**UNITED NATIONS STATISTICAL COMMISSION and
ECONOMIC COMMISSION FOR EUROPE
CONFERENCE OF EUROPEAN STATISTICIANS**

**EUROPEAN COMMISSION
STATISTICAL OFFICE OF THE
EUROPEAN COMMUNITIES (EUROSTAT)**

**ORGANISATION FOR ECONOMIC
COOPERATION AND DEVELOPMENT (OECD)
STATISTICS DIRECTORATE**

Joint ECE/Eurostat/OECD meeting on the management of statistical information systems
(Geneva, 17-19 February 2003)

REPORT OF THE FEBRUARY 2003 MEETING ON THE
MANAGEMENT OF STATISTICAL INFORMATION SYSTEMS

1.   The Joint UNECE/Eurostat/OECD Meeting on the Management of Statistical Information Systems was held in Geneva, Switzerland, from 17 to 19 February 2003. It was attended by participants from: Austria, Bulgaria, Canada, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Germany, Hungary, Ireland, Israel, Italy, Kazakhstan, Latvia, Lithuania, Netherlands, Norway, Poland, Republic of Moldova, Romania, Russian Federation, Slovakia, Slovenia, Spain, Sweden, Turkey, United Kingdom, and United States of America. The European Commission was represented by Eurostat. Representatives from the following international organizations also attended: United Nations Statistics Division (UNSD), United Nations Conference on Trade and Development (UNCTAD), United Nations Educational, Scientific and Cultural Organization (UNESCO), Organization for Economic Cooperation and Development (OECD), United Nations Food and Agriculture Organization (FAO), World Trade Organization (WTO), and the International Monetary Fund (IMF).

ORGANIZATION OF THE MEETING

2.   The representatives of ECE, Eurostat and OECD addressed the meeting at the opening session. They summarized the priorities of their organizations as established by their governing bodies. These priorities show that all three organizations attach great importance to the management of statistical information systems, as a necessary pre-condition for improving the quality of their statistics.

3.   The agenda of the meeting consisted of the following substantive topics:

(i)   Measures for the improvement of quality at IT management level;
(ii)   Impact of technical measures and standards on data quality;
(iii)   Efficient management of increasing technical complexity;
(iv)   Review and follow up to the activities of the Conference of European Statisticians in the field of statistical processing;
(v)   Annual review of the website of IT practices in the National Statistical Offices;
(vi)   Future work in the field of management of statistical information systems and related fields.

4.   Mr. Mel TURNER (Canada) and Mr. Wolfgang KNUEPPEL (Eurostat) acted as Chairman and Co-Chairman, respectively. The discussion on topics (i) to (vi) above was organized by: Mr. Richard SWARTZ

(United States) and Mr. Gérard Salou (OECD); Mr. Georges PONGAS (Eurostat); Mr. Wolfgang KNÜPPEL (Eurostat); and Mr. Jan BYFUGLIEN (Norway) and Mr. Juraj RIECAN (ECE).

RECOMMENDED FUTURE WORK

5.   The participants considered it useful for national and international statistical offices to continue the exchange of experiences in the field of management of statistical information systems. Therefore, they recommended that the follow-up future work be included in the programme of work of the Conference of European Statisticians, subject to the approval of the Conference and its Bureau:

   a)   Joint UNECE-Eurostat-OECD Meeting on Management of Statistical Information Systems (to be held in 2004) to consider the following: (i) Web technology in statistical information systems; (ii) Development of IT strategies in statistical offices; (iii) Open source in statistics; (iv) Review and follow-up to the activities of the Conference.

   b)   Pilot survey on the impact of e-Government on statistical agencies (e-Statistics) among national statistical offices (about 10 offices covering various parts of the UNECE region) on the development of IT. The summary of the pilot survey will be presented to the Bureau of the Conference at its October 2003 meeting. On the basis of the summary paper, the Bureau will decide whether the work will be further developed for the seminar part of the 2004 plenary session of the Conference.

6.   The meeting recommended that the sponsoring international organizations try to find a venue easily accessible by the participants from transition economies, in order to encourage and facilitate their broader participation.

