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**UNITED NATIONS STATISTICAL COMMISSION and
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CONFERENCE OF EUROPEAN STATISTICIANS**

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

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

Meeting on the Management of Statistical Information Systems (MSIS 2009)
(Oslo, Norway, 18-20 May 2009)

REPORT OF THE MEETING ON THE MANAGEMENT OF STATISTICAL INFORMATION SYSTEMS

Prepared by the UNECE secretariat

1. The Joint UNECE/Eurostat/OECD Meeting on the Management of Statistical Information Systems (MSIS) was held in Oslo, Norway, from 18 to 20 May 2009. Participants from the following countries attended the meeting: Armenia, Australia, Austria, Bosnia and Herzegovina, Canada, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Greece, Hungary, Ireland, Italy, Netherlands, New Zealand, Norway, Republic of Korea, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom and United States of America. The European Commission was represented by Eurostat. Representatives from the following international organizations also attended: Food and Agriculture Organization of the United Nations (FAO), United Nations Educational, Scientific and Cultural Organization (UNESCO), United Nations Industrial Development Organization (UNIDO), Organization for Economic Cooperation and Development (OECD), International Monetary Fund (IMF), and Bank for International Settlements (BIS).
2. Mr. Rune Gløersen, Director of IT Services, Statistics Norway addressed the meeting at the opening, and welcomed the delegates.
3. The agenda of the meeting (WP.1) consisted of the following substantive topics:
 - (i) Sharing of software and components;
 - (ii) Governance;
 - (iii) Architecture;
 - (iv) Future work.
4. Mr. Rune Gløersen (Norway) acted as Chairman of the meeting. The preparation of the substantive work was organized by: Mr. Marton Vuksan (Netherlands) for Topic (i); Ms. Cathy Wright and Ms. Jolanta Stefanska (IMF) and Mr. Adam Wronski (Eurostat) for Topic (ii); Ms. Karen Doherty (Canada) for Topic (iii) and Mr. Steven Vale (UNECE) for Topic (iv).
5. The Chairman provided feedback from the Bureau of Conference of European Statisticians which met in February 2009. The Bureau are supportive of the MSIS work programme and the proposals on software sharing, but would like to see a clear focus on topics where experiences could be easily shared, rather than presentation of specific national issues. MSIS should also be more globally focussed rather than just European focussed.

6. The sponsoring international organizations (UNECE, OECD and Eurostat) thanked the members of the Steering Group on the Management of Statistical Information Systems for their work in preparation of this meeting.

FURTHER INFORMATION

7. The delegation of the Republic of Korea offered to host the next Joint UNECE/Eurostat/OECD Meeting on the Management of Statistical Information Systems in Daejeon, Republic of Korea from 26 to 28 April 2010. Participants felt that this would provide a good opportunity to enhance awareness of statistical information systems and to increase cooperation with countries of the Asian and Pacific region.

8. The conclusions reached during the discussion of the substantive items of the agenda are contained in the Annex. Presentations and all background documents for the meeting are available on the website of the UNECE Statistical Division (<http://www.unece.org/stats/documents/2009.05.msis.htm>).

9. The participants expressed their great appreciation to Statistics Norway for hosting this meeting and providing excellent facilities for their work.

ADOPTION OF THE REPORT

10. The participants adopted the present report before the Meeting adjourned.

ANNEX

SUMMARY OF THE MAIN CONCLUSIONS REACHED DURING THE MEETING ON THE MANAGEMENT OF STATISTICAL INFORMATION SYSTEMS (MSIS 2009)

Topic (i): Sharing of software and components

Session Organizer/Discussant: Marton Vuksan (Statistics Netherlands)

Documentation: Invited papers by Australia, Netherlands, Italy, Norway, UNIDO and OECD.

