**UNITED NATIONS ECONOMIC COMMISSION
FOR EUROPE (UNECE)
CONFERENCE OF EUROPEAN STATISTICIANS**

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

**ORGANISATION FOR ECONOMIC COOPERATION
AND DEVELOPMENT (OECD)
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Meeting on the Management of Statistical Information Systems (MSIS 2011)
(Luxembourg, 23-25 May 2011)

Topic (iv): International cooperation/collaboration

Embracing the changes required for a successful collaboration

OECD Statistical Information Systems Collaboration Community experience

Invited Paper

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I.   Introduction

1.   The OECD has been sharing its main Statistical Information System (SIS) modules with a number of other International Organisations and National Statistical Agencies since 2007. The various SIS modules manage the full life-cycle of statistical data and metadata processing from data capture through dissemination.

2.   Previous reports have been presented at the MSIS meetings reporting on the status of sharing, challenges, and benefits, as well as providing an overview of the SIS modules themselves. This paper provides an update on the status of the sharing of the SIS modules, what changes have been made by OECD to support the increasing demand from other organisations that have adopted the SIS modules, the challenges facing the group, and what changes are required by all members to ensure long term sustainability and success of the Statistical Information Systems Collaboration Community (SIS-CC).

II.   A brief history

A.   How it all began

3.   The OECD began sharing the main components of its Statistical Information System software in 2007 when the IMF requested to collaborate on the development of the OECD.Stat statistical data warehouse project. This followed an earlier collaboration project on developing a Trade system with UNSD which proved to be successful and thus encouraged the OECD to embark on further joint ventures. A Memorandum of Understanding (MoU) was drafted between the two organisations and it was agreed that future developments would be managed on a shared basis as a single project.

The MoU covered the following aspects of the collaboration:
- Mutual interest of participating organisations,
- responsibilities of the participants,
- governance,
- apportionment of costs,
- and, intellectual property.

4. This was all good in theory but a number of factors contributed to difficulties in meeting the objectives of the collaboration. These were differences in the approach to solve the common need, conflicting priorities, and no dedicated resource to drive the collaboration activities. The SIS-CC is now learning from the early mistakes to ensure this provides a positive way in which to ensure long term success and sustainability.

