The term ‘New Economy’ (NE) covers largely what we mean by the Information Society, the backbone: information technology, communications and digital content industries and both the use and impact of their products and services. In addition, the emerging Information Society has a strong influence on the development of other phenomena related to the New Economy: globalisation, worldwide competition, the development of financial markets, innovation, new ways of managing organisations and so on.

When we look at today’s statistical situation in respect of data availability and methodology, it’s early days yet for New Economy statistics, as a whole, but the path ahead is starting to be paved and data are taking root.

At the moment, the Business Statistics Directorate is working closely with Member States to define the scope of their activity to cover the different phenomena – the most important being the Information Society and globalisation – as well as obtain data already available, launch new data collections on a voluntary basis and establish harmonised and stable, core data sets.

Policy initiatives

Which policy developments have been, and will be, significant?

“There are several relevant policy developments, but most recently it has been the events in the wake of the Lisbon European Council in March 2000 where Europe’s leaders set clear priorities and agreed to ambitious commitments on the Information Society and the New Economy. All these call for an improvement in data coverage.

“Indeed, demand for business statistics has been boosted in the areas of information and communication technology (ICT), research and innovation, business services, electronic commerce, demography of enterprises and the audio-visual sector.

“It is also worth mentioning the eEurope Action Plan and the related list of statistical indicators for benchmarking Member States’ evolution according to the Plan’s objectives regarding the Information Society. A first set of indicators was set up at the end of 2000 but the list of indicators will develop further in the future. Eurostat has assessed data availability within the ESS and will collect on a regular basis those indicators that are available from Member States.

“At the Stockholm European Council in March this year (which will have taken place before this issue of Sigma is published), we will have indicators for economic and structural reform, innovation and research. More generally speaking, Stockholm will serve as a valuable guide on the further development of the policies linked to the Information Society and the statistics needed for those policies.”

Spillover effects of ICT

The spillover of ICT on business growth, such as cost savings and efficiency gains via the spread of Internet and the development of e-commerce are indirect and complex. How do you measure the spillover effects of ICT on business growth?

Pedro Díaz Muñoz has been active in the Information Society throughout his career. After obtaining an initial degree in mathematics, he went on to obtain a further degree in statistics from Edinburgh University and economics from Madrid University, specialising in ICT.

His work in the private sector, both in Spain and the US and at the OECD in Paris, has been closely related to Information Technology. Before coming to Eurostat, he worked as deputy director in the area of ICT and dissemination at INE, Spain. In his own words, “I have been on both sides – I was a producer in ICT and now I am involved in data on ICT production!”

Among his interests in the area of the Information Society, he became particularly involved with its impacts on the economy. It was then no surprise to learn that he was more than pleased to accept the opportunity in 1997 to steer Eurostat’s Business Statistics Directorate through the New Economy.
"In Eurostat we are currently preparing the collection for data on the readiness for and the usage of ICT in enterprises. ‘Readiness indicators’ show the penetration of ICT equipment in enterprises or households. In contrast, ‘usage indicators’ cover the intensity of the use of ICT in businesses, organisations and society in general.

"Measuring the effect of ICT, however, needs other types of data, those called ‘impact indicators’. This is best achieved in the framework of national accounts. If we want to link IT usage and company performance, econometric models are also necessary."

What is the ‘productivity paradox’?

"In the 80s and early 90s, there was no evidence in statistical data of an increase in economic productivity due to the impact of ICT – the contrary of what was believed (the so-called ‘Solow paradox’, named after the American economist Robert Solow)! There were several reasons for this. Firstly, it took time to produce productivity gains. Secondly, productivity gains often occurred in areas that were difficult to measure such as intangible assets, improvement in organisations, and so on.

"Finally, the output of services is more complicated to measure, compared with that of goods. With the increasing importance of services, this becomes more of a problem. Nevertheless, in recent years productivity gains are being measured, giving evidence of the positive impact of ICT on productivity growth."

A heterogeneous data maze?

A major challenge is coordinating the wide range of data sources available. Within Eurostat, data sources touch most of the production domains since Information Society statistics go beyond business statistics. And this teamwork is likely to strengthen especially as statistics and the European Statistical System (ESS) gradually cover the entirety of the New Economy.

What statistical indicators are available?

"There are a number of statistical indicators on the Information Society already available from business statistics sources. The collection Structural Business Statistics (SBS) provides structural data on turnover, number of enterprises, employment, value added and a number of economic variables on the Information and Communication Technology sectors both in manufacturing and services activities.

