COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL

on the production method of EU statistics: a vision for the next decade
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1 **Introduction**

Official statistics play a fundamental role in today's society. The availability of impartial and objective statistical information is essential for all decision-makers. Statistical information underpins transparency and openness of policy decisions, and official statistics therefore represent a public good providing a basis for the smooth functioning of society.

At EU level, European statistics have become increasingly important for the development, implementation, monitoring and evaluation of EU policies. European statistics thus constitute an essential contribution to building the information capacity required to sustain the EU's strategic objectives and the underlying policies and supporting instruments.

European statistics are developed, produced, and disseminated on the basis of uniform standards and harmonised methods. The National Statistical Institutes (NSIs) of the Member States collect and produce harmonised data that are compiled by Eurostat to construct statistics at EU level. This is done in numerous parallel processes, country by country and domain per domain, following the traditional stovepipe model.

This way of producing statistics is, however, no longer fully adapted to the changing environment. The new Regulation on statistics\(^1\) introduces the European Statistical System (ESS), thereby allowing improvements of efficiency through a systematic collaboration between the partners of the system.

This Communication offers a vision for reforming the production method of European statistics. While the proposed changes will affect the production systems of the ESS as a whole, they fully respect the subsidiarity principle. Moreover, as some Member States have already started implementing a number of these changes, one of the aims of the present Communication is to coordinate their efforts so as to avoid duplication of work and to exploit synergies to the maximum extent.

The next section presents an overview of the current way of producing European statistics, based on the stovepipe model. Section 3 describes the changes that lie behind the current proposal to re-engineer the production method of statistics in the EU. Section 4 analyses the consequences of these changes for the business architecture of the ESS, and presents the European systems method to statistics as an alternative to the current one. Section 5 discusses some policy and management challenges that would result from the implementation of the new model, both for NSIs and for Eurostat. Finally, Section 6 presents the next steps for the implementation of the strategic vision outlined in this Communication.

2 **The current situation: the augmented stovepipe model**

For many decades, the production of European statistics has been based on a model in which the NSIs of the individual Member States each produce their own national statistics in a particular domain. In order to guarantee comparability and consistency among the data of all Member States, the output from NSIs is harmonised according to agreed standards. The

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statistics produced by the individual NSIs are compiled by Eurostat so as to obtain European totals.

**BOX 1: The development of the current production system of European statistics**

The production of European statistics started with the creation of the European Coal and Steel Community (ECSC) in the early 1950s. This led to the requirement to have quantitative and qualitative information on which to base political decisions regarding the single market for coal and steel. In order to have comparable data for the six Member States, it was necessary to compile new harmonised statistics, separate from national statistics which were piecemeal and lacked comparability. The harmonisation of methods was the foundation of European statistics.

For several decades, the production of European statistics consisted of collecting available data in the Member States, thereby ensuring the comparability of concepts, definitions, and methods.

The Rome Treaty on the European Economic Community (EEC) marked the birth of European legislation on statistics, for which the basis is laid in Art. 213 (subsequently Art. 284). However, the dominant working method remained primarily based on the goodwill and cooperation between Eurostat and the National Statistical Institutes (NSIs), resulting in voluntary data collections based on so-called "gentlemen's agreements". Prior to the 1990s, there had been few statistical legal acts, and these had been concentrated in those fields where genuine Commission policies existed: agriculture and external trade.

Since the 1990s, certain European policies became directly based on statistics, the most noteworthy example of this being the convergence criteria for EMU of the Maastricht Treaty. This development contributed hugely to the more general expansion of statistical legislation. However, the essence of the production of European statistics continued to remain what it had been in the past: the NSIs collect and produce harmonised data that are compiled by Eurostat to construct statistics at EU level. The approach continued to be "augmented": the European level was added to the national level.

The Regulation on European Statistics** emphasises the need to strengthen cooperation in the ESS, e.g. through the introduction of the cost-effectiveness-principle (Art. 2 (f)), the European Statistical System Committee (Art. 7), collaborative networks (Art. 15.), and a European approach to statistics (Art. 16). Generally, a next phase for official statistics in Europe has been initiated. The European Systems Method to Statistics aims at realising the intentions of the law, namely to put in place a real "system" that makes use of cooperation and standardisation as far as possible while respecting the subsidiarity principle.

