5	75.3
Sweden	57.7	54.9
U.K.	54.6	64.7

Data: * empirica SIBIS 2002; ** ESCWs 2000

Source: empirica 2002

A representative survey in 15 EU countries (SIBIS 2003) found that 58% of Swedish workers have this sort of discretion over working times, compared to 33% in Spain and 34% in Portugal (see Table 4).

Dimension: Place

The distance-bridging properties of ICTs increase the 'spatial flexibility' of companies as well as workers: Technically it becomes possible to choose locations for work processes more freely. The location of work becomes variable in the short term, whereas it was practically fixed in the short and medium term before. This makes them more adaptable to changes in their environment. To varying degrees, companies have made use of this new freedom to change the geography of work, while workers demand to work where they want to as the need for co-location appears to be gradually diminishing. One practical outcome of increased locational flexibility at the level of the individual work arrangement is telework, which can take different forms: home-based (in the home of the worker), mobile (on business trips or in the field) or, much more seldom in practice, centre-based (in a centre

³ Working at least once a month at night, on a Sunday or Saturday; or at least once a week more than 10 hours per day or at least 2 hours between 10pm and 5am.

which is located to save commuting time). Another is tele-cooperation, i.e. ICT-enabled collaboration between workers who are located at different working sites.

Home-based telework is today implemented mostly in a worker-centred way (CEC 2001b), in particular with the aim to improve the compatibility of work and family life and to keep highly productive knowledge workers happy. It is therefore selected here as an indicator for worker-centred flexibility. The range of telework penetration across European countries is enormous with Portugal, Spain, Italy and Luxemburg finding themselves at the tail end with less than four 4% of total employment working as home-based teleworkers, and the Netherlands at the top end with more than 20 % (see Table 5). As telework is still not very widespread in the EU yet but believed to have a considerable potential (Empirica 2000a), an additional indicator included in the AWAI is the (perceived) *feasibility of jobs for home-based telework* which represents the share of the workforce which could in principle, in their current job, telework from home at least one day per week. The inclusion of telework feasibility ensures that not only the current state, but also the potential for further diffusion of home-based telework in a country is taken into account.

Mobile telework, on the other hand, is mostly implemented on the initiative of the company with the aim to move workers closer to customers (Gareis and Kordey 1999). The increase in the number of mobile workers is due to sales staff (and other employees who traditionally work in the field) being equipped with remote access technology, and also due to rising numbers of office workers who spend a high share of their working time on business trips for the purpose of meeting co-operating partners. Mobile telework is most wide-spread in Finland and Germany (6% of the workforce) and least often to be found in Portugal, Spain and Luxemburg with shares of less than 2% (see Table 5).

Table 5. Telework in Europe

	Home-based teleworkers (in % of total in paid work)	Mobile teleworkers (in % of total in paid work)	Job Feasibility for home-based telework (in % of total in paid work)
Austria	6.7	3.7	32.3
Belgium	7.5	2.4	32.7
Denmark	17.7	2.7	28.5
Finland	15.7	6.2	37.6
France	4.4	2.1	23.6
Germany	7.9	5.7	37.0
Greece	6.0	3.5	21.2
Ireland	6.0	4.2	27.6
Italy	2.5	5.5	34.6
Luxembourg	3.3	1.5	28.9
Netherlands	20.6	4.1	40.1
Portugal	1.6	0.3	13.1
Spain	2.3	0.8	22.0
Sweden	14.9	4.9	31.6
U.K.	10.9	4.7	31.9

Data: SIBIS 2002

Source: empirica 2002

Mobile telework, chosen here as an indicator for company-centred spatial flexibility, has together with *tele-cooperation* become the common working mode for an increasing share of workers. Tele-cooperation is sometimes also called ‘in situ telework’, because, although workers appear to be co-located in central office buildings, in fact they are often working closely together with project partners at far away locations. Evidence suggests that tele-cooperation has boosted worker productivity and innovative performance throughout the EU economy by allowing flexible configurations of human capital without actually moving people from one place to the other (Reichwald et al. 1998).

Tele-cooperation is already widely in use in Europe (see Table 6) with an average of 38% of EU workers practising it. In Finland, Denmark and Sweden more than 50% of workers tele-cooperate at least occasionally. Again we can observe a north-south divide in Europe with Portugal (10%), Greece (13%), Spain (21%) and France (26%) at the tail end. Data for all of these variables comes from the 2002 SIBIS survey conducted in all EU Member States.

