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In-depth review of exchange and sharing of economic data[1]

Prepared by Statistics Finland

Summary

The present note is the in-depth review paper on exchange and sharing of economic data. The purpose of the reviews is to improve coordination of statistical activities in the region of the United Nations Economic Commission for Europe (UNECE), identify gaps or duplication of work and address emerging issues.

The note summarises international activities related to the exchange and sharing of economic data, and identifies issues and challenges. ***The conclusions and recommendations from the review are presented in section VIII.***

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I. Executive summary

1. Sharing and reusing data is paramount for improving quality and developing more efficient ways to produce statistics. The increasingly globalized world has forced official statisticians to look for solutions for national and international exchange of economic data.

2. This review investigates the data sharing in the production of official statistics. It provides an overview of existing practices both at national and international levels. National data sharing or reuse of already existing data includes the use of administrative records and use of data from private data holders. International exchange of economic data can be divided into bilateral and multilateral. It is also common at international level to share aggregated data for publication purposes.

3. The overview is based on a survey of country experiences which was carried out in all member countries of the Conference of European Statisticians (CES). It covers responses from 48 institutions. The review also presents selected case studies illustrating interesting examples and current practices in data sharing by both countries and international organizations.

4. The main findings, based on the country survey and overview of national and international initiatives received from countries and organizations, can be summarized in the following main groups:

- Main benefits recognized in national (less response burden, less non-response, better efficiency, better precision) and international (less data asymmetry, less response burden, better efficiency) data exchange;
- Main challenges observed: legal and confidentiality constraints, timeliness, concepts and classifications, trust, technical capacity and willingness to exchange data;
- Strategies to overcome the challenges: bilateral agreements, communication with respondents, following best practices, developing back-up systems/strategies for breaks in external data flow, developing new editing and now casting methods and co-operating with partners (national and international);
- Areas where progress is achievable: e.g. developing coordination mechanisms, exchange of information and experience, developing of guidelines or technological tools.

5. Proposals for future work based on the current challenges and the survey results include organization of workshops to exchange experience, creation of a network of Large and Complex Enterprises Units (LCUs), developing technical training and investigating the need for setting up Task Force(s) to examine in detail existing practices and develop practical guidance for data sharing.

II. Background

6. A number of international initiatives related to data sharing and data linking have been undertaken in recent years. The importance of data exchange for dealing with the challenges posed to economic statistics by complex multinational enterprises (MNEs) have been emphasized at different fora. At the same time the necessity to analyse the risks and find the most efficient way to move forward were highlighted.

7. The Guide to Measuring Global Production set work on developing new methods and sources for collecting and compiling data on largest and most complex MNEs in a

consistent and effective way as priority area. Global production may oblige national statistical offices (NSI) to combine efforts in completing their views on MNEs and global production and international trade more generally. While ways of international cooperation and coordination have not been examined in detail by the Task Force on Global Production, a number of areas for further development were identified, such as improving the recording of intra-company services flows of MNEs in international trade in services statistics, which could be a joint effort by NSIs.

8. The Meeting of Group of Experts on National Accounts devoted to measuring global production, 7-9 July 2015, also identified work on new sources and methods to compile economic statistics as a main priority for further work. NSIs need to work together and exchange information in providing a comprehensive view on MNEs, global production and international trade more generally. The meeting asked international organizations to consider ways to facilitate exchange and sharing of economic (micro- and macro-) data. The participants expressed strong support for moving forward in this area, but recognized that this is a very challenging task due to legal and confidentiality constrains.

9. On this background the CES Bureau selected exchange and sharing of economic data for an in-depth review. In order to provide a basis for the review, Statistics Finland with the support of a number of countries and international organizations (see footnote 1) prepared the current paper which provides overview of current activities related to exchange and sharing of economic data. It summarises national practices and international statistical activities in this area, identifying issues and problems, and making recommendations on possible follow-up actions.

10. The Meeting of Group of Experts on National Accounts, 17-20 May 2016, further discussed data exchange. The participants welcomed the Bureau decision to undertake an in-depth review and decide on further work in the area because data exchange is essential when looking for solutions for the challenges related to global production and needs to be further explored. They recognized the benefits of data sharing such as better quality, relevance and consistency of data across different domains. At the same time national circumstances and existing legal and technological challenges need to be taken into account as well as the possible risks such as respondents' trust. There is a need for both overarching principles and practical solutions for data sharing. New technological solutions need also be developed to facilitate data exchange. This is one of the areas where the role of international organisations is important. More integrated statistical information systems would help address the challenge of producing statistics and carrying out research in the increasingly globalized world.

III. Scope/definition of the statistical area covered

11. The scope of the study is to examine the issues (including benefits) and challenges in the area of national and international reuse, exchange and sharing of economic data. The review focuses not only on micro-data exchange but also on confrontation of aggregated economic statistics.

12. National data sharing or reuse of already existing data can be divided into the use of administrative records and use of data from private data holders. Use of administrative data has a long tradition in the production of official statistics. First experiments date back to 40 years ago. According to the results of the country survey attached to the review (Annex 2) all participating countries are using administrative data in their statistics production. Data use from private data holders is more recent phenomena.

13. International exchange of economic data can be divided into bilateral and multilateral data sharing. Typically, multilateral data sharing involves the participation of the international organizations.

14. Data sharing may involve sharing, reuse or exchange of micro-data, aggregated data and/or meta-data. Typical examples of micro-data reuse are at national level the reuse of administrative data and at international level the exchange of cross border transaction data (e.g. Canada-US and SIMSTAT examples presented later in this paper). The sharing of aggregated data can serve several purposes. These are data confrontation (e.g. Ireland-US example), sharing data for publications (e.g. UNSD, Eurostat – SDMX examples) and acquiring data for statistical production at national level. Sharing meta-data relates usually to data quality and correct interpretation of information.

15. Micro-data sharing and exchange for research purposes and big data are new themes within statistical system. They are not covered in the scope of the current review.

16. This paper uses the following concepts:

- Reuse of data for producing official statistics refers to a situation, when data, collected originally for other purposes, are received from other institutions for producing official statistics, but not shared forward. That is, NSI is the end-stop for data. Reuse of data at national level covers all economic statistics.
- Sharing of data refers to a situation, when the data holder shares aggregated or micro-data forward to other national or international institutions for producing official statistics. This covers also data provided for publication or dissemination purposes solely.
- Exchange of data at international level refers to a situation, when data is exchanged bilaterally or multilaterally. That is, data is shared and received. In this study exchange of data refers to exchange of micro-data and aggregated data. Exchange of micro-data at international level focuses on statistics on cross border activities.
- Data confrontation refers to a situation, when international cross-border data is confronted to solve bilateral asymmetries.
- Bilateral asymmetries refer to a situation when there are two data sets on same phenomena telling different story.
- Confidential data means data which allow statistical units to be identified, either directly or indirectly, thereby disclosing individual information. To determine whether a statistical unit is identifiable, account shall be taken of all relevant means that might reasonably be used by a third party to identify the statistical unit. (Source: Regulation (EC) No 223/2009 of European Parliament and the Council on European statistics)
- Profiling is a method of analyzing the legal, operational and accounting structure of an enterprise group at national and world level, in order to establish the statistical units within that group, their links, and the most efficient structures for the collection of statistical data.[2]

[2] Business Registers Recommendation Manual 2010, annex 3.1, paragraph 19.9

IV. Overview of international statistical activities in the area

17. This section provides a brief overview of ongoing activities of international organizations involved in activities related to (or supporting) data sharing.

A. World-wide initiatives

1. SDMX

18. For many years, international organisations have been collecting - and exchanging among each other - macro-economic data from countries to respond to user needs as regards the availability of data for economic analysis and decision making. Recently, several international organisations have taken a further step in making selected macro-economic statistics more readily available thanks to close collaboration through the Inter-Agency Group on Economic and Financial Statistics (IAG) and new technical possibilities.

19. IAG plays a key monitoring and coordinating role in the implementation of the recommendations made in the Report to the G-20 on Data Gaps and the Financial Crisis by the International Monetary Fund and the Financial Stability Board. In addition to addressing the recommendations made in the report, IAG has focused its attention on improving the practical cooperation between international and supranational agencies in terms of collecting, validating and disseminating public official statistics from national and international/supranational sources.

20. IAG established the Task Force on International Data Cooperation (TF IDC) in early 2013. The guiding general principles for IDC are to: *reduce the reporting burden on national authorities and make efficient use of resources at national and international/supranational agencies; ensure that the economic and financial data and related metadata in the databases of international/supranational agencies are identical for the same statistical concepts and are of the highest quality, including in terms of frequency and timeliness; and improve the dissemination to users globally of a more consistent set of economic and financial data.* The TF IDC examines these elements and undertakes pilot exercises aiming at member countries submitting data only once to one of IAG members, and for these data to be shared among the agencies.

21. A first pilot to exchange GDP aggregates was taken up by the ECB, Eurostat, IMF and OECD. On successful completion the pilot will be extended to other data domains including Balance of Payments (BOP) and Sectoral Accounts. The pilot leverages the SDMX standards for exchange of data and meta-data and aims to lay guidelines for future data exchange efforts between IAG members.

22. From now on, GDP and some related indicators will be identical across the respective databases of several international organisations. The data cooperation initiative is based on data structure definitions maintained by the Ownership Group for SDMX in macro-economic statistics and follows the SDMX standard. SDMX facilitates rationalisation of data flows, harmonisation of reporting templates and standardisation and sharing of IT tools and services. The standard is already used widely, for instance by EU countries reporting National Accounts data to Eurostat and the ECB. It is also used for public dissemination such as the SDDS+ initiative overseen by IMF.

23. Currently data is still being transmitted between organisations (Push mode), but it is envisaged to make better use of web service machine-to-machine interfaces in the future (Pull mode). Additional initiatives include the development of an international standard for the Validation and Transformation Language (VTL) to express content

validation rules for statistical data. This is expected to make it possible to share not only data structures and coding, but also validation and calculation formulas. This can further improve data quality. The International Data Cooperation initiative currently covers the Bank for International Settlements, the European Central Bank, Eurostat, the International Monetary Fund, the Organisation for Economic Co-operation and Development, the United Nations and the World Bank. It can in principle also be extended to other organisations flexibly, which provides a solid basis for official macro-economic statistics of high quality in the public domain.

24. The long term vision of international data cooperation in macro-economic statistics is to have coherent macro-economic data of highest quality from the producer to the user in real time. Economies would transmit data to the international community through a primary disseminator. Reporting burden is reduced to the minimum by having a single flow from national to international level. Data is quality assured by applying agreed validation checks to it and data is available in the public domain through SDMX web services. End users could access the data for any economy through any organisation and web services would ensure that the latest data is available to anybody at any point in time.

2. Second phase of the G20 Data Gaps Initiative (DGI-2)

25. G-20 Finance Ministers and Central Bank Governors (FMCBG), in their September 2015 Communiqué, acknowledging the importance of closing policy-relevant data gaps, welcomed the progress during the first phase the Data Gaps Initiative (DGI-1) and endorsed the proposed recommendations for its second phase (DGI-2). The main objective of DGI-2 is to implement the regular collection and dissemination of reliable and timely statistics for policy use. To this end, the DGI-2 maintains the continuity of DGI-1 recommendations while setting more specific objectives with the intention of compiling and disseminating consistent datasets.

26. The envisaged increase in data flow with more granular information requires substantial work in a number of areas. In this context, the new recommendation on data sharing (Recommendation II.20) was welcomed by the G20 economies as a way to facilitate sharing the experiences with exchanges of granular data (which in turn will improve global data collections) as well as to strengthen the linkages and consistencies between datasets from various recommendations.

27. As part of the work on recommendation 20, an informal G20 working group, chaired by IMF and Eurostat, in cooperation with the Deutsche Bundesbank, was set-up in July/August 2016 to focus on establishing a common terminology for granular/micro-data, looking at the main barriers preventing sharing of such data at national/regional/international level, including challenges faced by national and international organizations. In this respect, work done by the recent OECD Expert Group for International Collaboration on Microdata Access (2014) and earlier OECD work (2007) provided key insights, in particular on the role of trust among institutions as enabler of micro-data access. OECD reports of these initiatives, including a Glossary of terms related to micro-data, are available at http://www.oecd.org/std/microdata.htm.

B. Eurostat

28. Eurostat has initiated several interesting projects under the umbrella of data sharing. Here the Eurostat's Single Market Statistics (SIMSTAT), Foreign Direct Investments (FDI)-network and EuroGroups Register (EGR) work are presented. The country view point to the SIMSTAT project is presented under section V - Country practices by Finnish Customs.

1. SIMSTAT

29. During the period April – September 2015 a wide scale exchange of micro-data on intra-EU trade in goods took place in the EU. Twenty member states[3] exchanged data on their exports with the respective partner countries for the reference period January 2013 – August 2015. This was the biggest data exchange that ever took place within the European Statistical System (ESS - the highest statistical governance body in the EU). Special IT system together with secure communication network was put in place for the pilot exercise. The purpose was to investigate the statistical re-usability and quality of the exchanged data as well as the technical feasibility of exchanging large volume of datasets in a secure and timely manner on a monthly basis.