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* This box draws on De Michielis, Alberto and Alain Chantraire, Memoirs of Eurostat, Luxembourg, 2003


**Within each NSI**, the production of statistics operates through the various production lines or processes of the different statistical domains. The whole of the production processes of a
statistical office is referred to as its business architecture. At present, the business architecture of most of the EU NSIs is still mainly based on a product stovepipe model. In such a model, every single product stovepipe corresponds to a specific domain of statistics, together with the corresponding production system. For each domain, the whole production process from survey design over data collection and processing to dissemination takes place independently of other domains, and each has its own data suppliers and user groups.

In order to produce European statistics, Eurostat compiles the data coming from individual NSIs also area by area. The same product stovepipe model thus exists in Eurostat, where the harmonised data in a particular statistical domain are aggregated to produce European statistics in that domain. The traditional approach for the production of European statistics based on the stovepipe model can thus be labelled as an "augmented" stovepipe model, in that the European level is added to the national level.

The stovepipe model is the outcome of a long historic process in which statistics in individual domains have developed independently from each other. It has a number of advantages: the production processes are best adapted to the corresponding products; it is flexible in that it can adapt quickly to relatively minor changes in the underlying phenomena that the data describe; it is under the control of the domain manager and it results in a low-risk business architecture, as a problem in one of the production processes should normally not affect the rest of the production. From a European perspective it has the advantage that it can be addressed by a relatively limited and specific Regulation.

However, the stovepipe model also has a number of disadvantages. First, it imposes an unnecessarily heavy burden on respondents. Given that the collection of data in different domains is done in an independent and uncoordinated manner, respondents are regularly asked for the same information more than once (see Boxes 2 and 3). Second, the stovepipe model is not well adapted to collect data on phenomena that cover multiple dimensions, such as globalisation or climate change. Last but not least, this way of production is highly inefficient and costly, as it does not make use of standardisation between areas and collaboration between Member States. Redundancies and duplication of work, be it in development, in production or in dissemination processes are unavoidable. These inefficiencies and costs for the production of national data are further amplified when it comes to collecting and integrating regional data, which are indispensable for the design, monitoring and evaluation of some EU policies.
The "augmented" stovepipe model

- EU data compilation
- Transmission to Eurostat
- Data processing
- Data collection

Member State 1  Member State 2  Member State 27
3 **Changes in the ESS business environment**

Any development in the area of statistics is determined by two main drivers: on the one hand the need to deal with new and emerging needs for statistics, and on the other the need to reduce the burden on respondents, as well as the costs for producing statistics. In addition, the circumstances in which statistics are produced have changed following developments in the information technology.

Firstly, **new requirements** for statistics will continue to increase in terms of both quantity and quality. In all areas of statistics, information needs continue to grow. Users increasingly need integrated and consistent data, as the phenomena that are being measured become more complex and interrelated. New themes emerge, like globalisation, climate change, aging populations, energy efficiency etc. A common feature of many of these is that they reflect several interrelated and mutually dependent underlying phenomena. As a result, a stovepipe model in which statistics in different domains are produced independently from each other is poorly adapted to serve the policy requirements for integrated data sets.

Secondly, **simplifying and improving the regulatory environment** for EU businesses and citizens is a long-standing priority for the Commission. In the area of statistics, the strategic approach and work plan set out in the Commission’s Communication on reduction of the response burden, simplification and priority-setting in the field of Community statistics was welcomed by the Council. Its implementation has progressed well, in particular in the area of business and trade statistics with the adoption of the MEETS programme and the revision of the Intrastat Regulation. Work in the area of burden reduction will continue in the foreseeable future and will have to be extended to other statistical domains. As argued in the previous section, one of the main disadvantages of the stovepipe model is precisely that it imposes a heavy burden on respondents. This is another major reason to put the stovepipe model into question.

