INDICATORS ON ICT FOR MONITORING POLICY IMPACTS - CASE OF EUROSTAT

Martii Lumio, Eurotstat

Summary

This document aims at presenting a case where development of statistics has been connected to the expressed needs of policy makers; how it came about, what was done and conclusions that can be drawn from the exercise. The example used is on the policy side the Lisbon process, and the eEurope process as the part of it focused on the Information and Communication Technologies. On the indicator side the Structural Indicators and the eEurope benchmarking indicators are in question.

Background

In the eighties and nineties, with the growing importance as factors of production of the Information and Communication Technologies, studies of various aspects of the ICT were made in the Member States, and elsewhere. Eurostat took in the late nineties the initiative to compile available data from the EU Member States. Lack of comparability and poor coverage of the data led to efforts to harmonise the concepts and spread this statistical domain to all MS. Co-operation with OECD has been made from the beginning of the exercise in methodological issues.

Adoption of the Lisbon strategy in 2000 and the e-Europe initiative gave boost to the work on ICT statistics. It also created a core set of indicators, leaving out of the attention some areas of interest covered by some national information society statistics compilations. The common interest seems, however, to be widening to areas not covered by the original set of indicators.

Policy needs

The Lisbon Council set in 2000 the objective to make the European Union the most competitive and dynamic knowledge-based economy in the world. The need to benchmark developments towards the targets set in political process was recognised and monitoring was organised in a system, where all the EU Commission's Directorates General relevant to the use of data as input to their decisions making and/or to the provision of data for the indicators were involved.

Eurostat is part of the system as major provider of data and as disseminator of the indicators through its dissemination database (New Cronos). The main product of the Structural Indicators is, however, the annual Spring Report to the Council prepared under the President of the EU Commission (Secretariat General). Eurostat also takes part in defining the indicators, in evaluating the relevance and data quality and choosing or developing new indicators. Speaking about policy indicators, they should in the first place be designed to allow assessment of the impacts of the policies taken.

The Structural Indicators cover the whole economy and society and the indicators are relatively general. The ICT sector, which is considered essential for economic growth, needed more targeted goals. These goals were set in the e-Europe action plans. For the candidate countries of the time, the e-Europe+ action plan was established. For purposes of monitoring developments and impacts of the policies, more detailed indicators than the structural ones were needed. A set of e-Europe benchmarking indicators was decided.

Structural indicators

Originally, 37 Structural Indicators were defined. With growing information needs, the number of indicators was rising so high that the core message was in danger to be hidden in the multitude of figures. This led to choosing a short list of 14 core indicators of rather general character, like GDP, employment and unemployment, relative price level etc. The rest of the indicators are published as background information. None of the current ICT-indicators is on the short list.

The Structural Indicators are currently grouped under six headings: 1) General economic background, 2) Employment, 3) Innovation and research, 4) Economic reform, 5) Social cohesion and 6) Environment. There are five ICT-related indicators on the long list. “Access to Internet of enterprises”, “Access to Internet of households” and ”Share of Internet sales of the turnover of enterprises” appear under the heading “Innovation and research”. “Market share of the incumbent operator” and “Telecommunications prices” are under heading “Economic reform” in the section dedicated to the competitive situation in the network industries.

The structural indicators are revised annually. Relevance of the current indicators and quality of the existing data are evaluated and better options sought, if necessary. For the moment, suggested new indicators on the ICT would be “e-government”, supply and demand and “broadband”, measuring broadband access to the Internet.

E-Europe Benchmarking indicators

The e-Europe indicators are on a much more detailed level than the structural ones, focusing on the specific policy needs of the e-Europe. The current set of indicators is the second one, the “E-Europe 2005 Benchmarking indicators”, decided by the Council in early 2003. The first version was the e-Europe 2002 set. Some changes were made in moving to the second version. What will come after 2005 will be decided later on. Anyway, revisions are not annual as in the structural indicators.