30. The compilation of intra-EU trade in goods statistics in the EU is based on dedicated business surveys. Monthly collection of big volume of data (broken down by more than 9000 product codes and 27 partner Member States) imposes heavy statistical reporting burden on the businesses. One way of reducing reporting burden would be to exchange micro-data (trader level data) on intra-EU exports between Member States. Each transaction reported in one Member State would then serve as a data source for two Member States: for compiling the intra-EU exports of the exporting Member State, and for compiling and/or verifying the intra-EU imports of the partner Member State. As a consequence the Member States could reduce or even stop collecting data on their intra-EU imports. The main objective of the above mentioned pilot exercise was to explore the feasibility of such exchange.

31. The overall results showed that the mirror exports data could be used effectively as a full or partial substitution of the nationally collected imports data. The use of mirror data for compiling intra-EU imports statistics could thus reduce the administrative burden on reporters on the intra-EU imports side. The pilot exercise also proved that from an IT point of view the secure exchange of micro-data was feasible.

32. The use of mirror data would imply the use of additional data item “Partner id” and thus increase the response burden. Eurostat has calculated the following estimates:

- Including “partner id” would bring additional costs of 9% to the costs of collecting exports data according to the current legal minimum coverage requirements (97% coverage);
- This is equivalent to additional costs of 3% to the costs of collecting total trade data (exports + imports) according to current minimum legal coverage requirements (97% for exports and 93% for imports);
- The study on administrative burden shows that this additional burden from partner id can easily be neutralised by reducing the legal minimum coverage requirements for exports from 97% to 95%.

33. In its May 2016 meeting, the ESS Committee discussed the results and concluded that one of the key elements of the future system of compiling intra-EU trade in goods statistics was the creation of an additional data source by making the exchange of micro-data on intra-EU exports compulsory. The use of these data, on the contrary would be voluntary. That means the Member States can decide for themselves to which extent they will use the exchanged data. Eurostat is now working on drafting the relevant legislative acts. The compulsory regular exchange of micro-data will materialize once the legislation will be in force. Meanwhile the Member States will continue exchanging micro-data on a voluntary basis in order to improve the quality and prepare for the implementation of the legislation.

[3] Austria, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Italy, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, Romania, Slovakia and Slovenia

34. Eurostat is going to launch a new project with the aim of implementing the modernised system for compiling intra-EU trade statistics. A corresponding Task Force, with the participation of Member States, will assist Eurostat in achieving this goal. Moreover, grants will be offered to support Member States' work in adapting their system for a smooth functioning of the exchange of micro-data.

2. FDI Network

35. Bilateral asymmetries are a major concern in the statistical areas where misbalance of in- and outflows from an economic area (country) to another can be detected. In particular in the context of European statistics, they can contribute to high errors and omissions of the EU data compromising the analytical usefulness of the statistics.

36. FDI is one of the statistics in which intra-EU asymmetries are typically relatively large. In 2009, the 'FDI Network' was established jointly by Eurostat and the ECB to address the problem of asymmetries. The FDI Network is a platform aimed at facilitating the secured exchange of data on individual (enterprise level) FDI transactions and positions between national compilers of the Member States involved. The technical infrastructure and resources to facilitate the exchanges and eventual data reconciliation are provided by Eurostat.

37. The reconciliation process begins from the recommended euro thresholds beyond which all the separate FDI transactions and positions shall be put under bilateral investigation. In the FDI Network system the initiator Member State sends via Eurostat's secure data transmission channel a reconciliation request to the counterpart Member State. Request is detailed with several transaction or position specification data fields, including the names of the enterprises involved and the euro amounts in question.

38. The counterpart compares the information provided first to their internal databases for checking whether the FDI reporters can be identified and the amounts can be matched and ultimately fully confirmed. Should this not be the case the resident FDI reporter would be contacted for inquiries on the potential transaction or position in question. Any public document on that specific FDI transaction/position can be referred to in this context and the FDI reporter would be requested to check whether such FDI transaction/position is not reflected in its systems.

39. Different techniques are used in order not to disclose the confidential data. The FDI compiler can for example inform the resident statistical unit that comparisons of country level FDI data have revealed that another EU country has recorded a large transaction/position vis-à-vis the country of the FDI compiler in question. Consequently, the FDI compiler is contacting a number of reporters to investigate if they have been involved in a large transaction/position with a particular counterpart country.

40. For the purposes of facilitating the reconciliation process, information and further discussions on the FDI transactions/positions shall take place between the concerned FDI compilers. At the end of the reconciliation process, the FDI compiler will inform the counterpart and Eurostat the close of the request either with success or failure.

41. The decision about possible corrections in the FDI national figures remains at the discretion of each party involved in the exchange. Eurostat may include an adjustment in the EU aggregates if deemed necessary, and communicate that to the concerned compilers. Corrections to aggregates will be decided by Eurostat based on the available information from the exchanges, but without modifying published detailed country figures.

42. The FDI transactions are exchanged on an on-going basis as soon as they become available to the FDI compilers. The exchange of FDI positions takes place annually during a window period between May-June with non-limited reference period.

43. The reconciliation process is followed up by a table periodically pre-filled by Eurostat as much as possible and sent to the participants of the FDI Network for validation and/or completion. The information refers to non-confidential data helping to analyse the outcome of the FDI Network exchange and to improve the reconciliation process by analysing the experiences obtained. After each round, considerable number of reconciliation requests remain still not matched or reconciled. Reported failures include non-detection of the indicated FDI entity or its position, differences in valuation methods and a divergence in the geographical allocation criteria.

44. All EU Member States are currently part of the FDI Network. The exchanges are nevertheless concentrated only to ten of them. Ideally the use of the FDI Network should be seen as an elementary part of the FDI compilation process. Achieving this requires certain discipline from all the actors and respect to others' efforts in reconciliation process.

3. EuroGroup Register

45. The EGR is a unique statistical business register, covering at supranational level multinational enterprise groups.

46. The EGR data are distributed to national register staff and statistics compilers in all EU Member States and EFTA countries. These coordinated populations can be used as the frame for compiling statistics related to multi-national groups at national level. The EGR ensures that the national statistics compilers have a harmonised picture on the enterprise groups` structures and characteristics when compiling national statistics related to globalization as well as related to other national enterprise statistics, involving a consistent delineation of cross-border phenomena.

47. The EGR contains micro-data for more than 60 000 enterprise groups and around 800 000 legal units which are partially or fully active in the EU.

48. The EGR is part of the network of European business registers created by national statistical offices and Eurostat. Micro-data on legal units, relationships, enterprises and enterprise groups are supplied by all national statistical offices. This register stores the units being part of multinational enterprise groups, the unit identifiers, the relationships within the group and some economic characteristics (such as turnover or employment).

49. The EGR is regulated by the EP/Council Regulation 177/2008 defining the exchange processes and the data to be exchanged between national registers and the EGR. The Commission Regulation 192/2009 and Commission Regulation 1097/2010 with more detailed provisions complement the basic EP/Council Regulation.

50. The EGR application consists of a main application EGR CORE, an on-line browser application for remote access provided to National Statistical Offices/other users and an identification service for allocating the unit identifier.

C. United Nations Statistics Division

1. National accounts

51. Each year, the national accounts section of the United Nations Statistics Division (UNSD) sends a pre-filled national accounts questionnaire to countries or areas to collect the latest data on official annual national accounts in domestic currency. In order to lighten the reporting burden of countries to different international and regional

organizations, the UNSD receives the official data from the Organisation for Economic Co-operation and Development (OECD), the United Nations Economic Commission for Europe (UNECE) and the Caribbean Community (CARICOM) on behalf of their constituents. The official national accounts data are validated to check for errors, and afterwards imputations of missing data and other estimations are done[4]. The respective data series are shared with the Food and Agriculture Organization of the United Nations, United Nations Conference on Trade and Development, United Nations Economic and Social Commission for Asia and the Pacific, United Nations Industrial Development Organization and World Bank.

2. Handbook of the UN Expert Group on international trade and economic globalization statistics

52. The UN Expert Group on international trade and economic globalization has been tasked to develop a Handbook on a system of extended international and global accounts. The Handbook will build on existing work in this area, in particular the work undertaken under the auspices of the UNECE, OECD and Eurostat, and will address issues of linkage of micro-data related to business to trade statistics, as well as the integration of economic, environmental and social dimensions of trade and globalization as an extension of the System of National Accounts 2008 (2008 SNA) and the System of Environmental-Economic Accounting 2012 (2012 SEEA).

53. The Handbook hereby aims to bring a better understanding of the role of the external sector in an economy, the openness of its domestic and foreign markets and the impact of openness on social, economic and environmental upgrading, including the level and quality of employment.

54. The Handbook will address sharing of micro-data between bilateral partners to facilitate the development of internationally coherent international and global accounts, including the construction of high-quality global (or inter-country) Supply and Use Tables (SUTs), as used in deriving the Trade in Value Added (TiVA) or World Input Output Database (WIOD) indicators, and among multiple partners in a global value chain (GVC) for the resolution of bilateral asymmetries in merchandise trade and trade in services. Such reconciliation exercises involve comparing transaction level data of at least the bilateral partners, but could even be expanded to comparison of tri-angular trade relations involving data sharing of three administrations. Good progress has already been made on this front with annual reconciliation rounds of intra-EU asymmetries and reconciliation exercises in the margins of OECD's Working Party on International Trade in Goods and Services Statistics.

55. The Handbook also outlines a GVC approach and describes a number of GVC case studies built around a core group of countries, which should compare – for a particular GVC industry – micro level business, trade and investment statistics. The Handbook will refer to and learn from existing experiences of micro-data exchange programs, such as SIMSTAT and the data exchanges among the Nordic countries.

56. In addition to establishing the Expert Group to write this handbook, the UN Statistical Commission also established an Inter-Secretariat Working Group on International Trade and Economic Globalization Statistics with a mandate to coordinate work undertaken by the various international and regional organizations in that field. Members of the ISWGITEG are Eurostat, IMF, OECD, United Nations Conference for Trade and Development (UNCTAD), UNECE, UNSD and World Trade Organization (WTO). Some of the priorities for the programme of work in the area of international trade and economic globalization statistics are (a) promoting the creation of a global

[4] The officially reported national data and the estimated series are available at http://data.un.org/Explorer.aspx?d=SNA and at http://data.un.org/Explorer.aspx?d=SNAAMA respectively.

enterprise group register, building on the ongoing ERG project; (b) improving the measurement of firm heterogeneity by further developing a classification of business functions; (c) addressing asymmetries in bilateral trade and FDI; and (d) mainstreaming the development of global supply-use and input-output tables, with the aim of increasing the coverage of the OECD-WTO database on TiVA.

D. International Monetary Fund (IMF)

1. Using IMF Data Dissemination Standards (SDDS Plus and e-GDDS) to help reduce reporting burden

57. Since introducing the Special Data Dissemination Standard (SDDS) in 1996, IMF has obligated member countries to maintain three separate streams of data exchange. IMF, under its Articles of Agreement, requires that members provide data required for surveillance. Additionally, countries provide a broader set of cross-country comparable data to IMF statistics department, for use within the organization, for publishing in IMF *International Financial Statistics* and on the data.imf.org website. Finally, IMF's Data Standards Initiatives require SDDS subscribers and adherents of the more advanced SDDS Plus to publish online key economic and financial indicators. IMF also encourages enhanced General Data Dissemination System (e-GDDS) participants to disseminate such data.

58. While much content overlaps these three streams of data exchange, they each contain some unique methodology, coverage, periodicity, and timeliness requirements. Additionally, other international organizations use much of the same data IMF collects or countries disseminate on National Summary Data Pages (NSDPs) as required or recommended under the Data Standards Initiatives. However, other international organizations tend to separately collect these data from countries.

59. Recently, as part of regular reviews of the Data Standards Initiatives, IMF has changed its dissemination standards' requirements and recommendations, encouraging countries to develop dissemination infrastructure to reduce the burden of reporting to IMF and other international organizations. The primary innovation has been introducing an SDMX-based framework to support countries disseminating data in a standardized, machine readable format, using a modernized NSDP. This NSDP requires (for SDDS Plus) and encourages (for e-GDDS) countries to disseminate data in both a "human-readable" format and a machine-readable SDMX format, using either a data structure definition for global use (DSD) agreed by international organizations or a "dissemination DSD"[5], the Economic and Financial (EcoFin) DSD, developed by IMF. SDDS Plus adherents started disseminating using the new NSDP in February 2015; the first e-GDDS country to use the new NSDP started disseminating in this format in March 2016.

60. IMF provides considerable support to countries adopting this new dissemination approach. For African countries, IMF works closely with the African Development Bank, which provides countries with a cloud-based Open Data Platform (ODP) to disseminate standards-compliant SDMX output. The ODP allows country authorities to manage dissemination datasets and present data using dashboards and visualizations. For countries in other regions, IMF is introducing a cloud-based Integrated SDMX Service, which provides the ability to create, store and disseminate data using the SDMX format. Both tools facilitate SDMX dissemination using a simple Excel file

[5] A dissemination DSD contains a relatively simple, time-series style data model, which is easier to understand and work with for those who do not possess a high level of subject matter domain expertize.

upload process. IMF supports these tools with help guides, help-desk support, remote technical assistance and, when required, in-person technical assistance missions.