Thirdly, **new ICT tools** continue to be developed in order to improve efficiency, reduce burden, and enhance statistical quality. As new technologies become available, there is a clear drive to maximise their use and to gear statistical methods toward them. New forms of communicating with users and producers such as web 2.0, as well as other new developments in information technology, are likely to result in profound changes in communication channels and data handling and storage. Eurostat’s compilation of data originating from NSIs is already becoming increasingly interactive through subsequent iterations of data deliveries and validation, by which the quality of the statistics is being improved. These factors will have to be reflected in both dissemination and production processes. Moreover, as a result of these developments the production of statistics has become more integrated, not just in the economy but in society as a whole. The development, production and dissemination of official statistics have thus to be adapted to the conditions of the “knowledge society”. Again, the stovepipe model does not seem to be adapted to these developments.

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All these considerations lead to the conclusion that the stovepipe model is no longer suited for the current circumstances, and will have to be replaced by a better alternative.

The main intention and strategic direction of this vision paper is to improve the efficiency of statistical production. Only a permanent adaptation of the portfolio of its products and services through innovation and new developments will guarantee that the ESS can continue to play a relevant role for decision making in the future. An efficiency policy will enable the ESS to cope with the conflict between increasing information needs on the one hand and resource constraints on the other.

**Box 2: Impacts for citizens and administrations**

Citizens are not regularly asked to respond to a questionnaire from official statistics:

Household surveys normally work with very small samples.

Population censuses traditionally take place only once every ten years.

Certain life-events (e.g. birth, going to school, an accident, retirement) lead to a specific recording in demographic and social statistics. However, these statistics are normally produced by using the sources from administrations, education or health systems.

Nevertheless, an optimisation of statistics through the integration and an increased use of administrative sources is an important goal. A decreasing willingness to respond to statistical surveys has already lead to innovative and lean solutions for the next round of population censuses in 2010/11. It is now essential to proceed on that pathway and to envisage a re-engineering of European population and social statistics for the time after these censuses. If the data collected for statistical purposes are personal data, which means any information relating to an identified or identifiable natural person, the relevant data protection legislation should be fully applicable and data should, in principle, be anonymised before further processing for statistical use. An essential precondition for feasible solutions in this area will be that the needs of data protection as reflected in the relevant EU legislation should be incorporated. Furthermore, it will be essential to ensure that statistical requirements (definitions, flow of data, data-access) are respected by the administrated sources.

4 Consequences for the ESS business architecture: the European systems method to statistics

**At the level of the Member States**

The strategy in dealing with the above changes is based on a holistic approach, rather than a fragmented one, and it will imply replacing the stovepipe model with an integrated model. Indeed, the various disadvantages of the stovepipe model referred to in section 2 can be adequately avoided through the integration of data sets and by combining data from different sources.

At the level of the NSIs, statistics for specific domains are then no longer produced independently from each other; instead they are produced as integrated parts of comprehensive production systems (the so-called data warehouse approach) for clusters of statistics. These systems would be based on a common (technical) infrastructure, they would

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apply as far as possible standardised software, and they would make use of all available data sources which are appropriate in quality.

For that purpose, it needs to be investigated how information from different sources can be merged and exploited for different purposes, e.g. by eliminating methodological differences, making statistical classifications uniform, etc.

As an optimal solution, it would be highly efficient for Member States to create a network of databases, from which any relevant information could be extracted. As such a solution can only be fully implemented in the long term, it is proposed to link data at the micro-data level in the medium term. Micro-data linking is an important tool not only for the purpose of burden reduction, but also to have better comparable data sets. This process should also provide an opportunity to extend and better exploit the statistical information which is available at the regional level and hence would significantly contribute to improve the scope and the quality of regional data. In the short term, the close cooperation within the ESS, as well as the establishment and development of joint structures, tools and processes through collaborative networks, should put the ESS business architecture on the right track towards its long-term goals.

**Box 3: Implications for businesses**

The following is an example of a real-life worst-case situation that results from the current production model. A company with 200 persons employed produces parts for the automobile industry. In the beginning of each year it submits two surveys used for Structural Business Statistics. They cover turnover, purchases of goods and services, operating surplus, employment, personnel costs and investments. It also submits data on its use of energy for energy statistics. It reports monthly on its trade inside the EU (Intrastat) in value and volume. It also submits monthly reports on its business trends for Short term statistic (turnover, employment, new orders). It reports monthly on its production of goods in value and volume. For each separate data collection, it has to provide the same information on certain basic company features such as turnover.

In an integrated system, many of these data could be obtained from existing administrative data and/or extracted directly from company accounts. For the remainder, one monthly survey should suffice to gather the information that cannot be collected otherwise.