The indicators fall under ten headings, from A to J. Those are:

A. Citizens’ access to and use of the Internet
B. Enterprises’ access to and use of the Internet
C. Internet access costs
D. E-Government
E. E-Learning
F. E-health
G. Buying and selling on-line
H. E-Business readiness
I. Internet users’ experience and usage regarding ICT-security

J. Broadband penetration

Under each heading several indicators are defined, some of which are seen as policy indicators and some as supplementary statistical indicators. The largest part of the data comes through Eurostat from the National Statistical Institutes, but also information from the systems of other Directorates General is used. Specific surveys are also commissioned in some cases, to get data for new indicators. Some of the benchmarking indicators are also structural indicators and visa versa, but mainly they are different indicators.

Data for the indicators

In the early phases of the projects many potential sources were screened and in many cases, ad hoc data had to be used in lack of solid statistical data, to achieve wide country coverage. The situation was considered satisfactory neither by the data users nor by Eurostat. This led to intensified interaction between the policy makers and the statisticians and new tools were developed in co-operation between Eurostat, DG INFSO and DG ENTR.

Ultimately more resources were allocated to the statistical institutes to provide the requested indicators. New vehicles had to be developed to collect the higher standard data. Two new surveys were launched to meet the users' requirements, the ICT usage of enterprises in 2001 and the ICT usage of households and individuals in 2002. The surveys have since then been carried out annually. The work started with some of the Member States and the coverage has improved over time. For 2004, almost all of the MS carry out the two surveys, including the new MS. In addition, the remaining candidate countries and some EFTA countries mainly conduct the surveys. With reasonable harmonisation to OECD recommendations, quite a wide range of international comparisons will be possible.

The surveys are carried out by the National Statistical Institutes of the countries. The NSI carry out the data collection and validation and the basic data remains in the country. Data is provided to Eurostat according to the standard tabulation scheme. Eurostat runs the tabulated data through checks and turns back to the country in problem cases. Validated data is then used to calculate the indicators.

The way the surveys are organised, Eurostat getting data readily tabulated and basic data remaining in the countries, guarantees provision of the requested information for the indicators and rational treatment on the aggregate level. The drawback is that acquisition of data beyond the standard tabulation would require additional treatment on the national level. With 25 MS, achieving EU level aggregates this way seems an overwhelming task.

For the time being, grants are given to the participating countries to help well establish the surveys. Some of the questions are optional for the time being. A legal basis for the surveys is also well under way. A framework regulation was given in April 2004 and an implementation regulation is under preparation, with related methodological manuals. From 2006 on it will be mandatory for the EU Member States to provide the standardised set of ICT usage data in the given time frame. For data collection vehicles and methods flexibility is allowed.

ICT usage of enterprises

The enterprise survey 2004 is conducted in the first quarter of the year with the reference time of the beginning of the year. For accounting data the previous year is the reference period. The survey consists of seven modules, which are:

A. General information about ICT systems
B. Use of Internet (including security aspects)
C. E-commerce via Internet
D. E-commerce via EDI or networks other than Internet
E. Confidence building practices for Internet commerce
F. Barriers to Internet sales

X. Background information

Standard classifications are applied in the survey. The classification of activities (NACE) and the size classes are naturally there. The regional classification, problematic for enterprises, covers only the need of information for the Structural Fund (region 1 – non-region 1). There is a specific questionnaire for the enterprises of the financial sector, essential features of which have proven to be difficult to capture with the ordinary questionnaire, which is used for all other sectors. In the questionnaire design the requirements set by the indicators are taken into account. For instance the components for the e-business readiness composite indicator come from this survey.

ICT usage of households

The survey on ICT usage in households and by individuals 2004 is carried out in the second quarter of the year. The reference period is the first quarter. The questionnaire has four modules, in addition to the household and personal background characteristics. The modules are:

A. Access to selected IC Technologies (household specific)
B. Use of computers; location, frequency of use, activities
C. Use of the Internet
D. Internet commerce details: activities and barriers.

