

# Statistical Indicators on the Labour Market in the eEconomy (STILE)

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Dear Sir, Dear Madam,

The STILE consortium is very pleased to present the fourth issue of the STILE Newsletter. This issue is devoted to the presentation of the STILE telework questionnaire module, which has been developed as an answer to the growing need for adequate instruments to monitor the changes on the labour market in the New Economy.

Indeed, telework, eWork, ICT-mediated distance work, ... are becoming common concepts in the labour market debates. However, there is a great deal of confusion over the definition and the extent of these phenomena and, at the same time, there is general agreement that better information on the true extent of teleworking is necessary to assist policymakers and organisations. Thanks to the funding by the European Commission's Information Society Technologies (IST) Programme and Eurostat, the STILE project (Statistics and Indicators on the Labour market in the eEconomy) contributes to the innovation of the available statistical instruments, such as the measurement of telework and changing working patterns. The results of this work are presented in this Newsletter: a telework module listing relevant indicators for measuring this new form of work which can easily be attached to existing employment questionnaires. The module has been thoroughly tested both through a multi-country pilot study and through official Labour Force Surveys in Hungary and Ireland. The full report can be downloaded from the project's website <http://www.stile.be>.

On the STILE website you will find more interesting results on the issue and on the project as a whole. The consortium has also developed a 'digital toolkit', collecting and benchmarking organisation surveys that aim to monitor organisational changes related to ICT. Currently, the project is evaluating existing sectoral and occupational classification systems on their adequacy to monitor businesses and occupations in the New Economy, and a measure for labour market mobility is being developed. Finally, the consortium is analysing the skill profiles of selected ICT occupations in a European perspective.

The STILE Newsletter is distributed to inform others of the results of the project and to present the most interesting results. The STILE website gives access to the full reports. To receive all former and future editions of the STILE Newsletter, you can easily subscribe via the website and also download an electronic version.

We hope this issue of the Newsletter can be of aid when you are faced with questions on telework. If it is not of direct use for you, perhaps a colleague or friend would be pleased to receive it.

Yours sincerely

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## How to measure teleworking?



### Measuring telework, why bother?

A brief look round when you are travelling by train or plane at the number of people using laptop computers or using the new wireless hotspots to connect to the Internet is enough to show that there are big changes afoot in the way people work. The spread of cheap information and communication technologies has, combined with the desires to improve productivity and work-life balance, created new opportunities for people to work away from the office.

The changes in work patterns which have come to be known as teleworking have wide-ranging implications both for public policy makers and company managers. Teleworking raises new questions in a variety of fields.

### TECHNOLOGY SOLUTIONS

Which infrastructures should be used? Who should cover the cost?

### LABOUR MARKET

Can telework create new work opportunities for disabled people and carers? Are new skills and qualifications needed for people who alternate face-to-face contact with electronic communication?

### MOBILITY

Does telework reduce traffic congestion or does it just change travel patterns? Do people make more business trips because they can continue working whilst travelling?

### WORK ORGANISATION & CONDITIONS

How can employers manage workers they do not see? When direct physical contact is lost, how does this impact on training and career opportunities? How do people organise their working hours when they are no longer constrained by the traditional office day?

### WORK-LIFE BALANCE

Does working from home make it easier to combine work with family life? Could it encourage men to take a larger share of domestic responsibility?

There is general agreement that better information on the true extent of teleworking is needed to assist policy makers and organisations. But monitoring telework poses some major challenges to academics and statisticians.