ADOPTION OF THE REPORT

7.   The participants adopted this report and the summary of the main conclusions of the Meeting (presented in the Annex) at its closing session.

ANNEX

**Summary of the main conclusions reached at the February 2003 Meeting on the
Management of Statistical Information Systems**

Topic (i): Measures for the improvement of quality at IT management level
Discussants: Richard Swartz (United States) and Gérard Salou (OECD)
Documentation: invited papers by Canada, United States, and OECD; supporting papers by Bulgaria, Czech
Republic, Ireland, Israel and Russian Federation

1.   The meeting considered the aspects that have an impact on quality improvements at the IT management
level: people, processes and products and technology. The first group of issues concerned software quality from
the sponsors' views to the end-users' perspective. The question was raised of how to measure the quality, and it
was stressed that it is not easy to quantify the quality.

2.   The participants also discussed the Capability Maturity Model (CMM) aiming at objective assessment of
the quality of the software. A pilot study of the use of the CMM for three projects was presented at the
Meeting, and the lessons learned were discussed. One of the findings was that the CMM looked more attractive
for upper-level managers than for middle-level managers. Other experiences concerned training, which was
found to be essential, budgeting, configuration management and implementation guidelines.

3.   Licensing issues were discussed. The participants pointed out that with the usual policy of softwarehouses
having high annual licensing fees, the software users do not own the software (or other perpetual rights to the
software). This represents a disadvantage for statistical offices. Other more general issues of software
development and maintenance were also discussed. In this connection, the right balance between outsourcing
and in-house development is of interest. When outsourcing some tasks, statistical agencies may ask contractors
to comply with ISO quality standards. Another issue related to the software by external developers is the use of
open source software.

4.   Another group of issues concerned the interaction between IT managements and managements of statistical
operations. In order to benefit from the possibilities provided by the current technology, the data flows,
coordination of data warehousing, grouping of statistical surveys, exchange and dissemination of statistical
information and other statistically related issues have to be taken up in connection with the statistical IT
management.

5.   New, mainly internet-related technologies, may help to improve the statistical services to end-users, in
particular by allowing end-users to obtain the data in the most suitable format and manipulate them according to
their individual needs. A group of international organizations have engaged in extensive developments. The
OECD.stat technology framework for statistical applications, was presented and discussed in this respect.

6.   The presentations also showed that in spite of the differences in the level of development of statistical IT,
availability of resources and know-how among individual countries, significant efforts are made in all of them
to achieve the highest standards of IT management. There are various motivating factors, such as, for example,
the accession to the European Union and numerous other factors.

7.   In concluding the discussion, the participants agreed that quality is more than just a smooth functioning
technology, because many other dimensions and perspectives have to be balanced. In this connection, it was
stressed that conflicts can occur when attempting to achieve high quality taking into account the budget/costs,
deadlines, stakeholders' priorities and desired characteristics, and that compromises may be necessary.
Delegates agreed that quality is becoming an issue of agreement between different actors rather than of a purely
professional assessment. There was also agreement on the necessity to allocate appropriate resources to quality
management (with the existing budgetary constraints in mind), and that the efficient use of such resources is
highly desirable.

8. The use of applicable standards was identified as one of the ways towards quality improvement of IT management. Another important conclusion was reached in connection with the necessity to have the IT management processes driven by the business requirements of the statistical organizations, and that the impact should be measured in the long term rather than the short term.

9. Delegates agreed that a set of guidelines on quality assessment may be useful for gathering requirements, architecture design, development methodology, testing methodology, etc. However, it was pointed out that quality management could also be considered as a piece of art, which is not easy to standardize and automate.

Topic (ii): Impact of technical measures and standards on data quality
Discussant: Georges Pongas (Eurostat)
Documentation: invited papers by Austria, Netherlands and OECD; supporting papers by Eurostat and Slovenia

10. The participants considered the impact of technical measures aimed at improving data quality related to the following: data warehousing, central metadata repositories, rational unified process (RUP) techniques for software engineering, Internet (mainly Web) related technologies, geographical information systems, methods and techniques for output databases.