B.   What is SIS?

5. The main modules of the OECD Statistical Information System are StatWorks, MetaStore and OECD.Stat. The SIS package will also soon include the OECD 'eXplorer light' data visualisation software. The following diagram demonstrates how each component fits into the overall OECD Statistical Information System architecture:
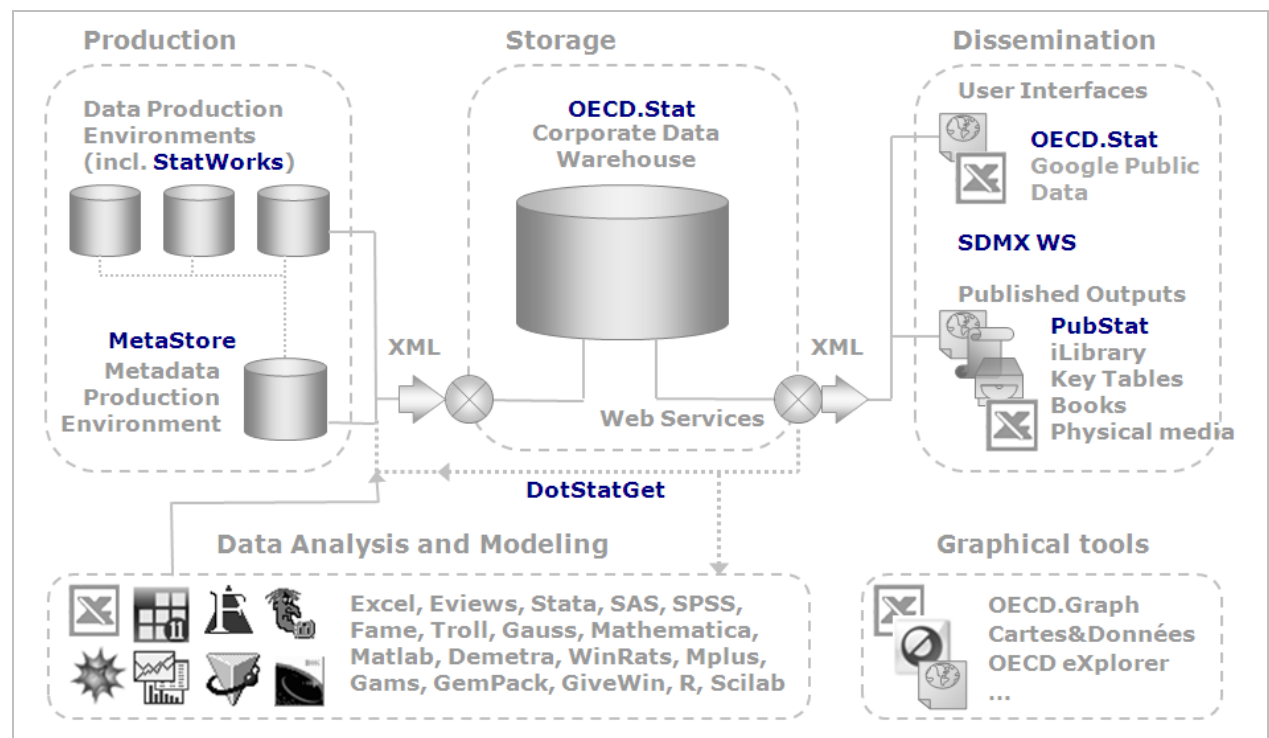
6.   StatWorks
- Application for statistical data management
- Multi-dimensional data structure
- Handling quantitative and qualitative data
- Attached notes at the data point level
- 2 data areas: production, imported
- Technology
    o Client-server architecture
    o SQL 2008
    o .NET technology
    o Windows client

7. MetaStore
   - System to manage reference metadata
   - Attach metadata to any level
   - Dataset/dimension/member/cross-section
   - Referenced by multi-dimensional coordinates
   - Metadata categorised into 41 types
   - Connected to the data management system (SQL Server based)
   - Structure information (dimensions, members)
   - Permissions
   - Integratable with StatWorks and OECD.Stat

8. OECD.Stat
   - OECD.Stat is the OECD's statistical data warehouse which is;
   - based on Microsoft .NET and SQL server technology,
   - a single access point to statistical data and metadata,
   - a common mechanism for fast data location and extraction,
   - a centralized system for access rights management, and the means for data providers to decide what data should be shared with other users,
   - separation of the production and dissemination environments to for improved performance and data integrity,
   - and with which analytical tools and publication processes can be integrated.