61. Disseminating data in a standardized machine-readable format helps IMF reduce the reporting burden on countries. First, to the extent that member countries agree to publicly disseminate data meeting the requirements of all three data exchange obligations set out by IMF, the IMF statistics department can automate the retrieval of the data and distribute the relevant data within IMF, consolidating three existing data exchange channels into one. Secondly, by publishing data using common coding structures, multiple international and private organizations could automatically consume the SDMX data disseminated via the NSDP. Finally, in many cases adopting machine-readable data dissemination improves timely provision of data to IMF, so IMF can quickly share data with other international organizations where IMF collects such data on behalf of its international colleagues (as outlined in the Consumer Price Index example below).

2. Coordinated data collection and sharing of Consumer Price Index (CPI) statistics between international organisations

62. IMF, jointly with OECD and ILO, enhanced its CPI dataset this year by expanding the scope of data collection to include the CPI breakdown and the weights. To reduce the data reporting burden on countries the three organizations agreed that IMF would collect data from non-OECD countries and the rest of the data that was collected by OECD. The ILO dropped their CPI data collection exercise and now retrieves validated data from IMF, which is also available for consumption by other international agencies and users through IMF data portal. This approach not only optimizes resources usage but also improves the dissemination of a more consistent set of CPI data to users globally.

E. OECD

1. The OECD Council Recommendations on Good Statistical Practice

63. Many of the innovative trade statistics and indicators that are currently being developed (such as trade by enterprise characteristics (TEC), services trade by enterprise characteristics (STEC), linked trade and business statistics, detailed trade in services statistics), require access to, or exchange of, data across different institutions. The Recommendation of the OECD Council on Good Statistical Practice, approved in November 2015, contains several recommendations related to data sharing for statistical purposes, e.g. Recommendation 5 on the right to access to administrative sources by the statistical authority, Recommendation 9 on the dissemination of official statistics, Recommendation 10 on statistical coordination (including active exchange of statistical information), Recommendation 11 on international cooperation (including e.g. exploring possibilities to access to micro-data by international organizations) and Recommendation 12 on innovative alternative data sources and methods (including big data, and the use of private sector information for official statistics). The Recommendation of the OECD Council on Good Statistical Practice is currently promoted and actively monitored by OECD, amongst others via an online 'Toolkit'[6]. This Toolkit will contain a variety of relevant information, including e.g. the national answers to the survey that takes stock of the various institutional arrangements in OECD countries related to data sharing.

64. This work was promoted also at the OECD Working Party on International Trade in Goods and Services Statistics (WPTGS), following the recommendation of the

[6] The Toolkit will be accessible in the near future at http://www.oecd.org/statistics/best-practices-toolkit

WPTGS Informal Reflection Group on *institutional arrangements for data sharing* that it would be very useful to have an overview of positive and concrete examples of such arrangements, to support possible changes in countries where such arrangements were not yet in place to participate more fully in the statistical work related to measuring international trade and globalization.

2. OECD Expert Group on Extended Supply and Use Tables

65. Extended Supply and Use Tables (ESUTs) are a tool that enables an integrated analysis of the trade-investment-production nexus and the role of different types of firms (SMEs, MNEs) in GVCs. They provide a framework for integrating disparate statistics, providing important scope for improved and coherent accounts, nationally and – via global (extended) Supply and Use tables – internationally, and are the building blocks of the integrated international economic accounting framework of tomorrow. ESUTs include links to labour and environmental accounts and can therefore be used to analyze the employment impact of economic globalization, or for comparisons of Green House Gas emissions on a consumption and production basis.

66. The OECD Expert Group on Extended Supply and Use Tables (EGESUTs) has been created to share and exchange cross-country practices with respect to developing ESUTs from existing official data sources. EGESUT is expected to complete its Final Report towards the end of 2016, in which the main statistical challenges that are encountered in this process will be identified together with suggestions for overcoming these, considering the variability in national practices and resources. In particular those practices that generate satisfactory results without imposing a huge burden on either statistical institutes or survey respondents are highlighted. The report will contain examples of how existing datasets (TEC, foreign affiliates statistics (FATS)), could be incorporated into the standard procedures for creating national Supply-Use tables using both top-down (macro) and bottom-up (micro) approaches.

3. Balanced international merchandise trade and international services trade statistics

67. OECD, in collaboration with WTO, is developing complete, consistent and balanced bilateral trade in services and balanced bilateral merchandise trade statistics from 1995 onwards. The resulting matrices are an analytical tool that forms an essential component of the TiVA Inter-Country Input-Output Table, but can also be used for other policy relevant analysis. The structured modular approach that is taken in both these projects facilitates transparency in the balancing process, and capitalizes on the WPTGS bilateral trade asymmetry meetings and the WPTGS Informal Reflection Group on more detailed trade in services statistics. The intention is to encourage collective ownership of the database, amongst countries and other international organizations, creating in the process an international benchmark for balanced trade data that can be used for stand-alone analysis as well as in the creation of TiVA. Such an international benchmark data set and transparent balancing process is also essential for ensuring that regional efforts to develop TiVA, such as the Eurostat FIGARO project and APEC-TiVA, can be easily integrated within the global dataset.

4. Handbook on Linking Trade and Business Statistics

68. Many (OECD) countries are currently developing linked Trade and Business micro-datasets, exchanging and integrating data from a variety of sources. Many new, policy relevant statistics on economic globalization can be derived from such datasets, for example on the differences in export intensity between large and small enterprises, or in the value added and output of trading and non-trading enterprises. These linked Trade and Business micro-datasets also form a vital building block for developing

Extended Supply and Use Tables and Integrated International Economic Accounts. However, linking trade and business statistics also involves important methodological challenges. To help overcome these, OECD, in the context of the work of its WPTGS, is currently developing a Handbook on Linked Trade and Business Statistics that brings together best practices on e.g., different micro-data linking procedures, exchanging data, mitigating incomplete source data, grossing up, dealing with large and complex businesses, and confidentiality issues in data dissemination.

5. Joint Facebook-OECD-World Bank survey on SMEs

69. OECD, in collaboration with the World Bank and Facebook, has developed an online Facebook survey that is aimed at generating timely and granular statistics on businesses, in particular SMEs. The survey collects monthly information on key topics such as expected job creation. The pilot, conducted in the first semester of 2016, was successful and proved the value of public-private partnership for the production of timely and relevant data in a cost-effective way.

6. Eurostat-OECD Compilers Guide for Services Trade by Enterprise Characteristics

70. The Eurostat Task Force on Services Trade by Enterprise Characteristics (STEC) has developed, in collaboration with OECD, a guide for compilers on how to develop statistics on Services Trade by Enterprise Characteristics (e.g. services trade by industry, firm size class and ownership (foreign or domestic)). In many countries, such linking activities require the exchange of data between different organizations. The Compilers Guide pays particular attention on how to address the methodological issues *after* the data have been exchanged, developing for example detailed, practical guidelines on how to apply primary and secondary confidentiality in a way to ensure a minimum loss of information when the data are disseminated.

7. OECD-Nordic Council project on accounting for firm heterogeneity in GVCs

In collaboration with the Statistical Offices of the five Nordic Countries (Denmark, Finland, Iceland, Norway and Sweden) and the Nordic Council, OECD is developing a Report on the role of a) dependent and independent SMEs, b) domestic and foreign owned MNEs, and c) trading and non-trading enterprises in Nordic Global Value Chains. The analysis focuses both on the economic impact (i.e., the value added produced) as well as the employment consequences of GVCs (how much employment in the Nordics depends on GVC involvement). Unique to this project is the use of standardized national linked micro-datasets in all five countries, and a shared SAS program that ensures identical calculations are performed on these data across all five countries, without the micro-data having to leave the Statistical Office.

F. WTO

71. WTO, UNCTAD and the International Trade Centre (ITC) established a joint data set on trade in commercial services (value) on an annual and quarterly frequency. In addition, UNCTAD and WTO produce jointly data sets on merchandise trade (value and volume). The input data are drawn from data-collecting agencies such as UN, IMF, OECD or Eurostat. These data are complemented by the involved agencies with estimates and further national statistics. The processes contribute to identifying asymmetries and other issues with nationally reported data. Through the close cooperation, the three agencies provide analytically complete and consistent trade data for their users and maximise the use of nationally reported data to either of the agencies.

72. Further, WTO and UNCTAD have developed a project proposal to strengthen the statistical capacity of customs authorities by facilitating the extraction, dissemination and analysis of trade and market access related data using ASYCUDA. The project includes the development of a software module that allows extracting trade and customs related data through the standard ASYCUDA software. The extracted data on trade flows, customs duties and preferential trade arrangements, as well as information on non-tariff measures would enhance the statistical capacity and analysis of national authorities. It would also facilitate the notification of data to international organizations, increase the coverage and accuracy of relevant databases (such as WTO IDB, UN TRAINS, COMTRADE, etc.). The funding for this project has however not yet been secured.

V. Country practices

73. This section presents the main findings of the CES survey of national experience, concerns and challenges in exchange and sharing of economic data. The questionnaire is presented in Annex 1. A more detailed summary of results is presented in Annex 2. Further the section introduces the leading experience of selected countries in the different types of data reuse and sharing that are in the scope of this review.

A. The CES Survey

74. The survey was carried out in April 2016 among the CES member countries to gather information on country practices in the field of national data sharing and international exchange of economic data. Institutional arrangements and recommendations for international work in the area of data sharing were also collected. In spite of the short period 48 responses to the survey were received. For some countries there were multiple responses from the different institutions producing official statistics. That is, the results are treated as institution-basis.

1. National data sharing

75. All offices indicated having data exchange at the national level. The most common form of data sharing was to receive or share aggregated data from and with other producers of statistics (40 out of 48 respondents). For micro-data exchange, the most common forms were to receive data from other producers of statistics (38/48) or from administrative data sources (36/48). The most common counterparts from which administrative data were received were central banks, ministries, customs offices and tax administrations.

76. Half of the respondents indicated receiving micro-data from commercial sources (23 out of 48 respondents). Micro-data were provided to other producers of statistics by 27/48 offices and for other purposes (such as research) by 31/48 offices.

2. International exchange of economic data

77. At the international level data exchange was reported by 45 out of the 48 offices. Typically this was data at the aggregated level (39/48) and collected directly for official statistics (37/48). Some of these responses include only data reported for dissemination to international organization. Micro-data exchange was reported by 18/48 offices.

78. Typically data exchange takes place in statistics where cross-border transactions are recorded and aims at minimizing bilateral asymmetries between the same cross-border flows reported by different countries. International data exchange is sometimes

facilitated by international organizations and sometimes based on bilateral or multilateral agreements between countries.

3. Multinational enterprises and institutional arrangements

79. Globalization has put emphasis on the treatment of MNEs. The activities of MNEs were examined with other countries by 13 out of 48 offices and within a country with other producers of official statistics by 16 out of 48 offices. Some countries mentioned that they have benefitted from organizing the data collection of MNEs to specific LCU. Similar units are foreseen in a few more countries. It was mentioned that personnel working in LCUs is often specially trained. Centralized management of data sharing may also support better documentation of data sharing.

80. Institutional prerequisites for data sharing are common in the responding countries. National legislation that regulates data sharing exists (43 out of 48 offices) and common business identifier is widely used (37/48). The fact that most of the countries have developed legislation that regulates data sharing implies that the protection of confidential data is well addressed in national laws. In some countries data exchange is agreed and defined in statistical work programs. Data sharing agreements between administrative data providers and producers of official statistics are very common.

4. Benefits and difficulties

81. Based on the survey the main benefits from the data sharing were improved consistency (42 out of 48 offices) and better data quality such as accuracy, relevance and timeliness (39/48). Efficiency gains and reduced response burden were pointed out in two thirds of the replies.

82. The main difficulties for data sharing that were indicated by countries include confidentiality (32/48), legal constraints (29/48) and technological readiness (23/48). Decrease in respondents trust is considered as a main risk by 8 out of 48 offices. The other obstacles that were mentioned include:

- the increased dependency from other NSIs or administrative data providers
- problems in linking data in the international data sharing
- lack of resources dedicated to this type of work
- when using administrative data the legal unit is not always same as the statistical unit for compiling statistics
- quality issues especially coverage and
- timeliness and high investment costs

83. According to the respondents no serious shortcomings were experienced with respect to data collection. Eleven offices reported that data was considered of poor quality and ten reported that data was misinterpreted. Other risks were less common.

84. The respondents assessed the capacity of the office to carry out data exchange very positively. Only a few critical views were expressed. Staff's ability to analyze data received most high ranking (medium or high skill: 41/48). Staff's skills in data mining and linking were not so highly ranked (medium or high skill: 36/48) and might require further training.

85. In general the role of international organizations was seen as key in facilitating the sharing best practices and providing forums for discussions. Also guidance and standardization issues are important. According to the country responses the international activities that would facilitate data exchange include developing

methodologies to ensure confidentiality (31 out of 48 offices), sharing technological solutions and tools for data exchange (30/48) and developing general guidance for data exchange (27/48).