11. The users' perception of data quality is often based on the quality of disseminated statistics. Therefore, the meeting discussed technical measures aiming at improving dissemination products. Publication databases and sophisticated contents management systems were discussed among these technical measures. There are very diverse views on pricing policies for statistical products within statistical offices. While statisticians may be inclined to choose free-of-charge dissemination of the main statistical results, some parts of management still aim at sales products. However, it was stressed that the dissemination and pricing policies should be centralized within the office rather than left to each organizational unit.

12. Integration was one of the common keywords emphasized repeatedly in the discussion. The example of the project on database integration was used to document how this approach can improve the consistency of statistics. The tighter integration of statistical metadata between statistical processes was seen as an important element for improving the coherence and compatibility of the statistics to be produced. Four important levels of the coherence of data and metadata were identified at the international level: within data sets, across data sets, across countries and over time. The *OECD.stat* framework was viewed this time from the perspective of database integration and its impact on data quality.

13. The participants also discussed methods and techniques for modelling and monitoring of statistical processes as one of the ways to improve quality. As an example, Eurostat presented the UML model of Data Life Cycle (CVD = Cycle de Vie des Données). In this connection, the importance of building international consensus on a conceptual framework for metadata was emphasized. It is not necessary to use the same metadata model in all countries, but it is important to be able to map metadata.

14. More general issues concerning modelling, management and monitoring of statistical processes were also discussed at the meeting. It was felt that the in-house development capacity, ability to implement new methods and up-to-date knowledge are crucial for the improvement of processes, services and data.

15. While it was stressed that the quality of data sources has a significant impact on data quality (summarized as "garbage in – garbage out"), some participants pointed out that by combining several imperfect sources, the information can be complemented and the quality increased. More generally speaking, it is important to avoid producing bad quality statistics from good sources, as the presentation and dissemination are very important for the quality of data delivered to end-users. Efforts can still be made to improve the quality of disseminated data originating from lower quality raw data.

16. The participants observed that there is a hesitation to change the production systems in a number of statistical organizations. It was stressed that it may really be risky to change the whole production, but many organizations choose a safer approach – they experiment with new models and approaches on a smaller scale and generalize it later.

Topic (iii): Efficient management of increasing technical complexity
Discussant: Wolfgang Knüppel (Eurostat); Preparation of the session was coordinated by Marton Vucsan (Netherlands).
Documentation: invited papers by Canada, Denmark, United States and Eurostat; supporting papers by Azerbaijan, Italy and United Kingdom

17. One aspect of technical complexity is the integration of historically decentralized and diverse information systems. Various approaches towards corporate IT architecture were discussed under this topic. Generic tools and models were considered, which may be generalized software tools for generic statistical processes (e.g. sampling, edit and imputation, estimation), or widespread generic tools (e.g. Blaise, SAS) for developing specific types of systems. Generalized schemes such as the Zachman Framework were also discussed. This is used for the development of business plans or re-engineering systems projects.

18. In connection with enterprise architecture, it was emphasized that the architecture should reflect the current state of business and technology. Common and consistent approaches should be used to plan and develop IT systems, and IT investments should be consistent with the enterprise architecture of the statistical offices. Some statistical offices aim at decreasing the diversity of the software used and improving standardization.

19. The migration strategy is important when implementing a new office-wide architecture. Several speakers referred to migration related issues. This is a complex process which not only includes the parallel running of legacy applications, but also numerous other issues such as time planning, transferability of data, mapping between systems, flexibility of integration, incremental deployment, the continuity of service, etc. – all of them aiming at continuity of the systems. The necessity of realistic planning and design as well as the support from top management and good communication at all levels of the organization were also emphasized.

20. A project on the development of a business portal was presented. The portal is used to coordinate communication with respondents to a large number of questionnaires issued by the statistical office and other public authorities. XML and XBRL are used for electronic data interchange. The importance of standardization was emphasized owing to an important number of XML schemas involved in the project. The data transfer security techniques (e.g. private key infrastructure (PKI), and security certificates) were also discussed. Other projects were presented at the meeting aiming at integrating the databases, aggregation and generation of output.