Table 6. Tele-cooperation in Europe (2002)

	Workers who tele-cooperate as % of total in paid work
Austria	36.1
Belgium	37.5
Denmark	56.0
Finland	55.4
France	25.8
Germany	45.7
Greece	12.6
Ireland	37.1
Italy	35.2
Luxembourg	42.4
Netherlands	45.0
Portugal	9.8
Spain	21.1
Sweden	52.2
United Kingdom	49.1

Data: SIBIS 2002

Source: empirica 2002

Dimension: Contract

This dimension refers to the contract that underlies the relationship between worker and the organisation that utilises the work products, e.g. a contract of employment or a contractor/client-relationship that is based on self-employment. Differences in the duration of employment contracts affect average job tenure.

As the first indicator for the company-centred view of this dimension, we used the Employment Protection Legislation Indicator developed by the OECD. This indicator was developed to be able to compare the effect of regulatory labour market regimes between countries. Main ingredients are subindicators measuring procedural requirements for laying off workers; notice and severance pay; prevailing standards of and penalties for 'unfair' dismissals; 'objective' reasons under which a fixed-term contract could be offered; the maximum number of successive renewals of fixed-term contracts; and the maximum cumulated duration of a fixed-term contract (Nicoletti et al. 2000: 41). According to this indicator, countries such as the United Kingdom and Ireland, but also Denmark, are those with lowest levels of employment protection regulation while France, Italy and Spain provide the most stringent regimes (see Table 7).

One way for companies to deal with stringent labour market regimes is to look for alternative work arrangements that are not subject to the same regulation as regular employment relationships. One common example are fixed-term (temporary) contracts which companies use to bypass dismissal protection rules. We selected the share of workers with *temporary (fixed-term) work contracts* as an additional indicator for measuring the contract dimension in the AWAI index. For meaningful comparison between countries, the raw figures from the Community Labour Force Survey need to be adapted to account for so-called voluntary temporary workers, most of which are persons who hold contracts for

training (e.g. apprenticeships, vocational training). Involuntary temporary contracts are most widespread in Spain and least in Ireland (see Table 8).

Table 7. Employment protection legislation: OECD Indicator for 1998

	1998 ⁴
Denmark	1.5
Finland	2.1
France	3.1
Germany	2.8
Ireland	1.0
Italy	3.3
Netherlands	2.4
Spain	3.2
Sweden	2.4
United Kingdom	0.5
<i>Austria</i>	2.4
<i>Belgium</i>	2.1
<i>Greece</i>	3.5
<i>Luxembourg</i>	<i>no data</i>
<i>Portugal</i>	3.7

Data: OECD

Source: Nicoletti et al. 2000: 84

Table 8. Temporary and fixed-term work contracts

	Temporary employees in % of total employees	Voluntary and employees with contract for training as % of all temporary employees ⁵	Involuntary temporary employees in % of total employees
Denmark	10.2	57.4	4.3
Finland	17.7	36.5	11.2
France	15.0	11.8	13.2
Germany	12.7	48.0	6.6
Ireland	4.7	61.4	1.8
Italy	10.1	35.1	6.6
Netherlands	14.0	14.6	12.0
Spain	32.1	4.2	30.7
Sweden	14.7	22.0	11.5
U.K.	6.7	36.8	4.2
<i>Austria</i>	7.9	60.4	3.1
<i>Belgium</i>	9.0	19.1	7.3
<i>Greece</i>	13.1	8.9	11.9
<i>Luxembourg</i>	3.4	31.5	2.3
<i>Portugal</i>	20.4	41.4	12.0

Data: Community Labour Force Survey 2000

Source: Eurostat 2001; own calculations

The worker-centred perspective on the flexibility of a working arrangement is almost diametrically opposed to the company's view. While a permanent employment relationship might mean rigidity from the company's standpoint, it means - in the absence of forced labour - something completely different for the worker: the freedom to look out for an other appointment while enjoying the security which

⁴ The index value can be between 0 (low employment protection) and 6 (strong employment protection).

⁵ includes employees with contract for training

comes from holding a job. A worker-centred flexibility index must, therefore, include measures on job security to take account of the fact that flexibility in working arrangements is only recognised as such by workers if it is combined with some provision of safety.