B. Statistics Finland, reuse of data in production of official statistics

86. At Statistics Finland the first attempts to use administrative data for statistical purposes date back 40-50 years. Modern statistical uses began in connection with the 1970 population census. Two decades later the 1990 population census was collected exclusively from registers. In the 1970's started the development of register based business register also started. The structural business statistics were compiled primarily based on income tax files from 1995 onwards. The production of monthly statistics on the turnover and wage bills of enterprises' started in 1998.

87. It is estimated that approximately that 95 per cent of Statistics Finland data reserves consist of administrative data. That is, directly collected data covers only 5 percent. The centralised collection for administrative data at Statistics Finland started in 2013. Currently 65% percent of all secondary data comes via the centralized system. For the year 2015 around 150 secondary data sets were received, some of these data come monthly. As a result, only the centralized system receives up to 450 batches of data per year. There are 50 main data providers, 10 of these are private data holders. Currently the number of private data providers is growing and many efforts are invested to explore these possibilities for official statistics.

88. In Finnish experience good and close co-operation with data holders is paramount to effective use of the data sources they possess. For each institution and data set there are specially nominated persons working at Statistics Finland. In addition, Statistics Finland arranges annual meetings on Director General level with register authorities to discuss key issues and monitor progress in co-operation.

89. The co-operation has been beneficial and it has facilitated proactive work when changes in administrative data sources are anticipated. Major changes for business statistics took place in 2006 for the contents/variables in income tax files and in 2011 for timeliness of the VAT-files. In both cases the statistics production systems needed to be updated and configured. This involved intensive co-operation with tax administration. No breaks in statistical production were reported when these changes took place. On the other hand, there was a very recent case, when statistical production was interrupted. The production break started in January 2015 due to changes in the data source and lasted until May 2015. The Population Register Centre could not deliver the building register data used as data source for the statistics on Building and Dwelling Production. They observed under-coverage in source data after the major renovation in building register's data collection system from municipalities. During the production break while solving this problem, the active communication was vital to minimize damages for the users. This implies that increased dependency is a major challenge when entering the world of using administrative data.

90. Other challenges relate to the quality of the data used in the statistics production process. The quality of secondary data sets is optimized for their primary use and it is not optimal for statistical purposes. In these cases editing strategies (such as implementing selective and automated editing routines) have to be developed to treat these massive data sets. Another challenge is that the timeliness of these sources depends on the data providers and not on the NSI. It can vary how well it fits with the statistical production process. To overcome the timeliness issues now-casting and imputation methods have to be applied.

91. Major benefits or drivers for using secondary data sets in statistical production are the decreased response burden, improved efficiency, better coverage and expanding borders of data (larger samples and more variables). There is strong political will to increase efficiency in public administration and to decrease the administrative burden on businesses. This goes well in hand with increased use of secondary data sources. The willingness of businesses to respond to statistical surveys is also decreasing. One solution for these challenges is expanding the use of secondary data. Acquiring these secondary data sets opens up new possibilities such as more exhaustive data and new variables.

92. More information can be found in the Handbook on Use of Registers and Administrative Data Sources for Statistical Purposes[7].

B. Statistics Canada, bilateral data exchange in trade data

93. In 1987, Statistics Canada, the customs arm of the Canada Revenue Agency, the United States Census Bureau (USCB) and the United States Customs Service began discussions on the possibility of entering into an international data sharing agreement by which import statistics between the countries would be exchanged. These import statistics would then be used in the reporting of each country's exports to each other. In that same year, a memorandum of understanding was signed by the four parties noted above and by 1990 the data exchange was in effect.

94. The strength of the Memorandum of Understanding (MOU) on the Exchange of Import Data between Canada and the United States lies in its simplicity. It is five pages in length and contains five articles and two annexes.

95. Throughout the 25 year history of the MOU, the partners have faced and overcome a host of challenges. The majority of the challenges pertained to operational matters that were generally outside of the control of the various partners.

96. In both 1996 and 2013, the United States government shut down operations for short periods, with staff from all departments, including the USCB, locked out of their workplace. USCB staff were not able to transmit the import data to Canada, nor were they available to receive transmissions from Canada. In both cases, while the lockout was short-lived, both the USCB and Statistics Canada had to delay their release of the international merchandise trade statistics.

97. Another challenge was the decision by the United States government to increase the timeliness of their international merchandise trade statistics program. Prior to January 1, 2013, these statistics were released with a 45 day lag. As of reference period January 1, 2013, the timeliness of the release was increased from 45 days to 35 days from the reference period. This was an operational challenge for Statistics Canada, since it had to adjust internal operations, not only with respect to the processing of exports to the U.S. but also the process of exports to non-American destinations and the processing of import transactions. Release schedules needed to be modified and revision policies revised.

98. The majority of the challenges over the years have been of an operational nature. Each time the agencies have been able to adjust and adapt to the situation. The overriding success factor was a highly collaborative approach, intensive consultations and communication and a common understanding of the challenges.

99. The MOU on the Exchange of Import Data between Canada and the United States has been a success and is entrenched in the programs of both Statistics Canada and the

[7] www.stat.fi/tup/julkaisut/kasikirjoja_45_en.html

USCB. There are a number of factors that have made this arrangement a success. These include:

- A clearly identified net benefit
- A willingness to harmonize concepts and data requirements (NAICS, NAPS, coordination of HS8 and HS10, transaction review protocols between subject matter experts, regular meetings and near-daily correspondence).
- A willingness to coordinate statistical programs
- A willingness for each partner to adapt
- A willingness to consult
- A willingness to implement quality control measures
- A willingness to incur costs

100. It is also clear that data sharing agreements like the MOU on the Exchange of Import Data between Canada and the United States can be a launching pad for the establishment of additional data sharing work, improving the quality and relevance of official statistics. There is also a MOU in place between Statistics Canada, INEGI and the United States concerning transportation statistics.

C. Finnish Customs – SIMSTAT experience

101. The main purpose in SIMSTAT-project was to create an additional data source by making the exchange of micro-data for intra-EU exports mandatory. During the project methodology specifications were developed and 20 EU member states (MS) agreed that Intrastat-collected monthly micro-data would be exchanged. An additional recommendation was to include two new mandatory data elements to Intrastat: "ID of partner trader" and "Country of origin in dispatches".

102. A legal act for mandatory micro-data exchange is not yet in force. The micro-data exchange during the project was a voluntary exercise. Multilateral agreements were signed (in force until end of 2017) between participating MSs. Multilateral agreements were signed also with Eurostat who have responsibility to manage the data HUB.

103. Monthly micro-data exchange via the HUB took place from April to September 2015. 20 MSs manually sent monthly micro-data file to HUB, and manually received 19 mirror micro-data files from HUB. The monthly test production process was very time consuming. The capacity and automation of the HUB needs to be developed to fulfil the production environment needs.

104. The micro-data collected by other MS's had a good coverage. Records received from other MSs were more detailed than the same data collected as imports, because EU regulation has more coverage on EU-export side than EU-import side. Italy and France were collecting the "Partner ID number", so the match with their data was on a good level. Other MSs were simulating the "Partner ID number", so their data was not matching so well.

105. SIMSTAT-project left some issues more or less open. Passive confidentiality[8] in dissemination is under discussions and draft algorithm has been created, but the issue remains complicated. SIMSTAT will bring a strong dependency from partner countries.

[8] For foreign trade statistics, EU countries generally apply the principle of "passive confidentiality", that is they take appropriate measures only at the request of importers or exporters who feel that their interests would be harmed by the dissemination of data.

It will take some years to switch off own micro-data collection. Secondary production process would also be needed, because MSs are responsible for their own statistics.

106. In Finland Intrastat represents over 50% of all statistical administrative burden to enterprises. Intra-EU exports represent only 19%, but imports over 81% share of Intrastat administrative burden. Replacing own imports data collection by new SIMSTAT micro-data source is a great possibility. SIMSTAT could reduce Intrastat response burden in Finland by 60%.

D. Central Statistics Office of Ireland – Data confrontation in trade and FDI data

107. The growth of FDI is an important element of cross-border phenomena resulting from increased globalization. The Central Statistical Office (CSO) of Ireland recently carried out a mirror data exercise on US FDI flows into Ireland, using 2014 data from the US Bureau of Economic Analysis (BEA). The BEA measures outward FDI positions with Ireland as €252bn, while the CSO calculates inward FDI positions with the US as €33bn, an asymmetry of €219bn. Legal and confidentially constraints precluded an exchange of micro-data or detailed sectoral level data.

108. Much of the FDI asymmetry can be resolved by examining how the source and destination of FDI is measured. The BEA looks through 'intermediate' FDI locations in determining the destination of US-owned FDI, while the CSO measures FDI as originating from the immediate country of investment. Differences in the measurement of the debt component of FDI, as well as different valuation methodologies, were also found to contribute to the asymmetry.

Inward FDI positions (€ bn)	
BEA measure of outward FDI to Ireland	252.3
CSO direct measure of inward FDI from the US (immediate counterpart country)	33.4
Initial asymmetry	*218.9*
CSO indirect measure of inward FDI from the US (ultimate controlling parent)	173.6
Inward FDI to Ireland from US corporate inversions	21.5
Residual asymmetry	*23.8*

1. Risk factors management

109. The rewards associated with the successful implementation of a process to exchange confidential micro-data are clear, but any potential benefits must be weighted alongside the very real risks to our ability to compile key economic indicators for Ireland, due to legal and confidentiality constraints. From an Irish perspective, the business case for improving the quality or efficiency of our national statistics also remains unproven.

110. The ESS committee acknowledges that national circumstances need to be taken into account. While we fully appreciate that the environment in which others operate is different, the structure of the Irish economy places respondent confidence in the CSO at the heart of our ability to compile robust, high quality and trusted official statistics. Any loss of engagement or trust among the relatively small number of large enterprises dominating our economy would be hugely detrimental to our ability to compile key economic indicators for Ireland. To proceed without the informed consent of our respondents, particularly the large enterprises, would be irresponsible in the context of

our national statistical system. The initiation of a process to achieve informed consent is itself seen as a risky strategy. While we will continue to engage positively and constructively at all levels, the challenges we face are significant.

E. Measurement challenge posed by MNEs - Profiling in the UK

111. In recent years, the UK statistical office has been undertaking an increasing amount of detailed profiling of MNEs and visiting MNEs (see Annex 4 for more details). These efforts have involved staff from the Business Register and National Accounts generating:

- changes to the structure and coverage of the enterprise as well as classification of some the legal units held on the Business Register;
- changes to the estimates in the business surveys, and in turn, the National Accounts and Balance of Payments;
- much better understanding of the activity of the enterprise.

1. ONS Business Profiling and ESSnet

112. The ONS Business Profiling Team is within the Business Registers Division and has a portfolio of over 2,500 complex enterprise groups. The primary aim of the 12 profilers is to ensure the correct legal and operational structure of these groups on the Inter-Departmental Business Register (IDBR). This team has been in operation since the late 1990s and therefore is well established and experienced in profiling the largest and complex businesses.

113. Profiling can take different forms – from manual "intensive" profiling with visiting the enterprise through manual "light" (or "desk") profiling using all publicly available information to automatic profiling based on business registers and EGR data.

114. The largest groups on the IDBR continuously change and evolve, therefore their continuous maintenance is needed. ONS have defined the profiling population of candidates to be manually profiled using criteria on employment and activity. Profiling uses information from ONS Surveys, Companies House, Dun and Bradstreet and other administrative sources. The majority of profiling is undertaken via desk work but for the very largest of profiles, profiling encourages visits to meet the Global Enterprise Group (GEG) on a face to face basis.

115. Over the last five or so years, the ONS Business Profiling Team has been heavily involved in several ESSnets funded by Eurostat (European Commission) focused on profiling at a Global Level. The ESSnet on International Profiling projects tested different methodologies and provided coaching to countries new to profiling. Over this period, a new "Top-down" approach to Profiling was developed and tested through this ESSnet. ONS are seen as one of the experts in the field across Europe and have made a significant contribution to the deliverables and the success of the projects.

116. Communication with statistical users, other NSIs and GEGs is a vital part of the process required to succeed in carrying out a European profile.

117. European profiling is not the sole activity of one NSI, as the results can affect the statistics of all countries in which the GEG operates. For this reason the profiling process requires agreement between all involved parties as this will form the basis of the national statistics, which will then be consistent on a European basis.

118. There are various differences between the steps taken for the National UK method and International Profiling Process. IDBR currently only holds information about the

relationships between domestic legal units and those between domestic and foreign legal units. International profiling aims to collect all the legal units that operate as part of a global group and therefore coverage is much improved. Annex 4 covers in detail the strengths and weaknesses of the UK Profiling Approach and International Profiling Method.

2. UK experience to date - is profiling worthwhile?

119. The profiling has led to a number of improvements to the economic data collected by ONS. For example, analysing data at a global level using annual accounts and data shared by other NSIs resulted in the identification of significant missing UK turnover. It has also led to better understanding of the overall structure and correct recording of the transactions of small and large complex businesses, including MNEs.

120. The recruitment of enterprises to take part in the profiling was a challenging exercise – the success rate was about 25 per cent (agreement to participate was received by 20 out of 79 contacted GEGs). This highlights the need of a legal framework that has to be in place in order to ensure the successful collection of Global or European data across NSIs.