"In addition to business indicators, we have functional data. We have detailed statistics on the audio-visual sector while another collection carries data more specifically on telecommunications. In addition, there are data on ICT products both on trade (Comext) and production (Prodcom).

"But there are also indicators that come from the social area to help us about society’s readiness to take advantage of the NE: education indicators; data on the labour force; use of computers, mobile communications and Internet in households, among others.

"Also, the e-commerce initiative is important for collecting data on ICT usage in enterprises. The Member States are currently preparing a Community pilot survey on e-commerce that should produce first results this summer.

"At the moment, we are expanding the detail collected for the areas particularly concerned by these initiatives, such as business services – where a specific investigation on computer services is currently being launched looking, in particular, at breakdowns by product and client – e-commerce, telecommunications and audio-visual statistics. In addition, we are in the process of developing methodologies to track globalisation and are looking at updating classifications.

"We also use international and private sources to both complement existing data sets and provide comparison: the OECD, the International Telecommunication Union (ITU), and the Commission-supported European Information Technology Observatory (EITO) are some of them. Some Commission services also launch their own data collections to fill specific information gaps, which in many
Statistical Sources for the Information Society

**PUBLIC SOURCES**

**Eurostat/ESS:**
There are several regular harmonised data collection activities based on primary surveys within the European Statistical System. Data are available in the Eurostat Newcronos database:
- Structural Business Statistics (SBS)
- Production Statistics (PRODCOM)
- External Trade Statistics (COMEXT)
- Community Innovation Survey (CIS)
- European Community Household Panel (ECHP)
- Continuous Vocational Training Survey (CVTS)

It is planned to add further Information Society related variables in the tool that will replace the ECHP from 2003 (EU-SILC), in the Labour Force Survey (LFS) and the Household Budget Survey (HBS).

Collection by Eurostat via questionnaires of data available at Member state level:
- Telecommunications questionnaire (COINS database)
- Audiovisual questionnaire (AUVIS)

New data collection activities carried out in 2001:
- E-commerce surveys (23 variables)
- Information Society questionnaire (ca. 100 variables)

**Other services of the European Commission:**
- DG ‘Information Society’
- DG ‘Education and Culture’
- DG ‘Enterprise’

**International organisations:**
- OECD (www.oecd.org)
- International Telecommunication Union (ITU, www.itu.int)

**PRIVATE SOURCES**

These are mostly specialised sources covering specific indicators.

**European Information Technology Observatory (EITO, www.eito.com)**

**NUA:** The Dublin based company collects information from various market studies on Internet usage and estimates the worldwide number of Internet users. The data collected are available on the Web (www.nua.ie).

**Réseaux IP Européens, Network Coordination Centre (RIPE NCC):** RIPE carries out monthly host counts by top-level domain for Europe. The results are available on the RIPE website (www.ripe.net). The ITU uses RIPE host count data in its statistics.

**Internet Software Consortium (ISC):** ISC carries out twice a year an Internet domain survey. Results are available on the ISC homepage (www.isc.org). The OECD uses ISC host count data in its statistics.

**Statistical data (including forecasts and analysis) on certain aspects of the ICT market are further more produced by various market research companies. In some cases they also provide key statistical results on their homepages. Examples in the field of e-commerce are Durlacher (www.durlacher.com downloadable m-commerce report) and Forrester Research (www.forrester.com, providing projections on worldwide Internet commerce), IDATE (www.idate.fr) for telecommunications and IDC (www.idc.com) for the ICT hardware market, to name just a few.**

What are the benefits of using the Internet’s own data potential?

“We face particularly the problems of ‘definition’ and ‘population’. The simple example of Internet site user records illustrates this problem. Today, more and more enterprises profile users’ ‘hits’ in their site – the pages they consult, the frequency and so on – to help them improve their marketing strategies.

“The problem is that with Web pages becoming more sophisticated, with links to other pages, there are problems of definition of what a Web page and a ‘hit’ are. In addition, with many address es having non-geographic names such as ‘com’, it can be difficult locating the user’s country of origin.

“The other example of electronic commerce transactions also presents the problem of definition. For example, although we can assume that the transaction of a client who orders and pays for goods over the Internet falls under electronic commerce, what about the Internet user who consults a catalogue on a site, notes the order number but pays by cheque in the post?