For this reason, we included two measures of job security in the worker-centred AWAI sub-indicator. The newest data on the share of the workforce who perceive their job as secure available for all EU Member States stems from the SIBIS population survey. The share is close to 80% in the Netherlands and Sweden, and lowest in Greece, Portugal and the U.K. (see Table 9). The second indicator selected is the average job tenure. In country comparisons, a higher average job tenure indicates that workers have a higher likelihood of staying with the same employer than in other countries, which – on the level of the individual – was found to correlate positively with the perception of job quality (Clark 1998).

Table 9. Perceived job security and job tenure

	Share of all with contract of employment who have no concerns about whether their job is secure*	Average job tenure 1999**
Austria	71.1	10.6
Belgium	60.9	11.7
Denmark	73.5	8.5
Finland	63.8	10.1
France	70.8	11.2
Germany	57.1	10.3
Greece	26.5	13.3
Ireland	58.8	9.4
Italy	62.5	12.1
Luxembourg	55.2	10.9
Netherlands	78.9	9.6
Portugal	33.8	11.8
Spain	59.5	10.1
Sweden	77.1	11.5
U.K.	48.0	8.3

Data: *SIBIS 2002;

** OECD based on Community Labour Force Survey 1999

Source: empirica 2002; OECD 2001

Dimension: Content (applied skills)

The skills workers apply in the production process define the content of their work (and vice versa). Work content has been hugely affected, in particular, by the increasing ‘informatisation’ of work and by technological progress related to ICTs.

To identify adequate indicators for company-centred flexibility with regard to this dimension, a look at some trends in business theory and human resource management is helpful. The key message of many of these (e.g. business process re-engineering) is that companies have to abandon of activities that do not create any value for customers. As a consequence, successful companies have flattened organisational hierarchies so that more responsibility and decision power can be decentralised and handed over to the (groups of) individuals who are actually carrying out the work and who are much better acquainted with the needs of certain jobs. If such decentralisation is to be made to work, employees need to be trained continuously. This is also a logical consequence of the impact of ICTs which have shortened skill life cycles enormously. We chose “share of enterprises offering training”, as indicator representing the extent to which a country's companies are adapting to this challenge. For this data is provided by Eurostat's Continuing Vocational Training Survey (CVTS, see CEC 2002a). More than 90%

of Danish and Swedish enterprises offer training to their staff, while numbers are much smaller in the southern European countries (see Table 10).

Of course, continuous learning affects workers as well as companies, with the difference that workers must be concerned about their employability while companies must manage the skills in their staff to support the production process now and in future. The fact that skill requirements today change over shorter durations means that workers cannot rely on being able to market their skills once they have acquired them in their youth throughout their lifetime. Rather, they have to constantly adapt their skills to the demands of the labour market, i.e. practice 'lifelong learning' even while they are holding a job. Lifelong learning boosts employability and therefore provides workers with the flexibility of choice on the labour market. Available data on lifelong learning measures is scarce. For our purpose, the most adequate indicator is the share of the labour force (including the unemployed) who take part in education and training (including self-directed learning). Table 10 shows that differences between EU countries are striking: Whereas in the Nordic countries, roughly one in five persons aged 25 to 64 participates in lifelong learning activities in every given month, in France only 3% and in Greece only 1% benefit from such activities.

Table 10. Continuing training and 'lifelong learning' in Europe

	Percentage of labour force participating in work-related education and training*	Enterprises offering training (CVTS 2000)
Austria	54.1	72
Belgium	33.2	70
Denmark	45.2	96
Finland	59.9	82
France	23.9	76
Germany	58.4	75
Greece	19.4	18
Ireland	35	79
Italy	37.5	15
Luxembourg	52.8	71
Netherlands	46.5	88
Portugal	23.9	22
Spain	33.4	36
Sweden	47.1	91
United Kingdom	39.4	87

Data: * SIBIS 2002; ** CVTS 2000

Source: empirica 2002; Eurostat 2002

Decentralisation also means that management styles change: from the traditional "management by eyeball" to "management by objectives" techniques that rest on the monitoring of results instead of behaviour. No indicator on the spread of management by objectives in EU Member States is readily available. As a supplement, we constructed an indicator from variables included in the European Survey on Working Conditions (ESCWs)⁶. Only in the Netherlands and Denmark do more than 40% of the workforce have features which makes it possible to describe them as being managed by objectives (see Table 11).