III.   Laying the foundation for a strong SIS Collaboration Community

A.   Collaboration enablers

9. The collaboration framework consists of three organisational enablers to foster and sustain the value of the SIS collaboration.
   a. Members and culture,
   b. Governance and process,
   c. and Tools and technology.
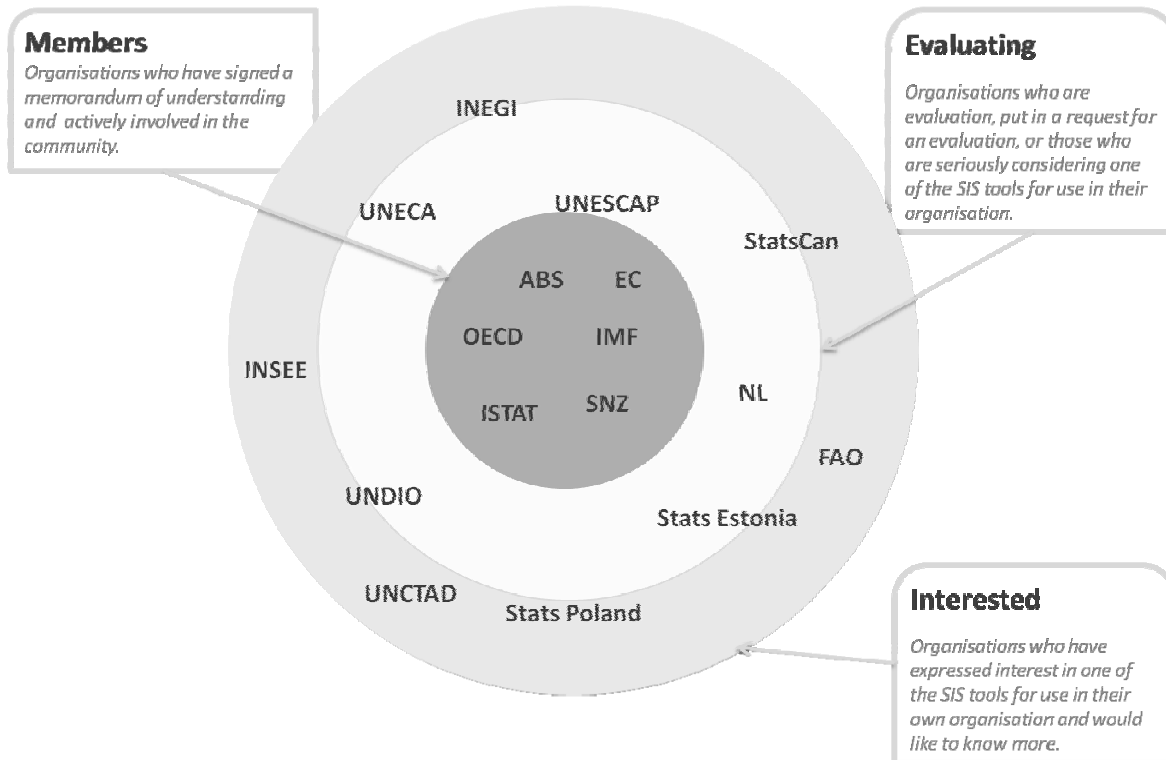
B.   Who are the SIS-CC members?

10. SIS-CC collaborating members are those that have signed Memorandum of Understanding (MOU) to use one or more of the SIS modules, and actively involved in the community. The table below shows the current member organisations, modules used, and when the MOU was signed.

Organisation	Module(s)	MOU Signed
Australian Bureau of Statistics (ABS)	.Stat MetaStore (e)	Signed May 2010
European Commission (EC) (Business Unit - DG-SANCO)	.Stat	March 2011
International Monetary Fund (IMF)	.Stat MetaStore	Signed June 2007
Italian National Institute of Statistics (ISTAT)	.Stat MetaStore (e) StatWorks (e)	Signed July 2010
Statistics New Zealand (SNZ)	.Stat	Signed May 2009

Note: (e) indicates that the modules are currently being evaluated for use and no MOU for the module has been signed. MetaStore is included in the MOU if one is in place for either .Stat or StatWorks.

C.   Who has shown interest?

11.   The diagram below shows the different organisations that have either expressed interest in one or more of the SIS modules, those that have evaluated or put in a request for evaluation, as well as the member organisations listed in the table under 'Who are the SIS-CC members'.

Members
Organisations who have signed a memorandum of understanding and actively involved in the community.

Evaluating
Organisations who are evaluation, put in a request for an evaluation, or those who are seriously considering one of the SIS tools for use in their organisation.

Interested
Organisations who have expressed interest in one of the SIS tools for use in their own organisation and would like to know more.