The integrated model is based on the fact that governments collect data for many non-statistical purposes, such as tax and labour market policies. Efficiency gains can be obtained by the re-use of these administrative data for statistical purposes. Also data from other (external) sources can contribute to this, e.g. through the use of private information providers or the direct use of accounting data from companies. But efforts are needed to ensure the quality of the data, because very often the administrative and other external data are not available in the form needed for statistics.

**Box 4: Combining survey data with administrative data**

The European Labour Force Survey (LFS) is the basis for the calculation of harmonised unemployment figures. The LFS directly provides for quarterly estimates. They are fully comparable across Member States as they are produced using the agreed concepts of the International Labour Organisation (ILO). Policy makers, analysts and the public at large, however, need comparable unemployment data also at a monthly frequency.
While for a few Member States such monthly estimates can be derived directly from the LFS, for most other countries this is not possible. For the latter cases, Eurostat has developed a method to produce monthly estimates by combining quarterly LFS results and monthly information on registered unemployed. Data on registered unemployed come from national labour market administrations. They are influenced by the specific administrative rules in each country. While their levels, therefore, are not comparable, their changes from month to month, however, can be used as an indicator for developments over the short-term. In the Eurostat methodology, the LFS provides the comparable quarterly benchmark for unemployment levels, to which the indicator of monthly movements based on registered data is linked. That way, the combination of survey results and administrative data allows a quick and efficient response to public information needs.

At the level of the EU

At the European level, there are two dimensions to the integrated model: a horizontal one and a vertical one. The combination of both dimensions results in the new European systems method to statistics.

Horizontal integration at the European level is similar to what has been described for the Member States. Abandoning the stovepipe model in the NSIs would have the direct implication that also European statistics would no longer be produced domain per domain but similarly in an integrated fashion.

The vertical aspect of the integrated model at the European level consists of two elements. First, in the individual statistical actions, synergies shall be developed within the ESS. Joint structures, tools and processes could be established or further developed through collaborative networks, involving both the national statistical authorities and Eurostat. As foreseen in Art. 15 of the Regulation on European Statistics\(^6\), these collaborative networks between partners of the ESS will facilitate specialisation by certain Member States in specific statistical activities for the benefit of the ESS as a whole. This will avoid duplication of work and thus increase efficiency and reduce the unnecessary burden on respondents.

The integrated model

\(^6\) See footnote 1.
The second element concerns the **European approach to statistics** (Art. 16 of the Regulation on European Statistics). The underlying idea is that having data that are reliable at the national level is a sufficient condition for having reliable data at the European aggregate level, but it is not a necessary condition. If the only purpose of the data is to provide information at EU level, there is no need for a full set of national data, and there is therefore a potential efficiency gain in the system. EU sampling is a possible approach for making this gain real. In areas where there is no need to have national data, EU sampling may lead to a reduced burden on respondents, better timeliness, and improved quality. The European approach to statistics could also include the production of European statistics by the use of non-published national contributions or contributions from a subset of Member States, as well as the use of partial information by modelling techniques.

To sum up: at EU level the integrated model of producing statistics has two dimensions: it covers both horizontal integration across statistical domains at the level of NSIs and Eurostat, and vertical integration covering both the national and EU levels. This model for producing European statistics is labelled the European systems method to statistics.

5 **Some policy and management challenges**

5.1 **Challenges for the ESS**

Several elements of the proposed integrated model imply a change in the professional paradigm from "data-collectors" to "re-users of data". While data collected through traditional methods are under the control of the statistical institutes, this is much less the case for re-used data, and this entails certain risks: concepts and definitions may be changed by the owners of the data, certain data collections could be discontinued or altered, etc. In order to ensure that the legitimate interest of statistics is taken into account, the position vis-à-vis the owners of
re-used data (administrators, regulators or others) has to be reconsidered and possibly strengthened.

There are considerable challenges of a technical and methodological nature. Standardisation and integration of formerly separated production processes will demand great efforts and an effective change management. Re-engineering of a production system with a group of around thirty producers will only be feasible in a stepwise approach and with intensive collaboration. Furthermore, the quality assessment of statistics will become much more complex. As an example: traditional quality measures (e.g. sampling error) will become less relevant as data collection will make less use of sampling techniques. A new quality assessment methodology will therefore have to be developed.