⁶ Share of workforce who claim that they generally have to "meet precise quality standards, access themselves the quality of their own work", "solve unforeseen problems on their own" and are "able to choose or change their order of tasks, methods of work and speed or rate of work".

Table 11. Participation and Management by Objectives

	Share of workforce participating in decision-making concerning changes at the workplace (in %) ⁷	Share of workforce being "managed by objectives" (in %) ⁸
Denmark	77.5	44.1
Finland	76.3	30.3
France	63.4	31.3
Germany	59.3	24.9
Ireland	59.8	30.5
Italy	52.8	28.5
Netherlands	79.0	42.4
Spain	44.2	29.7
Sweden	69.9	24.8
United Kingdom	67.7	37.7
<i>Austria</i>	<i>59.9</i>	<i>33.6</i>
<i>Belgium</i>	<i>64.3</i>	<i>30.5</i>
<i>Greece</i>	<i>37.4</i>	<i>22.6</i>
<i>Luxembourg</i>	<i>61.4</i>	<i>23.7</i>
<i>Portugal</i>	<i>35.3</i>	<i>24.0</i>

Data: ESWCs 2000

Source: own calculations

The last indicator that went into the AWAI subindex on worker-centred flexibility is participation in decision making, again derived from data collected through the ESWCs⁹. Workers have an interest in keeping some degree of control over changes to their working conditions; otherwise flexibility is something imposed on them, potentially to their disadvantage. Participation in decision making is therefore a vital ingredient in an index that tries to present flexibility of working arrangements from the viewpoint of workers. It is quite common already in most Member States of the EU, with more than three quarters of Dutch, Finnish and Danish workers claiming they can discuss changes to the organisation of their work with their superiors, but only 44% in Spain and less than 40% in Greece and Portugal (see Table 11).

4. METHODOLOGY

The statistical variables outlined in the previous section were used to calculate a ranking of countries along each indicator. For the benefit of comparability we have converted original indicator values into standardised values with the country showing the highest value being assigned the benchmark value of 100 (see Tables in the next section). Each country was ranked according to its performance in each indicator. The values for each of the AWAI subindices were then calculated as the mean of these ranks, resulting in two AWAI subindex values, one representing worker-centred flexibility and the other company-centred flexibility. In this first approach, single indicators were not weighted. The country coverage included all 15 EU Member States.

⁷ Share of workforce who claim they are able to discuss with their superiors the organisation of their work when changes take place

⁸ Share of workforce who claim that they generally have to "meet precise quality standards, access themselves the quality of their own work", "solve unforeseen problems on their own" and are "able to choose or change their order of tasks, methods of work and speed or rate of work".

⁹ Share of workforce who claim they are able to discuss with their superiors the organisation of their work when changes take place

The approach described, while being very tentative, has the advantage of being based on data which is already available, and will be updated in regular intervals in the future. Results can necessarily only be preliminary, but we think that this second version of the AWAI Index is the best available compound measure on the development of ICT-related increases in labour market flexibility yet.

5. PRELIMINARY RESULTS

This section presents results from the calculation of the AWAI indices from the component.

Table 12 ranks countries according to their mean ranking in the eight variables representing worker-centred flexibility. The Netherlands, the benchmark with regard to voluntary part-time working, teleworking, job security and participation in decision-making, come out first, closely followed by the Nordic countries Sweden (the benchmark for discretion over working time) and Finland (the benchmark for participation in lifelong learning). Denmark, Germany, Belgium, Austria and the U.K. are all above average, while Ireland, Greece, Spain and Portugal clearly lag behind.

Table 12. AWAI values - Subindex on worker-centred flexibility

Dimension	TIME		PLACE		CONTRACT		CONTENT		AWAI Worker-centred Flexibility Index ¹⁰	Country rank
	Voluntary part-time working	Discretion over working time	Home-based teleworking	Job feasibility for tele-work	Perceived job security	Job tenure	Participation in decision making	Lifelong learning		
Netherlands	100	89	100	100	100	72	100	78	11.38	1
Sweden	44	100	72	79	98	86	88	79	10.88	2
Finland	20	94	76	94	81	76	97	100	10.00	3
Denmark	47	78	86	71	93	64	98	75	8.88	4
Germany	43	92	38	92	72	77	75	97	8.63	5
Belgium	41	80	36	82	77	88	81	55	8.13	6
Austria	38	72	33	81	90	80	76	90	8.00	7
U.K.	57	95	53	80	61	62	86	66	7.88	8
Italy	14	92	12	86	79	91	67	63	6.88	9
France	31	78	21	59	90	84	80	40	6.00	10
Luxembourg	26	71	16	72	70	82	78	88	5.75	11
Ireland	35	67	29	69	75	71	76	58	4.50	12
Greece	7	78	29	53	34	100	47	32	3.50	13
Spain	16	56	11	55	75	76	56	56	2.75	14
Portugal	21	60	8	33	43	89	45	40	2.50	15