21. Another aspect of technical complexity is the management of complex processes (e.g. complex statistical surveys). Some examples of solutions were presented, such as the management of the Labour Force Survey (LFS). The use of network services, in connection with the LFS, permitted daily transmission of household data, reducing the non-sampling (mainly human) errors, integrating the staff involved in the survey and reducing costs at the same time.

22. Participants identified a general tendency towards a centrally coordinated systems architecture. A number of countries (about one third of those represented at the Meeting) are currently undergoing talks at the top management level on the transformation and implementation of an organization-wide architecture. In some cases this is driven by internal motivation within the statistical office. In other cases, this is a consequence of a broader government policy. Participants discussed the advantages/disadvantages of an evolutionary change as compared to a revolutionary one. The discussion showed that some countries undergo gradual changes while others undergo a "big-bang" transformation. However, the pilot studies are important (and undertaken) also in the case of "big-bang" changes.

23. The participants also touched upon the issue of possible benefits from the international exchange of experiences and from the lessons learned by countries that are a few steps further in the transformation process. They agreed that the present transformation processes cannot be considered final, and that the development of new technologies and the roles of statistical offices will also require perpetual improvement in the future. On the other hand, it was stressed that it is not possible to simply re-use the modules of statistical information systems by various countries, taking into account different legislative and organizational backgrounds, but that the re-use of skills and sharing of knowledge shall bring the benefits.

24. The general discussion highlighted that the development of statistical information systems is to be seen as a common undertaking of statisticians and informaticians. Therefore, it is necessary to reflect, at future meetings like the present one, the views of both groups.

Topic (iv): Review and follow up to the activities of the conference of european statisticians in the field of statistical information processing
Discussants: Jan Byfuglien (Norway) and Juraj Riecan (ECE)
Documentation: background papers by OECD and ECE, Norway and ECE

25. The participants recalled the request made by the CES at its 2002 plenary session: (i) to investigate the possibility of developing a common system (portal) for monitoring data collection activities by international organizations; (ii) to ensure the development of data sharing models; (iii) to give both NSOs and other data providers easy access to statistics available at the international organizations in a form allowing comparisons and use in national dissemination programmes; (iv) to put in place secure and operational methods and tools for the transmission of sensitive information; (v) to investigate the possibility of defining a standard codification scheme for economic time-series with an initial focus on short-term indicators; (vi) and to work with national statistical offices to facilitate the reuse of their standard products.

26. The international organizations stressed that the six points seem quite ambitious and that a realistic action plan should be created. The joint Task Force of ECE, Eurostat and OECD suggested that development of such a plan requires more thorough preparation involving a discussion of experts of the international secretariats together with representatives of their constituencies. The participants recommended looking after synergies between the proposals.

27. The discussion highlighted the main purpose of the exercise - that is, the better coordination of data collection by international organizations. Past experience showed that member countries were often asked to deliver the same date in different formats and structures to several organizations, and the national statistical offices believed that the current technology may help in resolving these issues.

28. The participants considered the time-limited discussion more as a brainstorming session, and a call for ideas to which countries may contribute. They recommended using the existing structure of meetings, working groups and committees. Eurostat plans to bring this to the attention of the Statistics, Telematic Networks and EDI Working Group (STNE). The Statistical Data and Metadata Exchange (SDMX) initiative was seen as a natural actor. OECD recommended taking up these issues at OECD's committee in collaboration with its member countries.

29. Priorities and clear responsibilities are to be agreed upon. Metadata were discussed as a key to harmonization and common solutions. Therefore, it was suggested to take this fact into account when setting up the priorities. Coordination between different actors at international and national levels was also seen as a priority. Codification of time series was seen as a priority, and this may need to be taken up by experts in subject matter areas rather than IT experts alone. Generally speaking the participants felt that this group was a part of the issue, but could not cover the follow up in its entirety.

30. The Meeting noted that the group of the "Friends of the Chair" has prepared a paper on coordination and assessment of the statistical indicators derived from United Nations summit meetings for the UN Statistical Commission (E/CN.3/2002/26).