121. The UK's experience on intensive profiling and related data sharing is that, once the GEG engages in cooperation with NSI, most have no issues regarding sharing the data securely with other NSIs in Europe. The majority of this information is available in published accounts and therefore there are no resulting issues with the sensitivity of data. However, concerns about data sharing have been raised in a few cases, especially in the oil industry, and whenever additional detailed data have been requested to what has already been published.

122. The result of not getting buy-in from the groups and not having a legal framework in place is that some of the key European groups could not have been profiled yet. In addition, some GEGs, which had agreed to co-operate, subsequently informed NSIs that data sharing was not a possibility. This is a concern if profiling is to be successful for the largest and most important GEGs.

123. Positive feedback from the GEGs acknowledges the potential benefits that European profiling could bring to them. For some GEGs, there would be a decrease in burden, as the proposed structure aligns with their own financial accounts. This means faster survey completion times and fewer survey questionnaires to complete.

124. Some GEGs welcome the idea of a central contact point within the NSI and some like the possibility of reporting all data to just one NSI. A few have even invited ONS to tap into their own internal accounting systems to pick the required data directly (e.g. via an XBRL taxonomy).

125. A summary of the benefits and challenges of profiling international businesses is presented below. More details are described in Annex 4.

126. In terms of the benefits, these include:

- Improved quality of recording structures of businesses.
- Better understanding of businesses' activity and changes to businesses.
- Reconciliation of Top-Down and Bottom-Up approaches.
- Avoid missing activity and remove any double-counting.
- Improved data feeding into National Accounts and Balance of Payments.
- Central contact point and reduction in burden on MNEs.

127. In terms of the challenges, these include:

- International profiling can be time consuming and resource intensive on NSIs, for example, there are 600 cases at EU level, of which UK has a large proportion.
- Staff needed with wide-ranging skill sets covering company accounts, registers, legal units, statistical units, etc.
- Cooperation from respondents - agreement may not be achieved as there is no legal obligation beyond national levels or the UCI is outside EU.
- Micro-data sharing is "essential**"** for reconciliation and reducing respondent burden on MNEs amongst NSIs / NCBs across the world.
- Need to widen the data collection to cover other variables beyond just employment and turnover.

VI. Issues and challenges

A. Issues related to data sharing, reuse and exchange of data

128. Reuse of administrative data has a long history and the first attempts to use administrative data sources date back about 40 years. Currently, all respondents (48) that participated in the CES survey declared being engaged in national data sharing. Many respondents (43) indicated that data sharing is regulated by law.

129. Data sharing or reuse of existing data for statistical purposes at the national level may happen between NSI and administrative bodies (such as tax administration, ministries, customs and central bank) or between NSI and private data holders. Data sharing at the national level is a mainstream activity. Yet, **countries are at different levels of development in terms of data sharing** as the share of reused data in statistical databases varies in countries from 5% to 95% of all data.

130. There are clear benefits of data reuse such as efficiency gains (reduced costs and response burden), improved accuracy (coverage and precision) and access to more exhaustive information. **NSIs need guidance on the organization of data exchange (including technical solutions) and a forum to exchange information on the most beneficial cases of data reuse and exchange**.

131. **The use of secondary data sources includes risks and challenges,** such as increased dependency on data providers, timeliness of source data, insufficient coherence with statistical concepts and classification systems and issues with the quality of data (registers may be defective).

132. **Accessing data of the private sector is a recent phenomenon, and the modalities of collaboration with the private sector in data exchange are not yet well defined.** These relationships with private data holders can be divided into two groups: Firstly, NSIs may purchase statistical products from businesses that develop statistical products as part of their core business. Secondly, NSIs may approach private firms to 'share data', for example scanner data.

133. **While national data sharing has evolved during the past years into a mainstream activity, international exchange of economic data takes place less often.** There is clear need for national statisticians and international organizations to move towards more active and effective exchange of economic data at the international level to improve data quality and to gain in efficiency. Still the exchange of economic data should be carefully considered and the efforts should have a clear purpose.

134. The exchange of economic data at international level focuses on cross border activities. Data exchange can be done multilaterally (SIMSTAT, EGR, FDI) and bilaterally (NSI-NSI, NSI-EU). Multilateral data exchange typically involves international organizations. Good example for bilateral data exchange is the exercise between Statistics Canada and Bureau of Economic Analysis (US) from 1990 onwards concerning import data. *"In 1987, Statistics Canada, the customs arm of the Canada Revenue Agency, the United States Census Bureau (USCB) and the United States Customs Service began discussions on the possibility of entering into an international data sharing agreement by which import statistics between the countries would be exchanged."* That is, already 30 years ago these first attempts on international micro-data sharing were taken.

135. Exchange of data at the level of statistical units would require a safe environment for ensuring confidentiality at both ends of data exchange. It should also be ensured that the exchanged data is used only for statistical purposes. **Currently, the global statistical community and its borders are not defined firmly enough to enable sharing of confidential data**. Successful steps have been taken in the European Union, but enterprises do not limit their activities to the EU.

136. In most cases it is possible to find solutions for handling the risks and challenges of the reuse of data and data sharing for statistical purposes. Countries have developed many good practices, such as effective planning and management of data exchange, collaboration methods, provision of information about data sources, creative thinking and benchmarking across countries. **Countries are developing these methods quite often in isolation** which prevents them from fully exploiting the benefits of data exchange and slows down the progress. The following part discusses these benefits and challenges identified in the review.

B. Benefits

1. Addressing data asymmetries

137. Addressing asymmetries of data and statistics is a major driver for international exchange of data or data confrontation**.** This issue was mentioned by Eurostat *"Foreign direct investment (FDI) is one of the statistics in which intra-EU asymmetries are typically relatively large. In 2009, an 'FDI Network' was established jointly by Eurostat and the ECB to address the problem of asymmetries"* Asymmetries were the main reason for establishing the FDI Network. Same driver was behind the Irish case on *"Data confrontation in trade and FDI data"*

138. Furthermore, Handbook of the UN Expert Group on international trade and economic globalization statistics addresses *"sharing of micro-data between bilateral partners to facilitate the development of internationally coherent international and global accounts, including the construction of high-quality global (or inter-country) Supply and Use Tables (SUTs), as used in deriving the Trade in Value Added (TiVA) or World Input Output Database (WIOD) indicators, and among multiple partners in a global value chain (GVC) for the resolution of bilateral asymmetries in merchandise trade and trade in services. Such reconciliation exercises involve comparing transaction level data of at least the bilateral partners, but could even be expanded to comparison of tri-angular trade relations involving data sharing of three administrations. Good progress has already been made on this front with annual reconciliation rounds of intra-EU asymmetries and reconciliation exercises in the margins of OECD's WPTGS."*

2. Reduced response burden

139. Decreasing response burden may be an important benefit of data sharing. Ideally one data item would only be collected once. According to Eurostat's experience from the SIMSTAT-project *"the overall results showed that mirror exports data could be used effectively as full or partial substitution of the nationally collected imports data. The use of mirror data for compiling intra-EU imports statistics could thus reduce the administrative burden on reporters on the intra-EU imports side."* The use of mirror data could imply the additional data item "Partner id". According to Eurostat's experience *"The study on administrative burden shows that this additional burden from partner id can easily be neutralised by reducing the legal minimum coverage requirements for exports from 97% to 95%."*

3. Efficient production system

140. To maximize efficiency of statistical production data needs to be exchanged between producers of statistics. This will require initial investments but they will pay back when overlapping work is reduced and production costs become lower. This is also true for data flows from national to the international level. Examples of sharing data internationally for dissemination purposes between NSIs and Eurostat and between UNSD, OECD, UNECE and CARICOM maximize efficiency and quality. The same statistics, if produced internationally by using direct data collection, would be extremely costly (as compared to using existing data) and would not achieve the same coverage and quality.

4. Coverage and precision

141. Administrative sources often give a more complete coverage of target population, although typically not without adjustments to concepts and classifications. This may reduce survey and non-response errors. Accuracy of statistics could also increase via better data coverage. According to Statistics Finland's experience on reusing administrative and private data *"Major benefits or drivers for using secondary data sets in statistical production are the decreased response burden, improved efficiency, better coverage and expanding borders of data (larger samples and more variables). There is strong political will to increase efficiency in public administration and to decrease the administrative burden on businesses. This goes well in hand with increased use of secondary data sources. The willingness of businesses to respond to statistical surveys is also decreasing. One solution for these challenges is expanding the use of secondary data. Acquiring these secondary data sets opens up new possibilities such as more exhaustive data and new variables."*

5. Promotion of the use of common business identifiers and common classifications

142. Common business identifiers are a prerequisite for exchanging micro-data, but furthermore more active collaboration in data exchange may help promote the use of common identifiers and classifications. Identifying the trade-partners is important, when exchanging micro-data on international trade. See SIMSTAT-case Customs Finland *"Italy and France were collecting the "Partner ID number", so the match with their data was on a good level. Other MSs were simulating the "Partner ID number", so their data was not matching so well."*

143. Introducing unique identifier is very important and further steps should be taken to advance the work. The LEI System provides a global unique identifier. "*In 2011, the Group of Twenty (G20) called on the Financial Stability Board (FSB) to provide recommendations for a global Legal Entity Identifier (LEI) and a supporting governance structure. This led to the development of the Global LEI System which,*

through the issuance of LEIs, now provides unique identification of legal entities participating in financial transactions across the globe."[9]

6. Improved understanding of the activities of multinational enterprises

144. This is a key area where data sharing could bring significant advantages and improve the quality of statistics. In the EU, the business registers regulation introduced in 2008 the exchange of data on MNEs and their units within the ESS for statistical purposes only. This has led to the development of EGR.

145. The activities of MNEs are so complex and challenging for the statistical offices, that the exchange of data on their structures and activities is a prerequisite for compiling high-quality data. Capturing MNE's activities is a major challenge but also a possibility for modernizing statistical production and improving the quality and coherence of data. Quite a few countries have found organizing their work on MNEs to a specific large and complex enterprises unit (LCU) as a good way forward. LCUs have proved to be very efficient in integrated data collection, data confrontation and consistency analysis[10]. This is also highlighted in the ONS case on profiling MNEs.

C. Challenges of data sharing, reuse and exchange

1. Legal constraints

146. Legal constraints can inhibit statisticians from sharing data forward. The primary purpose of the legislation is to protect the data of individual respondents. Within EU this challenge is solved and micro-data can be exchanged (see SIMSTAT-case). If legal constraints for exchanging micro-data exist, then only aggregated data confrontation can be considered to improve the quality of cross border data.

147. According to the country survey legal constraints are an issue for 29 (out of 48) respondents. Only confidentiality constraints were ranked higher (32) and then came technological readiness (23).

2. Safeguarding confidentiality

148. When exchanging micro-data, NSIs need to ensure that data are exchanged exclusively for statistical purposes and within the system of official statistics only. The sending party needs to ensure that the receiving party has the infrastructure in place for ensuring strict confidentiality and use of these data for statistical purposes only. These issues need to be clearly communicated to respondents to maintain their trust.

149. International exchange of data implies the need of ensuring strict data confidentiality for the exchanged sets between the statistical systems of different countries (NSI-NSI) or within the international statistical system (NSI-international organizations). Nationally, respondents' data are protected by data confidentiality rules regulated in statistical legislation. Principles and international guidelines on confidentiality already exist[11]. There is need to review and adapt them from the view point of economic statistics related to international transactions and MNEs.

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[9] See: https://www.gleif.org/en/lei-system/gleif-management-of-the-global-lei-system

[10] See Chapter 6 of the Guide to Measuring Global Production: http://www.unece.org:8080/fileadmin/DAM/stats/publications/2015/Guide_to_Measuring_Global_Production__2015_.pdf

[11] Principles and Guidelines on Confidentiality Aspects of Data Integration (UNECE) http://www.unece.org/fileadmin/DAM/stats/publications/Confidentiality_aspects_data_integration.pdf

3. Dependency on external data providers

150. Data sharing necessarily increases NSIs' dependency on external data sources and providers. The challenge was highlighted by some country experiences, such as the Canada-US exchange of import data, SIMSTAT experience of Customs Finland and Statistics Finland's experience in using administrative data.

151. This entails that the production process has to be well planned and organized together with the data providers. NSIs need new tools, such as agreements or regulation whereby the NSI should be consulted if changes in administrative data source or other essential sources of statistics are planned. Data sharing also requires acquiring and maintaining knowledge of each different data source and changes in it. This implies continuous relationship building and networking with data providers to better anticipate all changes that can take place in the source data. In addition, statistical surveying and compilation should be flexible enough to digest changes coming from data providers. These might include updated timetables, changes in samples and variables and breaks in data deliveries.

4. Timeliness of external data sources

152. The examples of national and international data sharing brought up several challenges related to timeliness of external data sources and these challenges closely relate to **increased dependency**. The Canada-US-import case showed that when statistical production becomes more interrelated issues with timeliness may become more prominent. Improving timeliness of statistics using external data would require influencing data providers' processes.