Table 13 ranks countries according to their mean ranking in the eight variables representing company-centred flexibility. Here, the country sequence is somewhat different. The U.K. ranks best together

¹⁰ Inverse average rank of 8 benchmarked variables

with Sweden and the Netherlands, followed by Finland and Denmark. Germany and Belgium perform somewhat worse compared to the worker-centred subindex. The laggard countries also include Luxembourg.

Table 13. AWAI values - Subindex on company-centred flexibility

Dimension	TIME		PLACE		CONTRACT		CONTENT		AWAI Company-centred Flexibility Index ¹¹	Country rank
	Part-time working	Atypical working hours	Mobile teleworking	Tele-Cooperation	Employment Protection in Legislation	Involuntary temporary workers	Management by Objectives	Employee training provided by company		
U.K.	59	81	76	88	100	14	75	91	10.50	1
Sweden	57	69	79	93	58	37	80	95	9.88	2
Netherlands	100	68	66	80	58	39	100	92	9.63	3
Finland	29	80	100	99	64	37	66	85	9.25	4
Denmark	48	66	44	100	78	14	98	100	9.00	5
Germany	48	71	92	82	49	21	62	78	7.38	6
Belgium	43	74	39	67	64	24	74	73	7.25	7
Ireland	39	80	68	66	89	6	66	82	7.13	8
France	39	79	34	46	42	43	72	79	6.75	9
Austria	42	75	60	64	58	10	68	75	6.38	10
Italy	20	88	89	63	38	21	66	16	5.38	11
Spain	19	94	13	38	40	100	66	38	5.38	11
Greece	9	100	56	23	33	39	57	19	4.25	13
Luxembourg	24	70	24	76	64	8	53	74	3.88	14
Portugal	26	71	5	18	29	39	67	23	3.63	15

Comparing the results for both subindices, some differences strike the eye. Some countries, such as the U.K. and Ireland, get as higher score on the company-centred index than on the worker-centred index. In these EU Member States, flexibility on labour markets seems to benefit mainly employers. On the other hand there are countries like Austria, Italy and Luxembourg, flexibility on labour markets seems to be distributed in favour of workers, while companies may be in need of a more flexible regulatory environment (or, one has to add, make better use of the potential for flexibility that is already existing).

The Nordic countries and the Netherlands stand out as scoring high in both indices. These Member States seem to come closest to reaching the aims of the European Employment Policy. At the other end of the ranking order, Spain, Greece and Portugal, in particular, still seem to have a long way to go before they reach at least EU average levels of labour market flexibility and adaptability.

¹¹ Inverse average rank of 8 benchmarked variables

6. OUTLOOK

The nature of the research effort implies that these results are still preliminary and depend to a large extent on the selection of component statistics. The choice regarding which variables (data) to include should be based on a public discussion encompassing as many of the major stakeholder groups as possible. Following the publication of the original model and the results of a first tentative calculation of the AWAI (Korte and Gareis 2001), we have been involved in extensive discussions with various experts and policy-makers about the approach and workings of the AWAI model. The modification of the model and the selection of component indicators, presented in this paper, are an outcome of that discussion. Nonetheless, the debate has to continue.

The analysis is also still hampered by problems of availability of data. There is a continuing need for more expressive indicators, for instance, on the ‘contract’ dimension. The European Commission has started projects that will contribute to the effort by developing and testing an appropriate set of new statistical indicators¹².

In spite of these reservations, we think that the AWAI as described in this paper is the most successful attempt yet to adequately map the progress of EU Member States in meeting the objectives of the European Employment Policy. At the same time it makes explicit the potential divergence between worker-centred and company-centred labour market flexibility - a divergence which is also to be found in the economic and labour market policies of many EU Member States, and - it may be argued - of the European Commission itself. Resolving this contradiction will continue to be a major challenge for the EU in the coming years.