**First, there is no clear definition of telework. Second, there is a need to ensure that it can be measured cost-efficiently. Finally, it is important to move one step beyond measuring attitudes to telework and the intensity of telework to examining its impact.**

The STILE project has tried to answer this challenge by providing an approach that can help to collect reliable and comparable data. The project has developed a telework module, which can be attached to existing employment questionnaires. This module has been thoroughly tested both through a multi-country pilot study and through the official labour force surveys in Hungary and Ireland. The main results of these tests are presented in this newsletter while those interested in the full report can download it from the project website <http://www.stile.be>

# STILE offers a solution to the definitional problem

There are probably almost as many definitions of telework, as there are readers of this newsletter. Telework by its very nature opens up a range of new choices in where, when and how to work and these opportunities are constantly changing as the technologies continue to evolve. One approach focuses on home-based telework; another defines telework as any work mediated by ICTs; whilst others concentrate on mobility and the ability to work 'any time any place', perhaps in addition to a normal office day. The different approaches adopted by different researchers have, in the past, made it extremely difficult to compare results and accurately track what is actually going on. The STILE consortium offers an alternative approach to defining telework.

## What is a teleworker and who decides?

Someone who works at home for at least one full day?

Someone who works at the customers' premises?

Someone who works on a remote site such as a call centre?

Someone who needs to use the Internet to carry out work?

Someone who can work anywhere with the help of information and communication technologies?

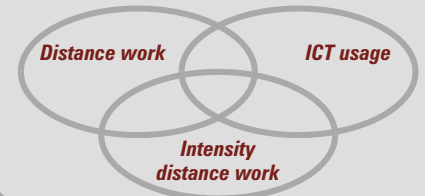
Someone who uses information and communication technologies for work?

## Telework cannot be captured in one question

The general approach of most researchers in the past has been to try to filter out teleworkers with one question along the lines of 'Are you a teleworker?'. Some researchers introduce this question with a fixed definition of telework, others don't bother. This approach is highly subjective and depends on the interviewee understanding the term 'teleworker'. For international comparisons this may cause even more problems, as still more interpretations can emerge in the translation. Another problem is that telework is a constantly changing reality. Twenty years ago no one could have predicted that people would use the Internet to work at home. It is impossible to capture this complex and changing reality with one simple and direct question.

## The solution: a derived approach to definition

Careful analysis of the telework literature shows that there are three objective dimensions to the phenomenon of teleworking. These are work at a distance from the conventional workplace, use of information and communication technologies, and the intensity of the work carried out at a distance. All subsequent definitions involve different combinations of these three dimensions. Therefore, by measuring these dimensions and allowing researchers to derive their own definition, it is possible to provide an approach that allows for flexibility, continuity, comparability and innovation. How these dimensions can be measured is explained in the 'Core indicators' in the centre page section of this newsletter.



## STILE put it to the test

### A flexible typology is possible

On the basis of the results of pilot studies, STILE has developed one basic typology of telework. This is just one example, though. Many other typologies are possible. For example, some researchers might wish to distinguish between employees who never work at their employers' premises and those who sometimes do. Others might want to know whether the remote working arrangement depends crucially on having a telecommunications link. Using the STILE approach all such questions can be answered. It is also possible to extend each element of the typology as required.

### Keeping data comparable and tracking innovations

Because the model questionnaire module makes it possible to give an open-ended answer, a new work location, a new ICT tool or changes to the intensity of telework can be added at any point, thus tracking new emerging forms. This is possible without having to change the main dimensions, indicators and related questions. This makes it possible to monitor new developments whilst still retaining comparability over time.

Typology of individualised eWork

	More than 20% computer usage AND in remote locations for more than 20% of time	Less than at least 20% computer usage OR in remote locations for less than at least 20% of time
Works from home	• Telehomeworker	• Occasional telehomeworker
Mainly works from multiple customer or employer locations or from home	• Multilocational eWorker	• Occasional multilocational eWorker
Works on the move	• Mobile eWorker	• Occasional mobile eWorker

# STILE offers an efficient and flexible method

## **An add-on module is an attractive tool for data collection**

*A module that can be attached to existing questionnaires can offer a useful tool to monitor a new phenomenon. The most important advantage of such a module is that a large population can be reached with:*

**minimal extra financial effort;**

**little aggravation of interview burden;**

**no profound consequences for the carrier questionnaire.**

# The STILE module

*Statistics collectors groan at the thought of having to carry out a new survey, as do the people who have to answer their questions. Teleworking is a new phenomenon, so does this mean there is a need for a new survey instrument?*

*Bearing in mind the need to minimise costs and 'research fatigue', STILE looked for an efficient and flexible means of collecting data that does not create new burdens.*

## **Identifying teleworkers**

If a module is to generate a lot of information on telework, it must be able to distinguish teleworkers from non-teleworkers. Therefore, the three core dimensions of telework and their related basic indicators are the essence of the module. (See centre page of this newsletter.)