1. The Session Organizer, in his opening remarks noted the following issues raised in the papers:
 - sharing is difficult due to the variety of different systems;
 - a lack of common architecture impedes understanding;
 - the conditions for sharing need to be developed and should work more from top down;
 - open source software is gradually gaining in acceptance and becoming more widespread;
 - it is not always necessary to pay a lot of money to get something good;
 - the Generic Statistical Business Process Model that has just been approved by the Steering Group on Statistical Metadata, together with the final report of the MSIS Task Force provides a good starting point.

2. The Australian paper stressed the importance of having a strong commitment from the organization. Systems architecture can be an obstacle to sharing. However, good personal relations are a crucial asset and can help to overcome many problems. The Office aims to make shared software and collaborations work through demonstrating clear benefits and building expertise through staff exchanges.

3. The papers from Norway/Finland and OECD stressed that there can be no cooperation without organization. Open source software is not necessarily without cost (testing, implementation, support etc.). Success can be expensive if not managed properly, as increasing demand for sharing adds overheads and can be seen as increasing risk if expectations cannot be managed. A certain amount of legal input is needed concerning licensing agreements, but can also lead to a more cautious approach.

4. The UNIDO paper showed how collaboration tools such as wikis, blogs etc. are increasingly being used within and between statistical organizations and how they are changing the way we work together. However, they need to be kept focussed on a specific topic. There are several different types of wiki software available and the choice depends on the number of users and how it is intended to be used. This choice is an important one as it is not easy to migrate large wikis from one platform to another.

5. During the discussion, it was stressed that open source is not always the best solution. Other approaches may be more appropriate in certain situations. There were some reservations expressed about conflicts between the open source philosophy and national policy or legal restrictions. For these reasons, several models for software sharing should be considered and legal and licensing issues should be separated from each other. Several participants raised points relating to costs and benefits of sharing and its potential benefit to the global statistical system as a whole. Sharing can be facilitated by encouraging a philosophy of developing software for re-use rather than solely in the context of a specific application.

6. A progress report from the new ESSNet (European Statistical System network - a European Union funded project) on a common reference architecture was presented. This project will soon start and the work packages will be defined. It will build on existing models and frameworks and include an inventory of existing shared software, as well as recommendations on architecture development and harmonization. The results will be presented to the next MSIS meeting.

7. At the 2008 MSIS meeting, it was decided to ask the Steering Group to create an informal task force to prepare a report on possible future work on sharing software and components. The final report and proposals for a Sharing Advisory Board, were presented by the chair of the Task Force.

8. The Meeting supported the creation of the Sharing Advisory Board pending the approval by the Bureau of the Conference of European Statisticians. It endorsed the proposed work programme and terms of reference as contained in Working Paper No. 9 and addenda. The MSIS Steering Group will oversee the necessary preparatory work. The Task Force will continue preparatory work under the MSIS Steering Group.

Topic (ii): Governance

Session Organizers/Discussants: Cathy Wright and Jolanta Stefanska (IMF) and Adam Wronski (Eurostat)

Documentation: Invited papers by United Kingdom, Ireland, IMF and UNECE; supporting paper by: United States of America.

9. The papers presented under this topic addressed experiences related to the management and governance of statistical business and IT management, including issues of sourcing, models for software development, and interactions between IT and statistical staff. In the introduction, a recent article from the Harvard Business Review was quoted. This article identified that in most organizations 2 out of 3 transformations fail. Key factors for success are identified with the acronym DICE: Duration, Integrity, Commitment, Efforts. The general feeling was that the longer the initiative carries on the more likely it will fail, but this is not necessarily always the case. The time between reviews is more critical than the project life span. Good quality of the transition team is very important. If staff do not feel they have top level management support, they do not make the same effort.

10. Key points raised in the presentations from the United Kingdom, Ireland and U.S. Census Bureau included:

- breaking development projects down into small, time limited components;
- developing generic services rather than having direct links between developers and business;
- move to a more service-oriented architecture;
- designing for re-use rather than for a single requirement;
- moving from informal to more formal processes;
- non-standard user needs can possibly be met through virtualization (having different environments on the same computer – both standard and open);
- growing numbers of “power users” place increasing demands on system developers;
- more time should be spent on determining design requirements to capture errors at an early stage;
- tensions exist between formal standards and requirements such as codes of practice and statistical confidentiality on the one hand and informal solutions (finding a way around restrictions) on the other.