REFERENCES

- ATKINSON, J. (1984). Manpower Strategies for Flexible Organisations. *Personnel Management*, 16(8): 28-31.
- BERTOLA, G., T. BOERI, T. and S. Cazes (2000). Employment Protection in Industrialized Countries: The Case for New Indicators’. Contribution to *Workshop on ‘Concepts and Measurement of Labour Markets Flexibility/Adaptability Indicators’*, Brussels, 26-27 October 2000.
- BREWSTER, C., L. MAYNE, and O. TREGASKIS (1997). Flexible Working in Europe: A Review of the Evidence, *Management International Review*, 37(1): 85-103.
- BÜSSING, A. and J. GLASER (1998). Arbeitszeit und neue Organisations- und Beschäftigungsformen. Zum Spannungsverhältnis von Flexibilität und Autonomie. *Mitteilungen aus der Arbeitsmarkt- und Berufsforschung*, 31(3): 585-598.
- CLARK, A. E. (1998). Measures Of Job Satisfaction. What Makes A Good Job? Evidence From OECD Countries, *Labour Market And Social Policy, Occasional Papers*, No. 34, OECD: Paris.
- COMMISSION OF THE EUROPEAN COMMUNITIES [CEC] (2000). *Employment in Europe 2000*. Luxembourg: Office for Official Publications of the European Communities.
- COMMISSION OF THE EUROPEAN COMMUNITIES [CEC] (2001a). Council Decision on Guidelines for Member States' Employment Policies in the Year 2001. COM(2001/63/EC).
- COMMISSION OF THE EUROPEAN COMMUNITIES [CEC] (2001b). *eWork 2001 - Status Report on New Ways to Work in the Knowledge Society*. Brussels: European Commission, Directorate C.
- COMMISSION OF THE EUROPEAN COMMUNITIES [CEC] (2002). *European Social Statistics – Continuing Vocational Training Survey (CVTS2), Data 1999*. Luxembourg: Office for Official Publications of the European Communities.
- EMPIRICA (2000a). Telework Data Report (Population Survey) – Ten Countries in Comparison. Project Report, URL: <http://www.ecatt.com/ecatt/>

¹² See for example SIBIS – Statistical Indicators Benchmarking the Information Society” - (IST-2000-26276), Website: www.sibis-eu.org.

- EMPIRICA (2000b). *Benchmarking Progress on New Ways of Working and New Forms of Business Across Europe. ECaTT Final Report*. IST Programme, KAI: New Methods of Work and Electronic Commerce. Brussels: European Commission.
- EUROSTAT (2001). *European Social Statistics – Labour Force Survey Results 2000 - 2001 Edition*. Luxembourg: Office for Official Publications of the European Communities.
- GAREIS, K. (2001). The Electronic Freelancing Economy: Myth or Reality? An Overview of Evidence. *STAR Issue Report*, No. 9, www.databank.it/star.
- GAREIS, K. and N. KORDEY (1999). Telework - an Overview of Likely Impacts on Traffic and Settlement Patterns. *Net-com*, 13 (3-4): 265-286.
- GASPARINI, G. et al. (2000). Full-time or Part-time Work: Realities and Options. Working Paper, Dublin: European Foundation for the Improvement of Living and Working Conditions.
- HOFFMANN, E. and U. WALWEI (2000). Erosion oder Renaissance der Normalarbeit? Ländervergleich Dänemark - Deutschland. *IAB Kurzbericht*, No.16, Nürnberg: Bundesanstalt für Arbeit.
- KORTE, W.B. and K. GAREIS (2000). e-Work in Europe: Indicators for Measuring Adaptability of Work Arrangements. Proceedings of the 8th European Assembly on New Ways to Work 'Telework 2001', Helsinki, September 12-14.
- NICOLETTI, G., S. SCARPETTA and O. BOYLAUD (2000). Summary Indicators of Product Market Regulation with an Extension to Employment Protection Legislation. Contribution to *Workshop on 'Concepts and Measurement of Labour Markets Flexibility/Adaptability Indicators'*, Brussels, 26-27 October 2000.
- REICHWALD, R., K. MÖSLEIN, H. SACHENBACHER, H. ENGLBERGER and S. OLDENBURG (1998). *Telekooperation. Verteilte Arbeits- und Organisationsformen*. Berlin et al.: Springer.
- SIBIS (2003). Measuring the Information Society in the EU, the EU Accession Countries, Switzerland and the US, Bonn: Empirica.