## **Fleshing out the picture**

The core dimensions are an essential requisite for identifying teleworkers. However, some researchers may require additional information about their characteristics. STILE has therefore prepared an optional list of further indicators that can be added by those with an interest in issues such as motivation for working at a distance, the level of formality of the arrangement or social contact opportunities. These indicators can be 'nested' within the structure of the three core dimensions. A comprehensive list of the additional indicators is provided in the centre pages.

## **A lot of information for minimum effort**

Simple combinations between indicators in existing questionnaires and the core telework module can already give very useful information. Combining information on teleworking with gender and country, for instance, can generate a lot of information on the European teleworking population. For instance it might tell us whether women are significantly more likely to opt for home-based telework in countries where they cannot rely on the provision of childcare facilities.

## **Broad applicability**

The module can be attached to a range of different questionnaires, in response to a variety of different research questions. The module is conceived as a 'library' or 'toolkit' of dimensions and related indicators that can be used to compose a module that is suited to answer a specific research question and that can be easily finetuned to the carrier questionnaire.

- Customised combinations of dimensions and indicators can be prepared, depending on the research question.
- Specific question wordings can be adapted to suit the carrier questionnaire.
- The routing of the questions can easily be adapted to the routing of the basic questionnaire and to the filtering power the various indicators need to have.
- Indicators can easily be adapted to the context of the carrier questionnaire. For instance, if a questionnaire on Internet usage is the carrier, then the indicator on ICT usage can be easily confined to Internet questions.

# The module

## Work at/from a distance

### Core dimensions and related indicators

#### Places of work

Room in which work is carried out when working at home\*

## Usage of ICT

Usage of ICT (PC, Internet) for work in general

Usage of ICT (PC, Internet) when working at/from a distance

Provision of ICT tools, subscription, usage costs\*

Importance of ICT in enabling distance work\*

## Intensity

Number of days worked at/from a distance

Number of hours worked at/from a distance

Regularity of these work patterns\*

### Additional dimensions and related indicators

## Motivation for telework

List of supply-side and demand-side motives

## Content of work

Tasks carried out at/from a distance

## Voluntary nature of telework

Initiator of arrangement

Reversibility

## Formality of arrangement

Presence of formal written agreements

## Impact

Subjective assessment of impact on health & safety and work pressure

### Other dimensions and related indicators

## Autonomy

Ability to decide method, order and pace of work

## Work-life balance

Subjective assessment of opportunities to combine work and family

## Contact opportunities

Subjective assessment of contact opportunities

## Teamwork

Dependence on other team members for work planning

Assessment on the basis of team objectives

## Control of work

Basis of assessment of work

## Training opportunities

Training undertaken, subject of training

## Functionality of ICT

Use of ICT for tasks that are carried out at a distance

*The indicators marked with an '\*' are extensions of the basic indicators, focusing on detailed information that is not relevant for each research question.*

# Implementating the module in a CLFS context

## Questions

The STILE consortium adapted the module for use in the Community Labour Force Survey as an illustration. These are the questions that resulted.

**1.** Do you use a computer for your work?

Yes  No

**2.** Do you use the Internet or email for your work?

Yes  No

**3.** In the last four weeks, have you carried out work at any of the following places?

- In your own home
- At locations belonging to a third party (as customer premises)
- On the move (while travelling)
- In more than one location belonging to customers or clients
- Other places different from traditional workplaces (e.g. hotel rooms, conferences): specify \_\_\_\_\_
- In more than one location belonging to your employer
- At just one location of your employer (not a teleworker - stop questionnaire)
- Other traditional workplaces: specify \_\_\_\_\_

**4.** In the last four weeks, approximately how many hours a week, on average did you spend working at a distance (from your employer's location)?