31. In concluding the discussion, the Meeting recommended that the international organizations review the matter in the near future, and prepare a new paper. In doing so, the issues appropriate to information systems experts and issues better fitting the subject matter areas should be distinguished.

Topic (v): Annual review of the website on IT practices in the national statistical offices
Discussant: Gérard Salou (OECD)

32. The meeting recalled that the CES Bureau has asked ECE, OECD and Eurostat to send a joint letter to heads of national statistical offices asking them to nominate national focal points and to provide contributions. The CES Bureau proposed to publish the results of the 5th and 6th research and development frameworks of the European Union on the website. It was emphasized that such a letter should stimulate interest and not just contain a formal request. The suggestion was made to include in the letter the description/examples of possible types of best practices which the national statistical offices may wish to share using the website.

33. The OECD representative presented the structure and content of the website, including the search, glossary and submission features (submission by users, approval by the editor, etc.). The information is structured according to the Zachman Framework. Some participants found the present structure is slightly complicated and suggested that we need some form of learning process. (Should the structure be process oriented? Are there other alternative structures, etc.?) It is preferable that the information be hosted by the author organization and that the website serve as a portal.

34. Getting more content on the website was seen as the priority. The role of the editorial board was also discussed at the meeting. A proposal was made that the MSIS Steering Group would assume permanent responsibility for the website. National focal points may play a role in searching and bringing more and attractive contents to the website. A similar possibility would be to ask the national webmasters to include a keyword "IT practices in NSOs" in the relevant pages and documents posted on the national websites – this would permit the editors to search for the relevant material.

35. Broadening of the scope is also one way of getting more and better contents. Some national representatives mentioned that colleagues in national statistical offices involved in statistical data processing showed an interest in the website. This may require changing slightly the title of the website.

36. The participants appreciated the quick implementation of the website by the OECD. They made some pragmatic proposals such as the possibility for users to post questions. Another suggestion was for a search engine, which would be able to search through websites of national statistical offices. A less technically complex solution was that the editors of the website would crawl around the national websites and look for possible material to be indexed and linked through the website.

37. Generally, the participants demonstrated interest in the website and recommended progressing the work.

Topic (vi): Future work in the field of management of statistical information systems

38. The participants considered it useful for national and international statistical offices to continue the exchange of experiences in the field of management of statistical information systems. The Steering Group prepared a consolidated proposal on the basis of suggestions put forward by the participants, and this served as a basis for the plenary discussion. In concluding their discussion on the future work, the participants recommended including the following activities in the programme of work of the Conference of European Statisticians:

a) Joint UNECE-Eurostat-OECD Meeting on Management of Statistical Information Systems (to be held in 2004) to consider the following:

   (i) Web technology in statistical information systems (covering a broad range of aspects such as collection, dissemination, applications, security, etc.);

   (ii) Development of IT strategies in statistical offices (fundamental issues such as data integration, architecture, governance, centralization, outsourcing, etc.);

   (iii) Open source in statistics (including both, the use of open source software, and making the products of statistical offices open source);

   (iv) Review and follow up to the activities of the Conference:

- Progress made in the field of statistical metadata;
- Follow-up to the 2002 review of international data collection issues;
- Annual review of the Website on IT Practices in National Statistical Offices;

b) Pilot survey among national statistical offices (about 10 offices covering various parts of the UNECE region) on the development of IT. The summary of the pilot survey will be presented to the Bureau of the Conference at its October 2003 meeting. On the basis of the summary paper, the Bureau will decide whether the work will be developed further for the seminar part of the 2004 plenary session of the Conference. The participants suggested choosing the impact of e-Government on statistical agencies (e-Statistics) as the main theme of the survey, and the following questions were suggested at the meeting: (i) cooperation with other government departments; (ii) harmonization of metadata and related issues; and (iii) Web services. The Steering Group will finalize the questions and contact the selected national statistical offices.

39. The participants recommended that the sponsoring international organizations try to find a venue easily accessible by the participants from the countries in transition, in order to encourage and facilitate their broader participation. The possibility of organizing, in cooperation with UNSD, a special event for countries in transition back-to-back to the next meeting was mentioned.

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