INEGI
UNECA   UNESCAP
StatsCan
ABS   EC
OECD   IMF
INSEE
ISTAT   SNZ   NL
FAO
UNDIO
Stats Estonia
UNCTAD
Stats Poland

D.   Community Values

12.   There are four key values that form the basis of how the SIS-CC will work together. They are:
   a. **Partnership:**
      i.   Community philosophy is based on one of collaboration rather than customer/client commercial relationship**,**
      ii. all members to be included in decision process for the majority of community related elements,
      iii. share knowledge and learn from each other.
   b. **Commitment:**
      i.   Fully commit to the ongoing success of the community,
      ii. support each other in the common interests of the community,
      iii. members should contribute financially and in-kind.
   c. **Transparency:**
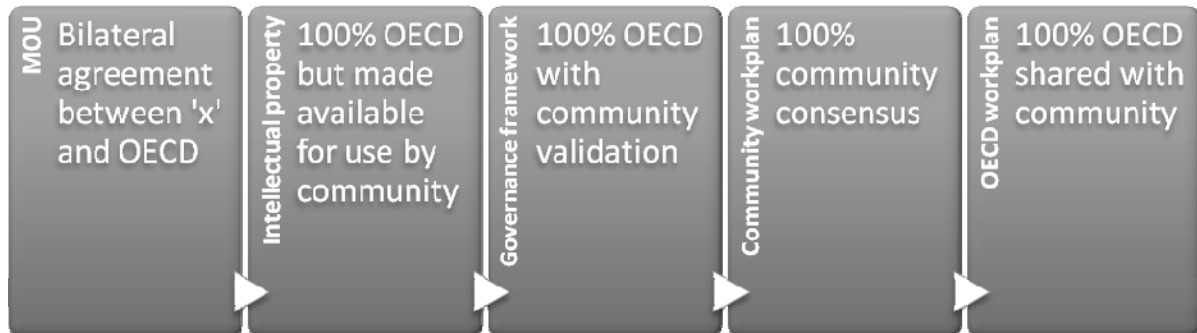   i.   Each member encourages openness through communication.
   d. **Fostering common standards:**
      i. Use of Statistical Data and Metadata Exchange (SDMX).

E.   Governance and process

13.   This covers the set of business processes and activities that is required to manage the collaboration. It includes the 'Breakdown of community contributions', both in-kind through resource commitment and financial through direct funding. This also covers how support is to be provided, the change management approach and the application lifecycle management.

14. The following represent the five **key documents** that form the working relationship between member organisations:

MOU	Intellectual property	Governance framework	Community workplan	OECD workplan
Bilateral agreement between 'x' and OECD	100% OECD but made available for use by community	100% OECD with community validation	100% community consensus	100% OECD shared with community

15. The **Governance structure** is divided into three levels:
    a. Strategic
    b. Management
    c. Operational/Technical

16. Establishing the right organisational model for collaboration requires an executive sponsor, who will champion the SIS-CC among the executive team within each member organisation in order to support the activities carried out by the levels immediately below. This is expected to be a higher level executive, for example CIO. It will be most effective if the executive sponsor is from a business function and partnered with IT. This level is known as the Strategic level. It is not expected that the strategic level will meet regularly as a group but may on occasions call a meeting or meet bilaterally during other scheduled meetings or conferences.

    At the management and operational levels is where most of the community activities are to take place. It is important to note that the operational level is likely to include several people from each member organisation, whereas the other two levels will only have one point of contact. However, within the operational level a technical lead should be identified and appointed to the SIS-CC Technical Review sub group. Their main role is to undertake design reviews of technical architecture and ensure we remain informed and up to date as technology changes. Please note details of roles and responsibilities can be shared during the meeting.

17. **Community contributions**
    a. **SIS Community and OECD workplans** - OECD invests a substantial amount in an annual workplan to further develop the SIS modules, which OECD makes available for use by all members. Intellectual property rights of the SIS modules and the outputs of the community workplan and OECD workplan remain vested with OECD as outlined in the MOU. The OECD workplan is likely to account for an estimated 80-85% of the overall functionality delivered each year for the SIS tools. The other 15-20% functionality is to be delivered by the community workplan which must be 100% contributed by members.
    b. **Support -** Annual support contributions enable the OECD's SIS-CC coordination team to provide a total of 1-2 days per organisation per month which includes meetings, updates and technical support. This investment also includes an initial period of 5-10 days to cover offsite installation and support. In-kind contributions must also be provided by members and are a vital part of the support required in both the short and long term. It is expected that each member organisation will invest in the training and up-skilling of a technical lead that will provide the first level support from within each organisation. This person will also be suitable skilled to provide input and possible resolutions to technical queries posted to the collaboration community portal by other members.
    c. **Coordination -** Initial contributions are invested into building of the community and coordination of community activities. The coordination role sits with OECD. In future there may be opportunities for members to take on some elements of the coordination, but only once