Thirdly, the new business architecture that will result from the introduction of these innovative characteristics will enable the ESS to improve the effectiveness as well as the efficiency of the production processes. There is however a need to complement this strategic direction with an improved communication with users. Statistical information never has been self-evident; on the contrary, for many users it represents real world phenomena with a high degree of abstraction. The more statistical production is based on complex methodology the more it is necessary to explain the results. Trust in the statistical system and the perception of the quality of statistical information are closely related. Furthermore, a basic education in simple statistical elements could help to mitigate a tendency of misunderstanding with the general public (“innumeracy”). As a consequence, user orientation has to be the guiding principle in communication.

**Box 5: New ways of communicating with users**

*Statistics Explained* is a new tool to for the dissemination of (meta-) data via Eurostat’s website. It will replace printed publications and will allow merging data and meta-information with explanatory texts. It will therefore integrate seamlessly statistical publications and databases. *Statistics explained* will be based on Web 2.0 Wiki-type technology. Content will be built in a decentralised way by the domain specific directorate, while editing responsibilities at the dissemination unit will aim at harmonisation and good quality. A prototype has already been developed and presented internally; a first version could be offered to the public in the second half of 2009.

Finally, at the level of the NSIs in particular there will be a need to review the internal organisation in order to adapt it to the new circumstances. Staff qualifications will have to match the new requirements (e.g. in terms of technological and communication skills). New staff with different qualifications will have to be recruited and current staff will need to participate in advanced training.

**5.2 Challenges for Eurostat**

As ESS statistical production processes become more complex and integrated, Eurostat has to reconsider its approach for assuring quality in all its dimensions.

Over the past decade or so, there has been a continuous drive to base the collection of statistics within the ESS on legislation rather than on voluntary agreements with the Member States. This policy has been motivated partly by the wish of Member States and of Eurostat to have an explicit statement of the obligations of Member States to transmit data, and partly to ensure the quality of the statistics. The legal approach has been very successful in ensuring
quality in all its dimensions, including the comparability and completeness of EU statistics. However, as statistical production processes become more complex and integrated, quality will in future be assured by a combination of a new generation of statistical legislation together with other instruments.

The implementation of the European systems method to statistics involves three components. The first component remains Community legislation, which will continue to be mainly output-oriented and to set minimum standards for the production of statistics in a particular area. A corollary of this principle would be that there should be no financial support to Member States for fulfilling such minimum standards. Eurostat proposals for future Community statistical legislation would be formulated in such a way as to enable and to promote the emerging architecture of interdependent production systems drawing upon multiple sources. The new generation of statistical legal acts would deal with broader areas of statistics than has been the practice up to now, emphasizing the use of multiple data sources, of innovative data collection methods, of the information available at the regional level and of cross-domain concepts. Most of the technical aspects of the legislation would not be part of the "basic" legal framework of a particular statistical domain, but would be laid down in implementing legislation. This will increase the flexibility of the legal approach. It is worth noting that the proposed legal approach is fully in line with the recommendations of the Eurostat Peer Review7.

The output-oriented approach of the legal component of the strategy could be complemented by input harmonisation through the use of common tools within the ESS. The second component therefore concerns complementing product harmonisation by process harmonisation through the promotion of methodologies based on common tools. While this is required for the development of more integrated systems, it would also allow fully exploiting synergies and economies of scale. However, the provision of common methodological and ICT tools for the ESS as a whole is particularly difficult, as the responsibility (and thus also the costs) for the development of such instruments would have to be shared between Eurostat and NSIs. The proposed strategy therefore foresees a significant financial contribution to this development at EU level, which will also allow Eurostat to steer the system into the desired direction. Several forms of ESS-wide collaboration can be mobilised to this end. Amongst them, it is worth mentioning the ESS collaboration networks (ESSnet), which consist of projects carried out by a team of institutions aiming at developing results which can be used by the whole ESS community. ESSnet projects are co-financed by the Commission and participating institutions.