"As noted earlier, another challenge was the decision by the United States government to increase the timeliness of their international merchandise trade statistics program. Prior to January 1, 2013, these statistics were released with a 45 day lag. As of reference period January 1, 2013, the timeliness of the release was increased from 45 days to 35 days from the reference period. This was an operational challenge for Statistics Canada, since it had to adjust internal operations, not only *with respect to the processing of exports to the U.S. but also the process of exports to non-American destinations and the processing of import transactions. Release schedules needed to be modified and revision policies revised."*

153. Furthermore, the experience of Statistics Finland in using value added tax data shows that when the data provider changes its timetable, NSIs need to be ready to develop new estimation and now casting methods. In addition, direct surveying may need to be reintroduced for the most important businesses to get these data on time.

154. To overcome challenges with timeliness, the same strategies considered under the previous item "dependency" could be applied. In addition, timetables of data exchange should be clearly regulated by agreements between the NSI and data providers.

5. Differences in concepts and classifications

155. Typically the concepts and classifications used in administrative data sources do not match exactly with the target variables of statistical production. Administrative data sets may need to be adjusted using partial direct surveys and other correction measures, imputation and estimation to get more accurate results. This is well illustrated in the Canada-US-case: *"A willingness to harmonize concepts and data requirements (NAICS, NAPS, coordination of HS8 and HS10, transaction review protocols between subject matter experts, regular meetings and near-daily correspondence)."*

156. Closer collaboration with data providers may help promote the use of statistical concepts and classifications, where possible. This may benefit data providers through better possibilities to link and benchmark their data with other sources.

6. Quality issues of source data

157. The quality of administrative data is optimized in the first place for the respective administrative or regulatory purpose they serve. That is, the quality might not be optimal for statistical purposes**.** For instance, some variables may not be so relevant for the administrative purposes, while they would require more work to be good enough for statistical production. Furthermore, these data sets can be too large for the statistical system to digest with traditional methods used for data sets derived from statistical surveys. In these cases new compilation and editing strategies (such as selective and automatic editing routines) have to be investigated to improve the quality of data sets.

158. There are cases, where NSIs have worked together with data providers to help them improve their data sets through exchange of experience and knowledge on quality assurance and sharing tools that promote a more harmonized approach.

7. Maintaining respondents' trust

159. Increased data exchange nationally or internationally may sound alarming for the respondents. Maintaining respondents' trust is a paramount aspect for official statisticians, and losing it has a high price and impact on the accuracy of the data NSIs get. If trust diminishes response rates of statistics surveys will also deteriorate.

160. This challenge was highlighted by the Irish example on data confrontation. The case suggested that the quality of data on globalization could be improved without risking confidentiality and respondents' trust. However, aggregated data confrontation alone cannot ensure all efficiency gains and benefits from decreased response burden.

8. Technical capacity to handle data sets

161. Exchanging large data sets requires enormous technical capacity from the sending and receiving party. IT systems may differ and require adjustments for interoperability. In regular national data sharing, especially for the use of administrative data, these issues are more or less answered, but for other types of data sources (e.g. data from private providers) new technical issues keep arising. Some data sets are also poorly structured which not only requires technical, but also expert resources.

162. Technical capacity is also linked to the previous issues of ensuring confidentiality and maintaining trust. Parties that engage in data exchange need to ensure that the other party has the technical capacity to guarantee data security both nationally and internationally. This currently works within the ESS, as according to Eurostat's SIMSTAT case *"The pilot exercise also proved that from an IT point of view the secure exchange of micro-data was feasible."*

9. Willingness to exchange data

163. There is a need for a fundamental discussion among NSIs and the statistical community regarding limits of data exchange. Traditionally NSIs are the end-stop for all data that enters their systems. That is, NSIs can reuse, but not share data to fully protect data confidentiality and prevent other than statistical uses of data. The survey showed that each country has in place a specific legislation regulating confidentiality; however it is often the role of the NSI to implement the confidentiality in practice and provide additional guidance. How data exchange is organized in practise varies from country to country.

164. Data could be reused much more among producers of official statistics if the scope of the statistical systems would be better defined with a secure infrastructure for reusing data for statistical purposes only. Currently, some countries take a more liberal approach and others a more conservative approach. If more consistent approach, common tools and principles for data sharing across countries existed, a lot of resources could possibly be released and response burden reduced notably.

165. The report[12] (2014) from the OECD Expert Group on Micro-data Access contains useful insights on this matter. The report focuses on the re-use of micro-data for scientific purposes, but the ideas can be explored in the context of sharing economic data. The key idea is to improve cross border collaboration by building trust in partners. The challenges are many, and they should be addressed in small achievable steps. The associated risks should be carefully managed.

VIII. Conclusions and recommendations

A. Conclusions

166. Using data accumulated within the national administration for the production of official statistics is nowadays a mainstream activity. Still there are possibilities to expand data sharing and to increase the reuse of data in order to improve the quality and introduce efficiencies. A more novel phenomenon is to acquire data from private data providers for producing official statistics. The legislation does not necessarily grant an access to these data and new means of access have to be considered.

167. Data sharing has some solid foundations also at international level, especially within the EU. Furthermore, Canada and the United States have exchanged trade data for almost 30 years. To ensure a more effective cooperation in data exchange among official statisticians, we need to share best practices and develop common principles for this work.

168. There are important benefits from data sharing and emerging challenges that should be addressed.

169. According to the CES country survey the role of international organizations was seen as vital. International organizations should act as a facilitator for sharing best practices in data exchange and providing the necessary forums for discussion. Guidance and standardization of current practices need to be developed. The international activities that would facilitate data exchange include:

- developing methodologies to ensure confidentiality (mentioned in 31 replies),
- sharing technological solutions and tools for data exchange (30), and
- developing general guidance for data exchange (27).

170. Eurostat has many initiatives for international exchange of economic data. Some useful technical solutions have been developed for the FDI and SIMSTAT platforms. However, this work needs to be brought beyond the EU level.

1. National data sharing

171. As mentioned above the exchange of data at the national level has developed into a well-established practise. However, it still varies across countries and offices how much they reuse data in their statistical production. The difficulties to reuse data are

[12] http://www.oecd.org/std/microdata-access-final-report-OECD-2014.pdf

often due to the various technological and conceptual differences between statistics or datasets. Data reuse may also be hampered by the lack of instructions, policies and willingness that would enable data sharing in a way that ensures confidentiality. **Countries have developed different solutions, often working in isolation, which prevents them from benefiting fully from data exchange and slows down the process. The good practices and accumulated knowledge have to be more efficiently shared.**

172. **Work on reviewing ways to access and use data from private data holders would be increasingly useful for NSIs**. The problem usually is usually related to the fact that there is no legislation granting access to these data. The solution could be in negotiating and raising the awareness of private data holders on the usefulness of data sharing with official statisticians.

2. International data confrontation at aggregated level

173. Data confrontation at aggregated level helps address some asymmetries or at least identify them more effectively. **Sharing of aggregated data, compiled according to confidentiality rules, is a light version of data sharing and more easily doable** as data confidentiality does not need to be considered.

174. A top down approach is recommendable when aggregated data confrontation is used to detect areas that need to be closely looked into. **As a next step, exchange of more carefully defined aggregates, so called meso-data level, may take place** and help better understand the type of international transactions involved or get better common view of the activities of large and complex companies. It is important to consider case by case on which level data sharing is needed.

3. International exchange of cross border data at micro level for producing statistics

175. Is there a way forward in measuring the globalized economy without exchanging micro-data at international level? It seems that bilateral asymmetries do not necessarily require exchange of micro-data. Still, micro-data exchange may be the only way to better understand MNEs and would have a huge influence on reducing response burden and increasing efficiency.

176. **It would be useful to share tools and learn from the well-established bilateral data exchange system**, such as those between Canada and the United States. **Common templates for data sharing agreements** would also help NSIs to move forward. This will help to overcome the related challenges on dependency, timeliness, concepts and classifications, data quality and respondents' trust. The challenges have to be confronted in small achievable steps.

177. Eurostat's SIMSTAT-project on multilateral micro-data sharing has now ended. The project lasted for four years and many results were achieved. Data quality and IT facilities provide a feasible framework for the exchange of micro-data. Also the ESSC decision to make data exchange on export compulsory will activate practical work. The coming years will show the benefits that will be achieved. The lessons learned from this process should be shared via relevant channels.

178. The Eurostat FDI Network was established to reduce bilateral asymmetries. Still many countries are not using the network. One major challenge seems to be the willingness to engage in data exchange and the related legal constraints. **International work would be needed to agree on the common principles and limits of data exchange.**

4. Submissions of statistical data to international organisations (Eurostat, ECB, IMF, OECD, UN, WTO)

179. Currently many international organizations request statistical data, sometimes even survey or micro-data. These data flows are not well regulated, other than within the ESS, and **it is unclear whether an international statistical system exists and has clear borders within which data could be securely exchanged**. Common procedures need to be agreed upon.

180. **Transmission of data subject to statistical confidentiality to international organizations is a particularly problematic area.** The provisions on access to individual data for research purposes may apply to international organizations in case of scientific research projects, otherwise the party sending data needs to ensure that the receiving organizations can fully ensure data confidentiality and that it is only used for statistical purposes.

B. Recommendations for future work

181. To overcome challenges and achieve benefits from data sharing many actions remain to be taken, especially to better define the scope and possibilities of international exchange of data. Engaging in more active data exchange requires a profound cultural change in the statistical system and would need to be well planned and fostered. The world is more globalized and statistical production has to take that into account to produce relevant statistics. There is also pressure towards organizing work more efficiently, reducing response burden and improving data quality by reducing asymmetries and improving coherence of data. **NSIs would benefit from training, sharing experience and developing guidelines to increase the awareness on issues, challenges and solutions related to data exchange, in particular internationally.**

1. Develop guidance and recommend best practices in data exchange

182. The CES survey pointed among the top priorities for further work the **development of international methodology for ensuring confidentiality and general guidance facilitating data exchange**. Work in this respect is already under way e.g. the OECD Handbook on Linking Trade and Business Statistics and Eurostat-OECD Compilers Guide for Services Trade by Enterprise Characteristics would address some aspects of data linking and dealing with large and complex businesses. The countries would, however, benefit from further guidance in a number of areas.

183. The Bureau should **consider the need to set up Task Force(s) to follow up the experiences within the area of data sharing**. The Task force(s) should not duplicate the existing and foreseen work, for example under the G20 Data Gaps Initiative or various Eurostat activities. The task force(s) mandate(s) could include:

- to develop or update guidelines/recommendations on reuse of data at national level (including practical guidance on administrative data use, investigating the possibilities to use new private data sources, etc.);
- to develop the typology for data sharing;
- analyse best practice in examining activities on MNEs between the involved statistical offices;
- analyse and recommend good practices on data confrontation;
- review guidance provided on transfer pricing and work done to ensure that profits are taxed where economic activities generating the profits are performed and where value is created;

- sharing of information in the area (creating a knowledge-base, wiki);
- to develop proposals on defining the scope of the international statistical system and the scope and possibilities of international data exchange;
- review existing international guidance on data confidentiality;
- inventory of international activities in the area.

2. Workshops and seminars

184. Workshops and seminars are recommended. **They should be well targeted and linked to the work on developing the above mentioned guidance**. Well targeted means that the workshops and seminars should be organized by statistical area (FDI, FATS, trade statistics etc.) and preferably focus on concrete cases to most efficiently improve the global consistency of statistics in question utilising macro- and micro-data exchange. The role of the seminars and workshops should also be to share experience, create awareness and stimulate cooperation in a practical way, for example establishing a network of LCUs. The workshops and seminars could cover for instance the following topics:

- international exchange of micro-data;
- reuse of micro-data at national level;
- aggregated data confrontation (This is the first step to overcome bilateral asymmetry problems. It is rather safe way to increase quality in cross border statistics.);
- work of LCUs (Many countries have created LCUs, but it should become more common practice that LCUs cooperate and share information of MNEs of mutual interest.).

185. **The role of international organisations to facilitate the exchange of knowledge and the creation of the networks is important**. A number of events on the above topics are already foreseen. Eurostat will organize annual workshops for EGR coordinators aiming at sharing experiences and planning next activities. Eurostat also organizes EGR webinars on specific issues. A workshop on data sharing, organized by IMF and Eurostat, in cooperation with the Deutsche Bundesbank, will be held January 31-February 1, 2017.

3. Towards a Global Groups Register

186. **The cooperation on a global register of enterprise groups and on global profiling would provide more and better information on the non-resident parts of multi-national groups and would allow in general better understanding of the globalization flows and their impact**. This Global Groups Register (GGR) could build on the existing content and processes of the Euro Groups Register (EGR). The information for the global register should be complemented by better information on groups, collected through global profiling.

187. The Global Legal Entity Identifier System (GLEIS) initiative could be used to establish unique identifiers in the GGR. GLEIS will go beyond the simple identification of entities. On the basis of the original Financial Stability Board mandate and following a public consultation[13] launched in November 2015, the Regulatory Oversight Committee (ROC – governance body of the GLEIS initiative) decided in February 2016 to further expand the GLEIS with the level 2 information, i.e. data on direct and ultimate parents of legal entities. This information is planned to be compiled as of end 2017

[13] http://www.leiroc.org/publications/gls/lou_20150907-1.pdf

using the accounting definition of relationships. Similarly to all the information collected in the framework of GLEIS, the level 2 information is expected to be global and public.