the community is established and stabilised. The main coordination activities consist of the following:

    i.   manages dependencies between the OECD workplan and community workplan,
   ii.   management of the collaboration community SharePoint site,
  iii.   plans and manages the SIS-CC annual workshop,
  iv.   facilitates meetings and technical discussions, including agendas and minutes,
   v.   coordinates and manages the planning, build and release stages of the community workplan,
  vi.   management of bilateral agreements (MOUs),
 vii.   Updates the collaboration community framework and governance.

18.   **Community activities**

    a.   The four main activity streams are:
        i.   Promotion,
       ii.   build,
      iii.   and support,
      iv.   with coordination playing the central role to ensure coherence across all of these activities.

19.   Each of the activities has a number of inputs that contribute to a number of outputs. For example the diagram below shows the build inputs and outputs.
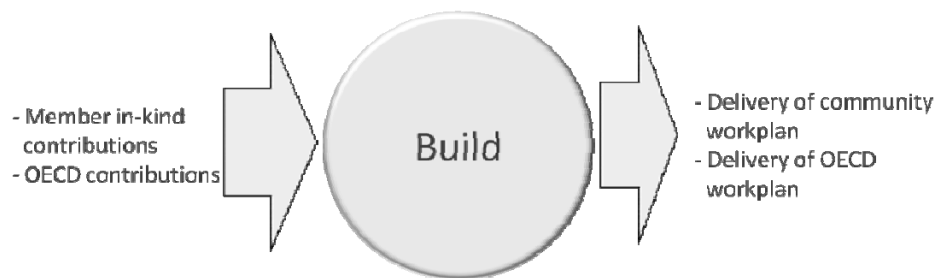
F.   **Application Lifecycle management**

20.   The Application Lifecycle Management (ALM) covers the process from concept to final delivery of the product and beyond, with the ongoing maintenance. Before looking at the ALM process that applies to the delivery of the SIS collaboration community workplan, we need to cover the basics.

21.   The set of baseline requirements for working on core components and code include:

    a.   having the right skills (One way this can be achieved is by rotations into the OECD core team),
    b.   have matching technology and be working on the same platforms as the core developments,
    c.   dedicate resources to the assigned tasks,
    d.   follow agreed development standards,
    e.   commit to the agreed timelines.

22.   It is important in the early stages of any project, especially one that spans a number of different organisations and involves a high degree of complexity to ensure the following is taken into account to avoid issues, or in the worse case failure.

    a.   start simple to build confidence and gradually increase complexity of assigned tasks
    b.   avoid too many early restrictions,
    c.   set-up some ground rules and increasingly build on these as we progress,
    d.   communicate openly and provide constructive feedback,
    e.   do not struggle; ask for help or questions of others. Remember this is collaboration so ask others if you are unsure; don't struggle on until it becomes a real issue.