*(to be asked for those that answered 1-5 in question 3)*

**5.** Do you use a computer when working at a distance?  
*(to be asked for those that answered 1-5 in question 3)*

Yes  No

**6.** Do you use the Internet when working at a distance?

Yes  No

## Useful CLFS variables for crosstabulation

When preparing the module for use with a carrier survey it is important to analyse interesting variables for crosstabulation from the main body of the carrier survey. The STILE consortium did this for the CLFS and found the following variables:

### Work patterns

- Divergent working hours
- Temporary work

### Education and training patterns

- Highest educational level
- Other training initiatives after education

### Job characteristics

- Occupation
- Sector
- Job status

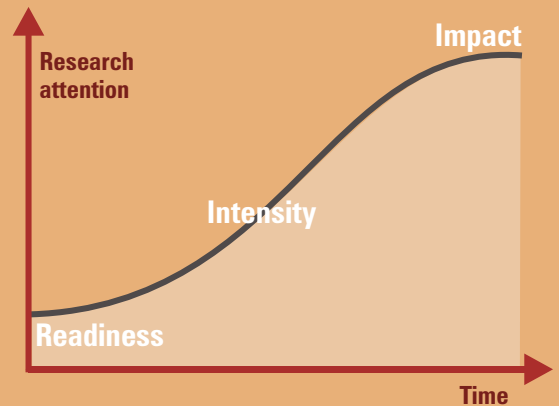
# Moving on: from readiness and intensity to impact

Telework changes the way we work, but how? On which aspects of life does telework have an impact? Existing research on telework most frequently only tries to count teleworkers. Where the impact of telework has been studied the focus has mainly been on the impact on mobility and on work-life balance. The STILE approach can inspire further impact research on a broader range of issues and create a context for any further studies of impact measurement.

**Some of the impact issues, which can be studied, include:**

- **efficiency of work;**
- **organisation of work;**
- **co-ordination of teamwork;**
- **industrial relations;**
- **relationships with colleagues;**
- **career perspectives;**
- **training opportunities;**
- **wages and conditions.**

Such impacts can only be studied properly with large and reliable samples of teleworkers making it possible, for instance, to take account of differences in skill and occupation, or differences between home-based teleworkers and those who work from other remote locations. Thus even qualitative studies need background information derived from large and representative surveys.



# Moving on

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## **A derived approach helps to capture the broad reality of telework**

■ On the basis of three objective core variables (work at a distance, use of information and communication technologies, and intensity of distance work) all types of telework can be defined and new emerging forms can be tracked. Comparability is guaranteed because all definitions are based on different combinations of the same dimensions.

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## **The STILE module offers an efficient and flexible method without losing comparability**

- The module can be conceived as a 'library' or 'toolkit' that can to be implemented creatively.
- The specific composition of the module depends on the research question being posed.
- The routing of the questions and the filtering power can be varied according to the research question, the groups of teleworkers that are to be distinguished and on the routing of the carrier questionnaire.
- The precise wording of the questions is dependent on the method of data collection, the sample and the language of the carrier questionnaire.
- The STILE telework module can offer a good method for adding in telework questions to various existing large population surveys.

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## **If you want to use the module yourself**

■ The module was conceived as a basic instrument that can be deployed flexibly. It is not only useful for policy-oriented research, but also for human resources or strategic planning research within companies. The composition of indicators, the filtering power of those indicators, the wording of questions and so on will depend on the research question and on the carrier questionnaire. As the STILE project has developed expertise in working with the module, interested parties are welcome to request a customised translation of the module for their own carrier survey.

**For further information about the STILE project, please contact:**

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