Some of the questions have elements related to e-security, e-skills, e-government. Combining the information with the background variables allows studies of many interesting socio-economic aspects. On the EU level, the combinations have to be taken account in preparing the tabulation scheme.

Plans for future

In future the enterprise and household survey questionnaires are open to changes according to requirements by the users, within the limits of the framework regulation.

A concrete need expressed by users is for data on ICT investment and expenditure. A pilot action is foreseen to measure this. The aim of the pilot action is to develop and test methods for assessing the impact on productivity of investment in ICT. Essential part of the outcome is quantitative, monetary information on the subject. It would be a better Structural Indicator on ICT than the current one, which measures the size of the total ICT market and does not allow

analysis of impacts of ICT by industry, size class etc. The pilot will be co-ordinated with the work of the expert group of the OECD (Working Party on Indicators for the Information Society, WPIIS). The pilot consists of three elements and the surveying country can choose any combination from one to all of them. The elements would be:

A) *Enterprise ICT investment survey*; Survey of enterprises' investment in and expenditure on ICT with related data on employment and production. This would be the basic survey to collect data for analysis of the impact on productivity of ICT investment. As some of the most challenging tasks here could be mentioned measurement of own-account software and making distinction between investment and expenditure when not done in the accounts. To assign leased ICT capital to the user sector, instead of the financial sector, is another task.

The data collection could be done as part of the ICT usage survey on enterprises, or the Structural Business Statistics. It could also be a separate, stand-alone survey. The main aim in the piloting phase would be gathering experience of alternative ways to collect data on ICT investment, to find best practices for a future harmonised survey.

B) *Enterprise interviews on ICT productivity*; Interview survey of ICT experts and/or accountants and/or business development persons of enterprises on the factors effecting productivity of the ICT investment/expenditure. These interviews are also expected to shed light on the methodological questions of the measurement of ICT investment/expenditure and related variables. This interview survey should be related to collection of actual data.

C) *Public sector ICT investment survey*; Survey of investment in and expenditure on ICT of the public sector. This survey is limited to collect the ICT expenditure data, without aiming at measuring its productivity impact, due to difficulties of measurement of the public sector productivity.

Some observations

Seldom does a policy initiative get such a large supporting information collection related to it as the Lisbon process and the following policy programmes. Credit must be given to the data users and providers who established the information system.

Budget restrictions have always been problematic for the statistical offices. Recently the situation has generally got worse. Some of the Member States have practically limited themselves to producing only statistics, which are required by Community legislation, or are mandatory on some other basis. Concentration on acute data needs may lead to neglecting important sectors, which are currently not in focus of interest for one reason or another.

To help overcome financial hurdles, often grants or some other form of Statistics for which the data user provides financing are under these circumstances in a privileged position. Sometimes scarcity of human resources and know-how make it impossible for the National Statistical Institutes to carry out surveys even when financing for them would be available.

Ad hoc data needs may well be satisfied with ad hoc data collections, and often quickly. If the need can be expected to last any longer, a stable statistical system is to be preferred, for data

comparable over time and countries. Also to relate results of any survey to the general statistics, the standard classification framework has to be applied.

Conclusions

Anticipation of emerging information needs is important for the statistical offices, as difficult as it may be.

Anticipation of future data needs is an asset to the data user as well.

Close contacts between policy makers and statistical offices benefit both parties.

Legal basis for statistics is growing in importance, but is a slow instrument for meeting rapidly evolving needs.

Ad hoc surveys are good only for ad hoc needs, served quickly and passing quickly.

For any political programme, ways of monitoring impacts should be taken into consideration already in the planning phase.

Scarcity of human resources may limit

The National Statistical Institutes have the responsibility to give a coherent statistical description of the whole society, not only of the sectors which are in focus of the decision makers at the given point of time.