The third component is the promotion of common values and the sharing of knowledge throughout the ESS. The legal component (setting a bottom line) and the technical component (offering the best available tools) have to be complemented by a component that deals with the intelligence and know-how that are available in the system, i.e. with the human capital of the ESS. While the Code of Practice has done a lot for the promotion of common values within the ESS, less has been done to date on knowledge sharing, despite the fact that staff trained in identical methodology is the best enabler of comparability. It is therefore proposed to create a true European research and training facility for statistics.

7 All National Statistical Institutes and Eurostat were subject to a peer review during 2006-2008 in order to assess compliance with the European Statistics Code of Practice. The Code sets out the key principles for the production and dissemination of European official statistics and the institutional environment under which national and Community statistical authorities operate, aimed at enhancing their integrity, independence and accountability.
Statistics on the international trade in goods between EU Member States and non-EU countries are compiled on the basis of customs data. In the course of 2008, extensive consultations took place between DG TAXUD and Eurostat on future changes to this data collection in connection with a future review of the Customs Code. The outcome was an agreement between both DGs that will ensure that statistical needs are taken on board in the review of the Customs Code. Without such an agreement, there would have been a risk that survey data would have to be collected instead, thereby greatly increasing the burden on businesses. Also in other domains, mainly as a result of the increased use of non-survey data, it will have to be ensured that statistical interests are taken into account when (re-)designing administrative data sources. Political support at the highest level is needed so as to guarantee that other Commission services respect the legitimate concerns of the producers of statistics.

Moreover, the changes in the ESS business environment referred to in section 3 have resulted in a major overhaul of the governance system of the ESS. The new Regulation on European Statistics* strengthens the mission of Eurostat. Together with the set-up of a European Statistical Governance Advisory Board (ESGAB) and a European Statistical Advisory Committee (ESAC), the modernisation of the legal requirements forms an essential contribution towards enhancing and complementing the governance of the ESS. Governance has also been improved in recent years through the adoption and subsequent implementation of the European Statistics Code of Practice, which is a core element of a formalised and systematic type of quality management.

While they are not a direct consequence of the re-design of the production systems of EU statistics, these developments have likewise resulted in the extension of Eurostat's mission beyond the mere coordination with NSIs. On the one hand, Eurostat will be required to provide an enhanced statistical service to other Community bodies (technical advice, quality checks); on the other it will have to enhance communication with these Community bodies to anticipate statistical needs and enhance the usage of existing statistics. This will imply building closer relations with other Commission services not only through annual hearings, but also through joint analytical activities. A Commission statistical correspondents network will be set up for this purpose.


6 Moving towards the new European systems method to statistics

It is clear that the vision on the modernisation of the business architecture in the EU presented above cannot be implemented by Eurostat alone. Rather, it concerns a joint effort of all ESS partners, which each have their particular role to play under the full respect of the principle of subsidiarity. For the vision to be successful, it needs to be supported by them. It is thus of major importance that Eurostat would involve its partners in the ESS at an early stage of the process. In order to do so, it is proposed that Eurostat would present it to the ESS Committee immediately after its adoption. This aims at ensuring that NSIs would assume ownership of the process, without which it risks to remain limited to those elements that can be introduced at EU level only.
The Commission will also seek the support of the European Parliament and of the Council, which will be key to the successful implementation of the proposed vision on the modernisation of the business architecture in the EU. Member States will in particular be involved through the discussions in the ECOFIN Council. As it has become tradition over the past few years, in November the Council will discuss a number of issues related to statistics (the so-called statistical package), and the present proposal will be one of the elements of this year's package. As soon as it has been adopted by the Commission, it will therefore be submitted to the Economic and Financial Committee for discussion.

Furthermore, also other stakeholders need to be part of the strategy. User groups will have to be consulted at an early stage as well, given that the inevitable consequence of the new business architecture will be that the features and even content of European statistics may be altered drastically. Their concerns need to be taken on board when implementing the change to the new business architecture, and their consent needs to be actively sought. Therefore, the proposal will also be submitted to the ESAC.

In the meantime, the ongoing efforts to re-engineer the production processes that are already under way will continue. This concerns various initiatives such as the rationalisation of the IT architecture via the Data Life Cycle (CVD) project, the introduction of a more interactive production chain on the basis of a "data at the source" solution via the Census hub project as well as through the Environmental Data Centres, and the re-engineering of business and trade statistics via the MEETS programme.