23.   Development scenarios can be categorised by their level of complexity starting with the simplest at the bottom to the most complex at the top.
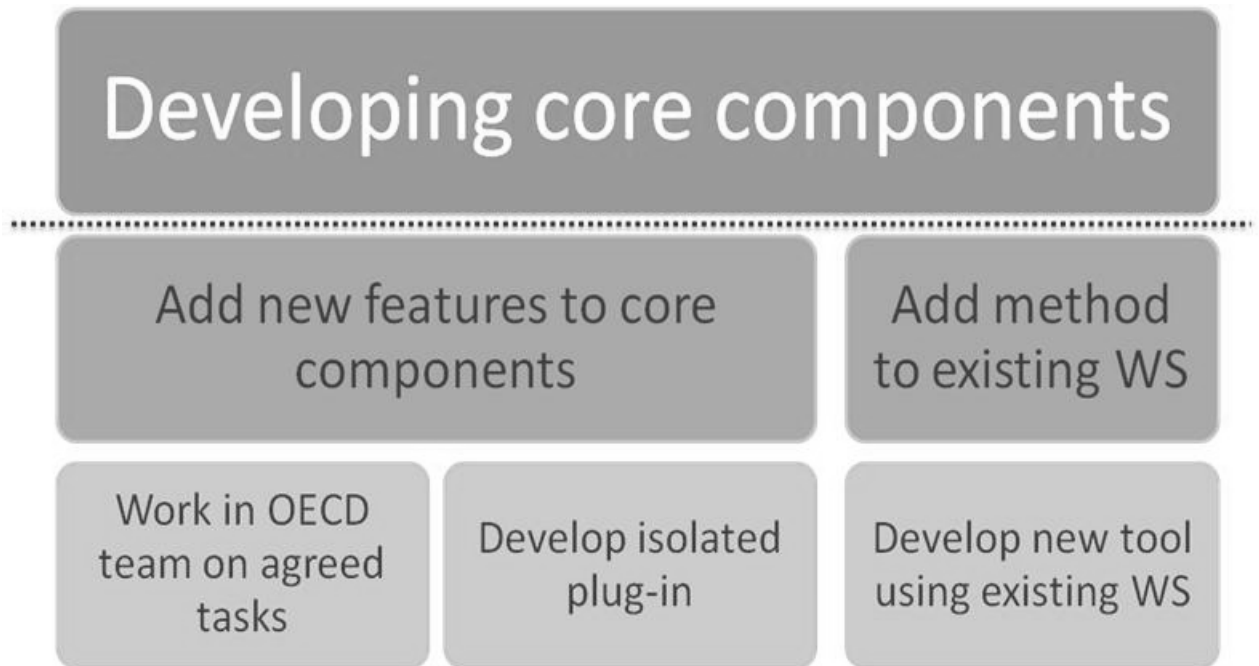
24. The SIS-CC ALM will follow Agile with scrum methodology. Duration of each sprint will be four weeks working towards one release every four sprints with a total of three major releases per year. A peer review is to be carried out within the last week of every sprint preferable by another member organisation.

Due to the difficulties in holding a daily stand-up meeting across all members, each organisation will carry out these meetings and complete the progress checkpoint template attached to scenario. At the end of each sprint a review and demonstration of product developed to date will be carried out. Where possible the OECD SIS-CC coordination team will participate. This is to be held remotely using desktop sharing so other members can join if they wish.

User acceptance testing will only take place during the final sprint before each planned release. This is to avoid a heavy burden on resources.

25. A very important aspect of the ALM is code quality. The better the code then it is less likely bugs will be found and builds can be completed quicker. Team Foundation Server 2010, with Visual Studio 2010 offers new features to ensure code quality and is the central platform for the collaboration developments in support of the SIS-CC ALM.

26. Breaking the team build is not a good thing. This will cause many people to lose time while the build is being fixed. We can avoid this is by only checking-in isolated branches, which allows you first to test if everyone's changes build together.

27. The use of Gated Check-in also called 'Unbreakable Build' will guarantee a certain level of quality in every build. It prevents broken builds by not automatically committing the pending changes to the repository, but the system will instead create a separate shelveset that will be picked up by the Gated Check-in Build. The build itself will finally decide if the pending changes need to be committed to the repository based on the applied quality gates.