11. The IMF highlighted the significant cost savings available from outsourcing IT functions. One factor in the success of outsourcing was the creation of governance teams and a clear project manager role. During the discussion, the risk of becoming too dependent on one service provider was raised as well as the impact on software sharing initiatives.

12. The UNECE presented progress on developing the Generic Statistical Business Process Model which has recently been approved by the Steering Group on Statistical Metadata. The Model can help to identify synergies between business processes and facilitate the development of common architecture and sharing of components. It was stressed that the Model was not linear and can be applied to all statistical production.

13. During the discussion the following points were made:

- Quality of software is a key component in the success of all statistical work, consequently software development attracts a lot of attention;
- Clear specific standards are essential;
- There is a trend toward centralized and more formal development processes;
- There is a need to separate what needs to be done from how it should be done but this is not always done in practice;

- Having the right resources and managing mobility is important for success;
- Building a component-based architecture could be a first step towards a system-based architecture;
- There is an interest in future Asian and European cooperation;
- It is useful to make a distinction between statistical and more general applications as the latter can be outsourced more easily;
- There can be a danger in too much standardization and some flexibility at the sub-process level may be necessary;
- There is a trend in the IT industry towards external processing but this is of limited interest to statistical organizations because of confidentiality concerns;
- Whether increased standardization hampers or encourages innovation;
- A partnership between IT and methodology specialists can be more successful in convincing subject-matter statisticians.

Topic (iii): Architecture

Session Organizer/Discussant: Karen Doherty (Statistics Canada)

Documentation: Invited papers by United Kingdom, New Zealand, Canada, Croatia and Eurostat; supporting papers by: United Kingdom, Slovakia and Republic of Korea.

14. The papers presented under this topic considered the following aspects of architecture:

- High-level description of enterprise architecture;
- Business architecture processes;
- IT architectures (design);
- Technical architecture (fuzzy logic).

15. The session was structured in two parts, the first dealing with enterprise architecture, and the second dealing with more solution or domain specific architecture. The Session Organiser noted a gradual move towards a broader view of architecture issues over recent MSIS meetings.

16. The presentations from New Zealand and the United Kingdom considered the drivers for changes to enterprise architecture, and highlighted recent experiences in these countries. The United Kingdom presentation showed how a systematic evaluation of current strengths and weaknesses combined with a detailed mapping of the links between systems can be used to convince managers and business areas of the need for change, and can help to prioritize those components most in need of updating. The presentation from New Zealand showed how the various drivers for change affected the development of new enterprise architecture to meet requirements for simplification and better communication. It was stressed that business process models should be descriptive not prescriptive, to complement a move from a policing to a service-based enterprise architecture model.

17. The supporting paper from the United Kingdom stressed the role of architecture reviews within the system development cycle. It described how review workshops can match quality attributes with business requirements, and how risk scoring can be used to help assess options, alongside assessments of how well different options fit with architecture principles.

18. The presentation from Canada considered architecture issues for data collection in a decentralized system with multiple collection methods. There is a growing trend, partly respondent driven, towards Internet collection and giving respondents a choice of modes for supplying data. The introduction of a new collection architecture can lead to pressure to realign organizational structures. During the discussion, the issues of editing at source and centralization of data storage were raised.

19. The second part of the session started with a presentation from Croatia on the development of an integrated statistical information system, a metadata driven system for processing and analysing data. The key components are a central metadata repository and a data warehouse. Modules are being developed for specific aspects of survey processing, and a demonstration of the user interface was given.