“Conceptual issues of this type need to be resolved if we want to consider the Internet as a promising and reliable data source.”

What are the benefits and handicaps posed by tapping Information Society statistics from such a myriad of different sources?

“The benefits of this system are that they fill gaps in the ESS’s data sets, they are characterised by freshness, timeliness and ease of collection.

“For subjects of a wide and continuous interest and which need both large and regular surveys, official sources are an efficient means of obtaining the data, and if they do not exist they should be developed. But for newer topics,
including many areas of the Information Society, other sources have to be found since large surveys and regular official statistics – the European Statistical System – do not provide the data we need. For example, private sources can provide Internet host counts... They can also offer the required expertise to help official statistics in the analysis and interpretation of results.

“But these sources outside the ESS pose a number of problems too. Methodology varies widely, there can be a lack of methodological information provided, data may be incompatible with the ESS's data sets, some sources are unstable and time series are often not available. Furthermore, they can be biased because they have been collected with a particular objective in mind such as marketing. Finally, because of the fact that data are private and not in the public domain it can be difficult accessing and exploiting them.

“Let’s take, for instance, data available on the number of Internet users. Here, there are numerous sources and consequently various results. For the case of Spain, according to Eurobarometer, by November 2000, there were 6.4 million Spanish Internauts, whereas the figure produced by a private consultancy, recently released in the Spanish press, gave 4.5 million for the same month. This gives a difference of some two million!

“Given this situation, we have arrived at a point where many of our important data sources exist outside the European Statistical System and their reliability and level of harmonisation is not clear. Since different sources can produce different data, this can be very confusing for users who try to decipher which is the best. A prime example of this is e-commerce – data has proliferated from private sources and none of them are the same!

“And when it comes to forecasting and estimates, these data are often not presented as such, making users think that fresh results exist and raising their expectation level of official sources – much to our detriment – since we are unable to satisfy them.

“Of course, in the interest of obtaining the best possible quality data, we try to rank sources according to their quality of harmonisation and methodology, ranging from our top goal of harmonised official sources (harmonised Member States’ data) through to official/non-harmonised (international pilot projects, national data, data from other international organisations) to non-harmonised private sources.”

Laying the path ahead

How are you approaching these problems?

“In terms of data coverage, we need to focus our energies on data not yet covered by existing classifications such as NACE. Sometimes it is very difficult to measure phenomena of this type because they rely on products and we do not know exactly which products should fall under an ICT classification.

“For example, as regards medical consultations on the Internet, some countries consider this as an ICT product, whereas others view it as a medical service; if there is no agreement on classification, the comparability of data will be affected. Similar ‘border-line’ cases are becoming more frequent with ICT growth.

“To help us here we are working to align the NACE with the US’ NAICS (North American Industrial Classification System) classification to construct a coherent and solid framework to cover the New Economy.

“Concerning the collection of statistical data needed, the use of existing datasets can help to improve in the short term the completeness and timeliness of European data sets. But this will not be enough. We will have to develop other projects for data collection, which in some cases requires new approaches and innovative tools. Indeed, this also gives us all an opportunity to make the ESS more flexible.

“We are reflecting in two directions. First, we are looking at launching ad hoc surveys necessary for certain areas, which would be able to respond quickly to changing needs and be entirely within the ESS. Second, we are reflecting on the potential of using other sources (private, consortia ...) under the ESS’s supervision while applying the best quality standards – a question more of teamwork between all the actors – private or official.

“Charting out our work in the years to come, we have identified a number of priorities particularly for the short and medium terms. For the short term, we are doing an inventory of different data available on the Information Society in the Member States and we are collecting the non-harmonised data available and integrating them into a European database. We are also launching a pilot project on electronic commerce with as much harmonisation as possible.

“In the medium term, we will incorporate the results of the e-commerce pilot study data in a stable collection. We are also working with other Eurostat Directorates bringing together all those areas relevant for the Information Society. For example, we are working with our colleagues in employment statistics for a proposal to measure teleworking in the Labour Force Survey (LFS). There are also similar initiatives for the integration of Information Society aspects into other Eurostat data collection activities (household surveys, family budget surveys, transport statistics and so on).”

In conclusion, the building blocks are being put into place. But a building needs solid foundations and the right bricks with the teamwork and expertise of surveyors, architects... This is exactly what is happening for the New Economy now. A variety of materials are being used to make it stand solidly: the source for business statistics in tomorrow’s Europe.