28. The quality standards will gradually be increased over time as described in the following steps:
    a. Step 1:
        i. Force that check-ins are associated to work item (TFS Task, bug, etc…)
        ii. Verify that the code checked-in compiles
    b. Step 2:

        i. Systematic Unit Tests implementation (linked to every single task)
        ii. GUI Tests: Key Scenario
        iii. Tests have to pass before checked-in code can be accepted
        iv. Enable some basic Code Analysis rules (Security, etc...)
    c. Step 3:
        i. More Code Analysis rules will be enabled
        ii. Code Coverage will be enabled (minimum coverage has to be defined)

G. Tools and technology to support the community

29.   Tools and technology has deliberately been left until last because too often they are considered the only important element and not enough effort goes into governance, process, and the people element of the collaboration. There are a number of tools and different technologies to help support the SIS Collaboration Community including:
    a. Video-conferences
    b. Tele-conferences
    c. Email
    d. SharePoint sites
    e. Skype
    f. Lotus Live
    g. WebEx
    h. TFS with Visual Studio
    i. Machine to Machine access

30. Each of these tools can offer benefits to achieving a successful collaboration if used in the right way and to its full capacity.

31. **Machine to machine** access is to be used to provide direct access to servers hosting the solution in order to resolve issues that cannot be resolved by other means. This can be done by remote desktop and allocation access to a specific IP address. Installation can also be performed by this means.

32. The TFS server which hosts the source code also runs a **SharePoint** instance. This has been set-up to facilitate the sharing of information including documentation, discussions, as well as logging issues, making announcements, and initial planning for the developments.

33. **Skype** has provided an excellent way in which to hold ad-hoc and out of hour's conferences between organisations in different time zones. This enables members to participate in the conference from any location at any time by simply logging into their designated Skype account. A specific account has been set-up for members to contact the SIS-CC team at OECD

34.   There are still the traditional methods of communication including **telephone, email, video** and still very important **face-to-face** meetings. All of these should not be replaced by Web2.0 means of communicating but complement each other.

IV. Realising the benefits of collaboration

A. Benefits and trade-offs

35. Collaboration establishes a give and take among the members that is designed to produce solutions that would be difficult to achieve working independently. This dependence on each other helps to realise mutually beneficial solutions.

36.   Collaboration brings a great many long term benefits but in order to realise these first there are short term impacts which can be categorised as trade-offs.
37.   The benefits include:
    a. shared development investment
    b. increased innovation opportunities

      c.   accelerate delivery of outputs
      d.   use of common tools and standards

38.   The trade-offs include:
      a.   individual deadlines
      b.   niche requirements

B.   Collaboration impact zones

39.   The greatest payoff from an investment in collaboration comes when people and content intersect, whether in real time, asynchronously, or both. Collaboration drives the greatest value where there is a high concentration of; 1. interaction - for example, face to face meetings, phone conversations, or exchanging regular emails; 2. expertise - an exchange of knowledge or expertise; and 3. information - as found in documents, and shared work spaces.

40.   The points where interactions and the exchange of expertise and information are frequent, urgent, and complex can be referred to as 'collaboration impact zones'. Identifying the impact zones will help each member organisation to focus on the right areas which will ensure greater benefits and return on investment (ROI).

41.   The three components of collaboration impact zones are; 1. the business process in which there is a high concentration of expertise, information, and interactions required to deliver the tangible outputs, 2. the communication and collaboration tools put in place to enable collaboration, and 3. the business impact, as measured through the business processes impacted by collaboration. Collaboration activity impacts can help each organisation focus on the areas which ensure greater benefits and ROI.

VI.   SIS-CC Workshop 2011

C.   Overview

42.   The Statistical Information System (SIS) Collaboration Community is a community of organisations that share and develop collaboratively a set of modules that manage the lifecycle for statistical information. Initially developed by OECD the first collaboration took place in 2007 with the IMF, and then fully initiated in 2009.

43.   OECD is the leading community member. The other community members are: International Monetary Fund, Australian Bureau of Statistics, Italian National Institute of Statistics, Statistics New Zealand and, more recently, the European Commission.

44.   **The 2011 community workshop is the first time community members all met together, setting the path for a new phase of active, multilateral collaboration towards a common goal – developing together state-of-the-art Statistical Information Systems, according to a community oriented business model, and sharing of experiences, knowledge and best practices.**

45.   **Objectives:** The theme of the workshop was "Laying the foundations for a strong collaboration community" with the following key objectives:
      a.   Build a community spirit of sharing and working together for a common goal.
      b.   Facilitate the sharing of ideas and knowledge to increase the use and awareness of OECD common statistical information systems.
      c.   Confirm and initiate collaboration framework.