20. Eurostat presented work on defining a distributed architecture for processing and disseminating statistical data. The aim is to promote collaboration and increase efficiency within the European Statistical System using a metadata-driven approach to data federation. A common logical model is needed, as well as mechanisms for ensuring data security. Data federation can be introduced gradually, and can co-exist with existing systems during the transition period. The discussion focused on the use of SDMX, data search capability and encryption issues.

21. Two supporting papers were presented by Slovakia and the Republic of Korea. The Slovak presentation concerned soft computing techniques, based on fuzzy logic, with examples of database queries and classification. Record selection can be more flexible, allowing examination of records that almost meet the given criteria, as well as those that clearly meet the criteria. The Korean presentation focused on an integrated architecture for the 2010 e-census system. There is a growing need for web collection systems for the population census, so a new architecture is being put in place that will allow multiple collection modes. This architecture will also be re-used for other censuses such as agriculture and economy.

22. The Session Organizer stressed that architecture is a very broad topic. In the past, the focus of architects was on the design and development of specific applications. The need for this level of focus remains as was demonstrated by several of the presentations under this topic. Most organizations are looking for ways to manage the large investment they have made and continue to make in IT, whilst developing approaches that promote re-use and standardization.

Topic (iv): Future work

Discussant: Steven Vale (UNECE)

Documentation: Paper by the MSIS Steering Group

23. The UNECE secretariat presented the Steering Group paper on possible future outputs from the MSIS group. The meeting reviewed the following proposals:

- (i) Revise and update the 1999 publication “Information Systems Architecture for National and International Statistical Offices – Guidelines and Recommendations”;
- (ii) Investigate the possibility of flagging certain papers from previous MSIS Work Sessions as representing “good practice”;
- (iii) Produce new outputs containing standards or guidelines, or identifying good practices for a particular field of activity of interest to MSIS Work Session delegates.

24. One delegate suggested a web site where documents can be discussed, tagged etc. For example, if it is decided to update the 1999 publication “Information Systems Architecture for National and International Statistical Offices”, a wiki could be set up by the UNECE, which would allow all who have access to update the publication. This shared responsibility would be more efficient. It could then be published in hard copy afterward. Wikis can be worked on throughout the year which encourages participation all year-round and not just during the meeting.

25. Some participants raised concerns about the potential for duplicating work as there are a number of projects that overlap. It would be necessary to bring the work being done elsewhere together, rather than to start from nothing. As no funding is available, all work on future products would have to be done for free.

26. Possible themes for future work were proposed in the Steering Group paper:

- Developing a common high-level business architecture;
- Good practices for systems development;
- Guidelines on the pre-requisites for sharing statistical software;
- Good practices for the shared development and maintenance of statistical software;
- Good practices for ensuring the security of statistical data;
- Guidelines for developing Internet data collection systems;
- Good practices in statistical information systems – Case studies.

27. During the discussion, the following suggestions were made:
- Issues for Asian statistical organizations and increased cooperation with European/North American organizations – this was seen as particularly relevant for the next meeting in the Republic of Korea;
 - Infrastructure – unless this is covered by in Architecture or Governance;
 - Cloud computing and virtualization;
 - Software sharing and architecture could perhaps be merged;
 - Census systems and applications;
 - Internet distribution and visualization of results – though a specific focus on dissemination tools should be avoided as there are other groups working in this area.
28. Participants agreed that it would be preferable to have a long list of “hot topics” included in the Information Notice for Participants that is sent with the invitation for the next MSIS meeting. The final list of topics could subsequently be narrowed down according to the interests expressed by Statistical Offices.
29. Participants also felt that it would be useful for MSIS to have a broader geographic membership. As the next meeting will take place in the Republic of Korea there is an ideal opportunity to do this through cooperation with the United Nations Economic and Social Commission for Asia and the Pacific.
30. Pending the approval of the Sharing Advisory Board by the Bureau of the Conference of European Statisticians, work on this topic will continue to be led by the MSIS Steering Group through the continuation of the informal task force. The work programme will be in line with that proposed in Working Paper 9, Addendum 4. It was noted that any country is free to contribute to this work.