188. Once level 2 information becomes available, its possible use for a future GGR will have to be investigated. A test will need to be conducted to reproduce some relevant groups already recorded in the EGR by using the EGR procedures and the GLEIS relationships instead of the relationships provided to EGR by the national authorities. The differences with the EGR results should be analysed and may indicate a way forward on the construction of the GGR.

4. Statistical and technical training

189. The training efforts should **be coordinated to avoid overlapping and to create synergies** through the international statistical system. Eurostat organizes training on EGR targeted to National Statistical Business Register staff and statisticians working in Foreign Affiliate Statistics (FATS) and other globalization statistics in NSIs and / or Central Banks. In addition training in the following areas would be beneficial:

- Technical training on data security relating to data sharing and storage of micro-data.
- Training in data linking and mining.
- Statistical training on confidentiality, communication with respondents, measuring and managing respondent burden.
- Training on now-casting, imputation, selective and automated editing routines and combining survey and secondary (exchanged) data to overcome challenges in the use of secondary data.

5. Reuse of data among international organizations

190. International organisations should **further streamline the reuse of data collected** among them. There are possibilities to reduce reporting burden of countries. Technical solutions, like SDMX, should facilitate this approach.

6. New and emerging topics: Micro-data for research purposes and big data

191. The topics of Micro-data exchange for research purposes and big dat**a** were left out from this review. They are, however, related to data sharing. Having a significant importance on official statistics production these emerging topics **should be covered by an international in-depth review to examine on-going activities and projects**. The report (2014) from the OECD Expert Group on Micro-data Access contains useful insights on the micro-data exchange for research purposes. **The topic of public-private partnership for data production could also be reviewed.**

Annex 1

Exchange and sharing of economic data – Questionnaire

1. **Scope of economic data exchange**

1.1. Does your office engage in exchange of economic data at national level (receiving data collected by other institutions / providing data to other institutions)? Yes ☐ No ☐

If yes, what is the role of your office? Please select all options that apply.

a) Receive micro-data for statistical production from other organizations:
   From other producers of statistics ☐
   From administrative sources ☐
   From commercial sources ☐
b) Provide micro-data for statistical production to other producers ☐
c) Provide micro-data for other purposes than statistical work (research etc.) ☐
d) Receive aggregated data for statistical production from other organizations ☐
e) Provide aggregated data for statistical production to other producers ☐
f) Provide aggregated data for other purposes than statistical work to other organizations ☐
g) Other, please explain briefly: ☐

1.2. Please list here the statistics (or datasets) for which you exchange (receive or provide) economic data at national level (you may also list the institutions with whom you exchange data):

Please provide an estimate of the share of data received from indirect sources (not from respondents):

xx %

1.3. Has your office engaged in international exchange of economic data? Yes ☐ No ☐

If yes, please select options that apply:

a) Data exchange is carried out at:
   aggregated level ☐
   micro-data level ☐

b) Data exchange covers:
   data collected directly for official statistics ☐
   administrative data ☐
   data from commercial sources ☐

c) Data exchange is:
   bilateral ☐
   involves more than two organizations ☐

d) Data exchange takes place:
   regularly ☐
   on an ad-hoc basis ☐

1.4. Please list here the statistics for which you exchange economic data at international level, provide also frequency of data exchange and key results achieved:

1.5. Does your office examine the activities of multinational enterprises together with:

Statistical offices of other countries? Yes ☐ No ☐
Other producers of statistics within your country? Yes ☐ No ☐

If yes, please provide examples of such data exchange, frequency and key results achieved.

2. **Organizational aspects**

2.1. Does your office have a unit in charge of coordinating the exchange of economic data (e.g. the national accounts or the large and complex enterprises unit)? Yes ☐ No, it is distributed to various units ☐

Please explain briefly how the work is organized within your office and why.

2.2. What are the institutional arrangements (i.e. policies, systems and processes to manage the activity and division of work) for the collection, exchange and processing of statistical data related to global production (e.g. international trade in goods/services statistics, FDI, business statistics, FATS, etc.)

2.3. Is there a national legal framework in place that regulates (or inhibits) data sharing or data linking? Yes ☐ No ☐

Please explain briefly the benefits and limits from the legal framework. How are confidentiality aspects addressed?

2.4. Have you recently introduced new cooperation mechanisms, signed agreements or revised legislation to facilitate data exchange? Yes ☐ No ☐

If yes, please explain briefly.

2.5. Is there a common business/personal identifier widely in use enabling data sharing or data linking at national level? Yes ☐ No ☐

2.6. Please explain briefly how your office tries to overcome the lack of common standards between countries (e.g. business identifiers and possible different classification of units):

3. **Benefits and challenges**

3.1. Which have been the main benefits for your office from (both national and international) data exchange? Please select all options that apply.

a) Better data quality such as relevance, accuracy, timeliness ☐
b) Improved consistency of data across statistics (e.g. national accounts, balance of payments and other economic statistics) ☐
c) Better understanding of complex enterprises ☐
d) Efficiency gains in statistical production ☐
e) Reduced response burden ☐
f) Other, specify: ☐

Please explain briefly the benefits that you indicated above.

3.2. Which have been the main difficulties or obstacles for your office in (both national and international) data exchange? Please select all options that apply.

a) Legal constraints ☐
b) Confidentiality constraints (micro/unpublished aggregated data) ☐
c) Technological readiness to exchange data ☐
d) Decrease in respondents' trust ☐
e) Other, specify: ☐

Please explain briefly the difficulties and obstacles that you indicated above.

3.3. Please provide an example of the most successful case of exchanging economic data in your office.

a) Brief description of the project:

b) Key challenges experienced/Lessons learned:

c) Key results achieved:

3.4. Have any risks of data sharing realized in your country in practice? Please select all options that apply.

a) Confidentiality of individual data was breached ☐
b) Individual data were not sufficiently anonymized when exchanged ☐
c) Respondents' trust diminished ☐
d) Micro-data were used for other purposes than agreed ☐
e) Micro-data were misused for personal gain ☐
f) Data were misinterpreted ☐
g) Data were considered poor quality ☐
h) Reputation of the statistical office suffered ☐
i) Data exchange partner did not have sufficient competence to use the dataset ☐
j) Other, please explain briefly: ☐

4. **International activities and national capacity**

4.1. What kind of international activities would best facilitate progress in the exchange of economic data? Please select three options.

a) Discussions at future expert meetings, such as at the Group of Experts on National Accounts ☐
b) Collecting examples of successful data exchange exercises ☐
c) Sharing technological solutions and tools for data exchange ☐
d) Developing general guidance for data exchange ☐
e) Developing common methodologies to ensure confidentiality ☐
f) Working jointly to review obstacles of data sharing ☐
g) Creating training materials, e.g. on data exchange and data confrontation ☐
h) Other, please explain briefly: ☐

4.2. How would you assess the capacity of your office in carrying out data exchange? Please select all that apply.

a) Technological capacity of your office: high ☐ medium ☐ low ☐
b) Staff's skills in data mining and linking: high ☐ medium ☐low ☐
c) Staff's ability to analyse data: high ☐ medium ☐ low ☐
d) Awareness of available relevant data sets in society: high ☐medium☐ low ☐
e) Technical capacity to ensure confidentiality: high ☐ medium ☐ low ☐

4.3. What kind of practical solutions should be developed in the near future for data exchange, and how to achieve improvements?

4.4. What is the key priority for international work that might support the exchange of economic data at your office?

4.5. What should be the role of international organizations in cooperation and coordination of data exchange, the related tools and methodologies?

5. **Other issues**

5.1. Here you may bring up any other issues, measures taken or national experience relating to the exchange of economic data:

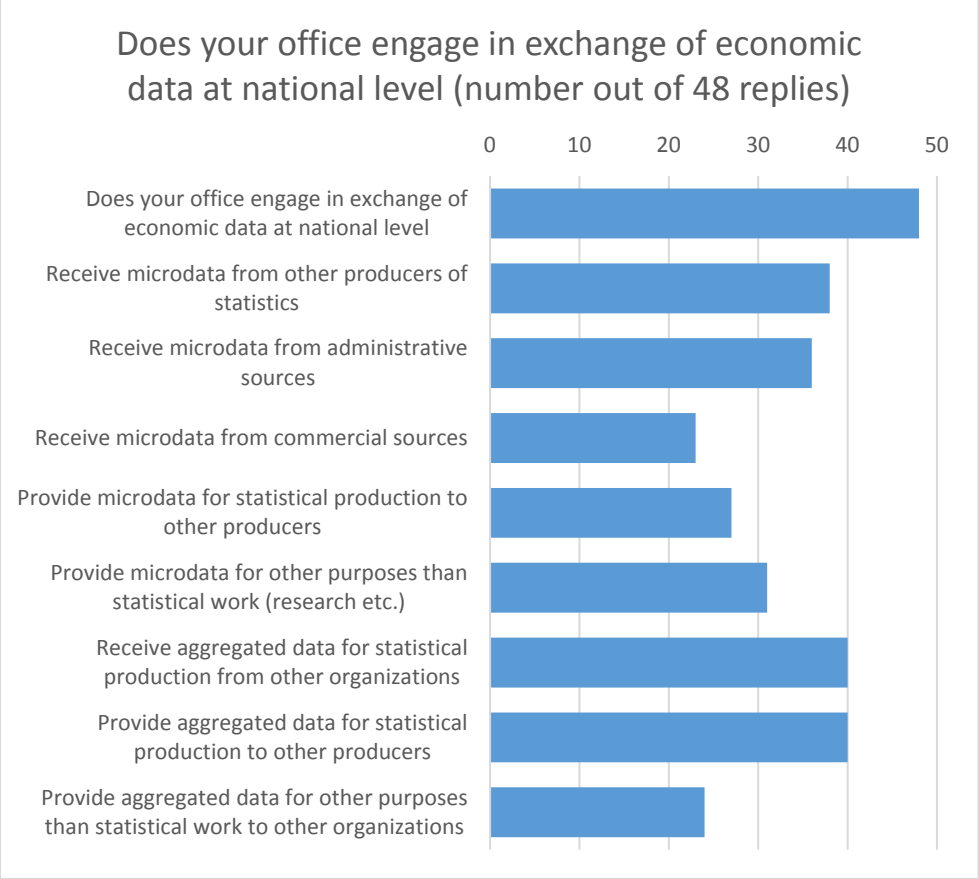
5.2. Do you allow the information provided in this questionnaire to be used in the review paper and shared with other national statistical offices? Yes ☐ No ☐ Only in an aggregated or anonymized form ☐

Annex 2: Exchange and sharing of economic data – Summary of the results

1. The analysis is based on 48 replies received from offices. There can be multiple responses from the same country but provided from different institutions/offices.

I. Scope of economic data exchange

2. First, the questionnaire explored (in question 1.1) how offices engage in exchange of economic data at national level. The following chart provides a summary of the results.



3. In summary, almost all statistical offices are engaged in the exchange of economic data nationally. They most often exchange aggregated data (40 out of 48 offices). Almost 80 % of the statistical offices receive micro-data from other producers of statistics or from administrative data providers. It is less common that statistical offices provide micro-data to other producers of official statistics, around 60 % do so.

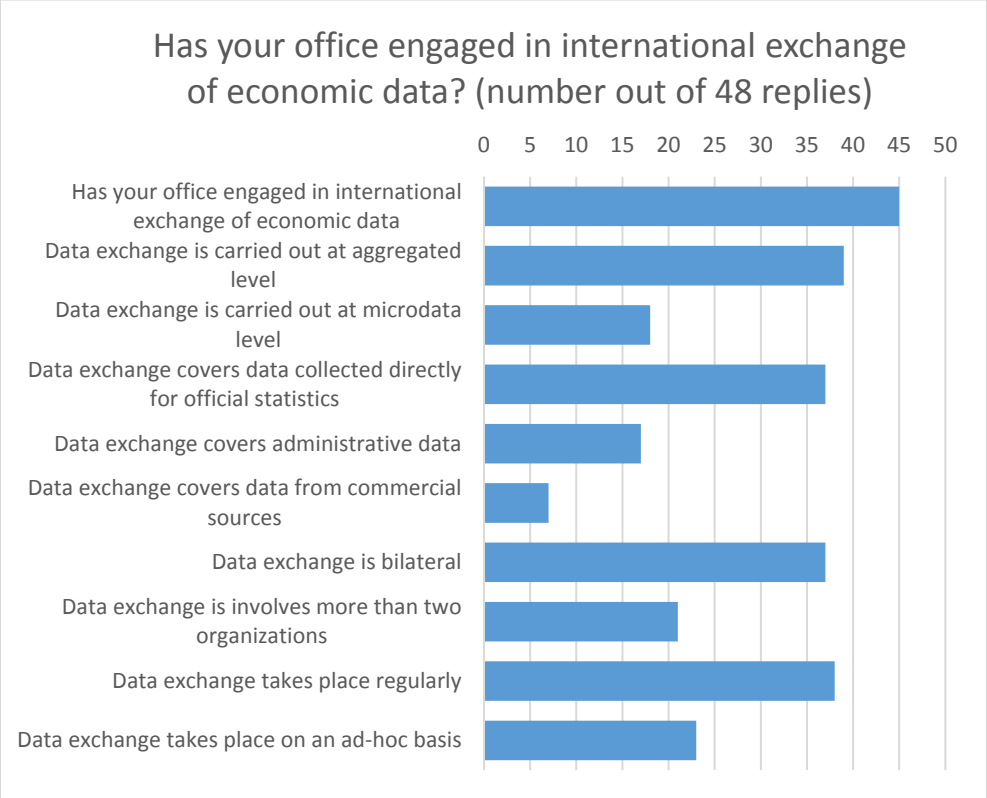
4. In addition, offices were asked (Q 1.2) to list the statistics (or datasets) for which they exchange (receive or provide) economic data at national level.