46.   **As an overall result, the strengthening of the community spirit was pursued, as well as the addressing of the demands of organisations interested in joining the community or simply seeking for information**.

47.   **Outline:** The main workshop was held over 2 days at the OECD conference centre in Paris. A total of 51 people attended representing 15 different organisations. Following topics were covered:
      a.   Presentations on use cases, working implementations and benefits gained from the systems,

b. Vision for SIS strategies and user requirements,
c. Focus on SDMX, an area where SIS have always been at the forefront of standards implementation,
d. Community governance and feedback on collaboration experiences among community members.

48. 3rd and 4th days were open to Community members only and covered specific topics in more detail, including:
a. Refinement of the governance model and development processes,
b. Definition of the requirements to be included in the 2011 community workplan.

49. Main Outcomes for Interested Organisations
a. Helped them increase their awareness and knowledge of OECD's SIS and the Collaboration Community,
b. Benefited from the experience of partner organisations on their SIS implementations and business cases,
c. New relationships were created through the sharing of ideas and knowledge.
d. Following the workshop, a number of organisations showed interest in evaluating the Statistical Information Systems or joining the community.

50. Main outcomes for member organisations
a. Exchanged precious experience, technical expertise and business views.
b. Confirmed and refined the proposed collaboration framework and governance model.
c. Agreed on the requirements to form the community workplan for 2011.
d. Strengthened relationships and sense of belonging among community members.

51. **Through the sharing of vision and the laying of the foundations for future collaborative work, the path was set for the community to bring substantial value and benefits to community members** in 2011 and beyond.

VII. Challenges and changes

A. Summary

52. The SIS-CC will need to overcome a number of challenges if it is to achieve long term sustainability and success. We talked about the organisational enablers with the most challenging being the 'Members and culture' enabler. Organisations will have to recognise that it may be necessary for those involved in the collaboration to have more freedom to work outside of the usual organisational processes and practices, and may have to be redesigned to allow teams to reflect the different ways of working. Eventually this will require changes and or adaptation at all levels – strategic (senior leadership), management, and operational. To start, organisations should systemically implement collaboration practices and behaviours at the project team levels (Operational) to facilitate collaboration both within team and outside the team with stakeholder groups.

53. Another area that is important in order to support the collaborative behaviours is change management. Teams within organisations who play a role in the collaboration community will need to adapt their processes to align with the common vision. We should leverage from others to ensure best practice, but be careful as to not stifle innovation or flexibility within teams to encourage success.

54. Trust will also play a vital part as we move forward, especially with those on the outside looking in who are not directly involved, but may well be impacted by the collaboration activities of the organisation. Processes and practices will become more transparent by opening up to the rest of the community. Organisations will need to learn to embrace this, but put in place new measures to avoid potential pitfalls. It will be the responsibility of the collaborative teams and their senior management (sponsors) to ensure this is achieved through a well communicated and understood vision for the collaboration.

55. The changing way we use technology has an important part to play. This will require rethinking for many, for example the opening up the channels which once were forbidden, or seen as risks to the

security of the organisation. Web 2.0 is not new and many organisations have come to accept this, and even in some cases used it to their advantage. SIS-CC is no exception, and it is vital that organisations address the policies of yesterday to enable teams to interact by all means necessary in order to complete the tasks at hand.

56.   This paper does not aim to present all the challenges face by the SIS-CC nor have all the answers. It is vital that the community recognises the challenges and the required changes. Over time these are likely to change as the community evolves, organisations will face new challenges, and with it new changes will be required. The SIS-CC will need to put in place measures to ensure it is flexible enough to meet the challenges and embrace the changes as they arise. Overtime the practices and processes will need to be reviewed to keep them current and match the way in which the teams collaborate.