5. The replies revealed that the most commonly used administrative data in official statistics were tax-files received from Taxation Authority (30/48 offices). Other main administrative data sources were Central Banks (28) and Customs Offices (20). Data

from Ministry of Finance were mentioned in 17 replies. Micro-data from private data providers were received in 23 offices.

6. Two thirds of respondents provided an estimate of the share of data received from indirect sources (not directly from respondents). The share varied significantly among countries - between 5% and 95% of all data used for statistical production.

7. Further, the questionnaire asked (Q 1.3) whether the office engages in international exchange of economic data.



8. 45 out of 48 offices are engaged in international exchange of economic data at some level. The exchange covers mainly aggregated data. Slightly more than one third of the offices are engaged in international exchange of micro-data. 80% of the offices regularly perform international data exchange.

9. Again, the offices were also asked (Q 1.4) to list the statistics for which they exchange economic data at international level.

10. Mainly data that record cross-border transactions were exchanged. These are BOP, international trade in goods/services statistics, FDI, international investment position, FATS etc. However, transport statistics is also an area that might benefit from data exchange (Case: Canada, Mexico and US).

11. Offices' practices to examine the activities of multinational enterprises were also explored (Q 1.5).

12. The replies highlighted that the treatment of MNEs should be investigated further. More than 40% of the respondents cooperate with other offices to better deal with MNEs. Two thirds of them indicated joint efforts with statistical offices from other countries. A couple of more offices (16/48) indicated having engaged in joint efforts within a country with other producers of statistics.

II. Organizational aspects

13. The existence of a unit in charge of coordinating the exchange of economic data (e.g. the national accounts or the large and complex enterprises unit) was reviewed in question 2.1.

14. According to the responses, there are coordinated data exchange efforts in place in some offices. Several responses (7/48) indicated the existence of a centralized office for national data sharing (e.g. for receiving administrative data). A bit less than 40% of offices have decided to centralize data exchange activities in their office.

15. Question 2.2 explored the institutional arrangements (i.e. policies, systems and processes to manage the activity and division of work) for the collection, exchange and processing of statistical data related to global production (e.g. international trade in goods/services statistics, FDI, business statistics, FATS, etc.).

16. Data sharing agreements between administrative data providers and producers of official statistics are very common (see also Q 1.2). Almost all offices mentioned national legal framework as an important institutional prerequisite. In some countries, data exchange is agreed and defined in statistical work programs. Some countries mentioned that they have benefitted from organizing the data collection of MNEs to a specific large and complex enterprises unit. Similar units are foreseen in a few more countries. A couple of offices pointed out that compiling all economic statistics in one office improves coherence. It was also highlighted that the role of national accounts is important in improving the overall quality of economic statistics through micro and macro level validations. Some countries have established working groups between administrative data providers and producers of official statistics to ensure good working relations in data exchange. An example of a central Micro-data Release Panel to approve the sharing of each micro-dataset was mentioned as a good practice.

17. At international level, offices from EU countries emphasized the role of EU regulations in enabling and promoting data exchange. Specific data exchange exercises facilitated by Eurostat (e.g. SIMSTAT, FDI-network) and OECD were also mentioned. Some offices have bilateral or multilateral memoranda of understanding in the area of data exchange between countries.

18. Technical solutions developed to secure transmission of confidential aggregates and micro-data are important. Similarly having appropriate documentation and specially trained staff is essential.

19. Question 1.3 concerned the national legal framework. Almost all responses (43 out of 48) indicated having a legal framework in place that regulates or sometimes inhibits data sharing or data linking.

20. New mechanisms to facilitate data exchange were explored (Q 1.4). Two thirds of the offices reported that they have recently introduced new cooperation mechanisms, signed agreements or revised legislation to facilitate data exchange.

21. Common business/personal identifiers have a crucial role in enabling data sharing or data linking (Q1.5). In total, 37 out of 48 offices reported that in their country common identifiers are widely used at national level.

22. Question (1.6) collected information about the ways in which different offices try to overcome the lack of common international standards (e.g. business identifiers and possible different classification of units).

23. Within the EU, VAT and Customs identifiers are used as a common standard and they allow matching company data on trade with partner countries. Through Eurostat's coordination the legal entity identifier number (LEID number) also exist as a unique

identification number assigned by the EGR Identification Service. The role of common business register was highlighted as an important tool for data exchange and it should include national identifier and its link to e.g. international VAT codes. LEID should be introduced to all business statistics.

24. Eurostat's grant actions toward interoperability of the national statistical registers of EU countries have notably facilitated data linking between countries. ESBRs and EGRs are promising examples of interoperability between business registers and European profiling to reach common standards in dealing with statistical units.

25. Some offices mentioned that national classifications need to be adapted to international standards. Correspondence tables are used to link the different classifications. Eurostat and UNSD provide correspondence tables between different versions of classifications.

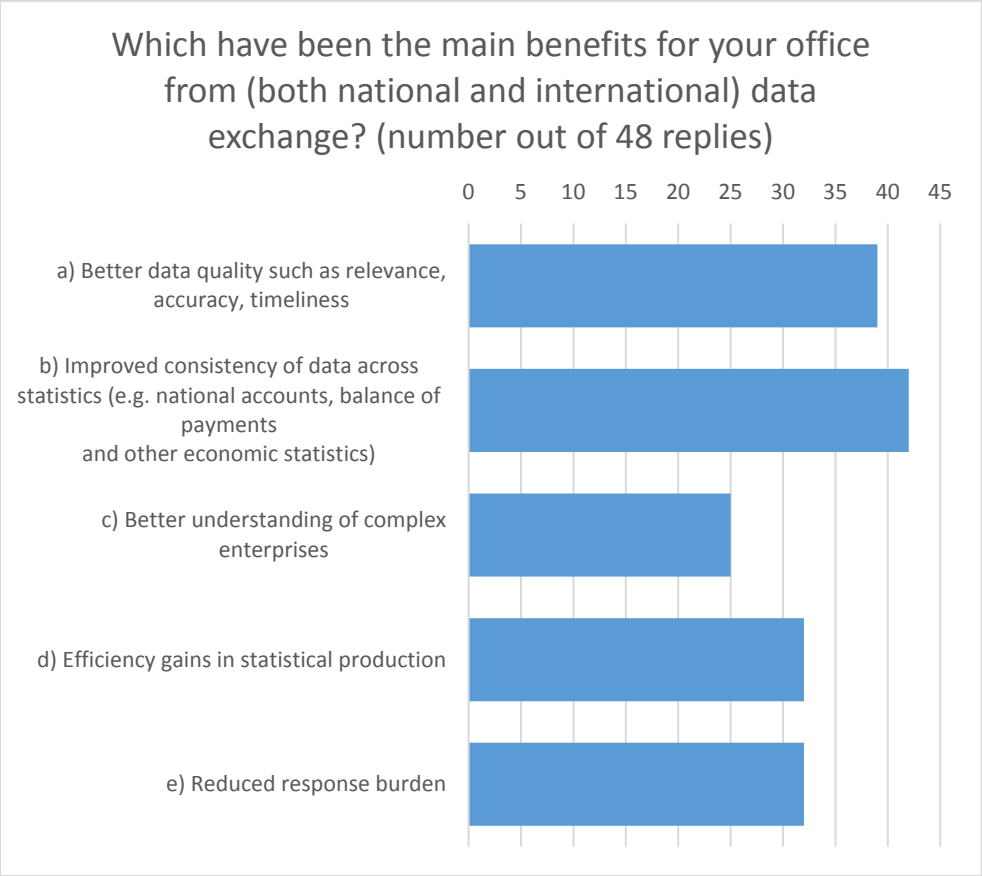
26. In some countries data exchange is challenging because of the lack of common identifiers for units. They have developed new approaches to address the lack of unified business identifiers, such as using different probabilistic linking techniques, using name and address to build up a concordance file over time and between the identifiers in different countries.

27. Many responses highlighted the importance of following agreed international guidelines regarding identifiers of statistical units. Countries would benefit from a more active exchange of good practices in dealing with the lack of common identifiers.

28. It was also stated that some methods and international standards may be too European centric to be of use in other parts of the world. Review and adaptation to different circumstances may be needed.

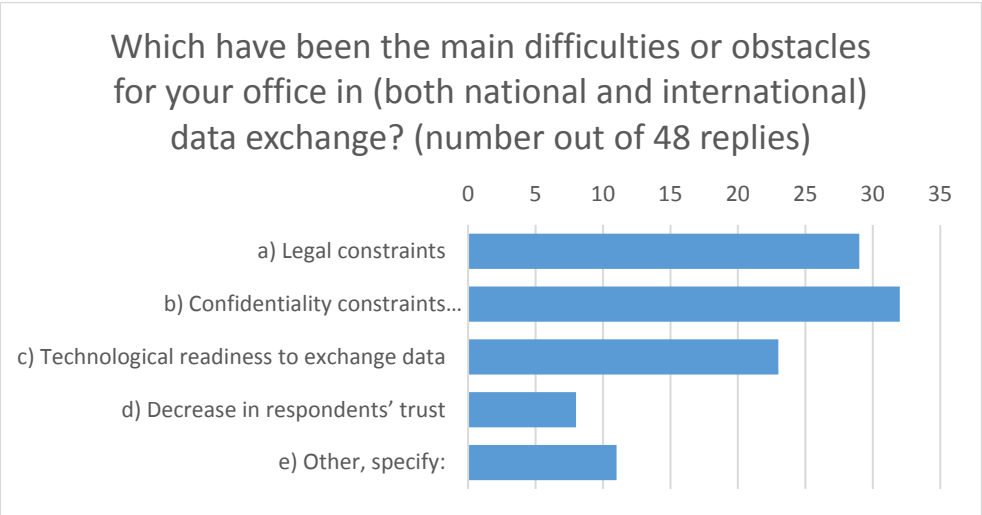
III. Benefits and challenges

29. The main benefits for offices from (both national and international) data exchange (Q 3.1) are illustrated in the chart below:



30. Countries listed as main benefits from data sharing the improved consistency (42 out of 48 offices), and better data quality such as accuracy, relevance and timeliness (39). In total, 32 offices mentioned efficiency gains and reduced response burden as the third most common benefit from data exchange. The role of data exchange for better understanding complex enterprises is highlighted in 50 per cent of the replies. With the progress towards establishing of LCUs this role could increase in the future.

31. The main challenges or obstacles for offices in (both national and international) data exchange were considered (Q 3.2) as follows:



32. The main challenges for data sharing were confidentiality (32 out of 48 offices), legal constraints (29) and technological readiness (23). The risk of decreasing respondents' trust was considers as a main restriction by 8 offices. Also other obstacles were specified by 11 offices:

- the increased dependency from other NSIs or administrative data providers;
- problems in linking data in international data sharing;
- lack of resources dedicated to this type of work;
- when using administrative data, the legal unit is not always the same as the statistical unit for compiling statistics;
- quality issues, especially coverage, timeliness and high investment costs.

33. Reponses to question 3.3 indicated some successful cases of exchanging economic data, key challenges experienced and lessons learned, and key results that were achieved. They are presented in more detail below.

A. Successful cases of exchanging economic data

34. At the international level, many offices mentioned data provision to international organizations (UN, Eurostat, IMF) as examples of successful data exchange. At the national level use of customs data for ITGS data production and use of data from tax authorities were most often cited as successful actions.

35. Exchange of international merchandise trade data between the member states of an economic region (e.g. EU, the Eurasian Economic Union, North America) has been very fruitful. At the EU-level SIMSTAT and the FDI-network were highlighted several times.

36. Developing communication nationally between statistics producers, administrative data providers and respondents were also considered effective. A key area for closer collaboration would be to develop common data collection and data sharing (in some cases in anonymized form) initiatives between the statistical office, Central Bank and Customs Office. A couple of examples also showed that closer collaboration and data exchange between foreign trade and/or balance of payments statisticians from the Central Bank and/or Customs Office and the statistical office have been very fruitful.

37. The respondents also paid special attention to technical aspects of data exchange and sharing. The most successful cases are those where data are received via web service and are automatically processed and used for the intended purposes.

38. The provision of aggregated or anonymized data to researchers/economists with methodological guidance and technical and professional support were also found useful. Many research articles get good visibility in the media and give prominence to the NSI as well.

B. Key challenges experienced and lessons learned

39. The responses clearly underlined the importance of having a common numerical identifier for statistical units. It is crucial for data exchange and linking. When common identifier is missing, it is difficult to match companies e.g. by name. The significance of harmonized use of classifications was also noted. In addition, sound legal framework

seems to contribute greatly to regular data exchange, to improvement of data quality and to ensuring smooth data supply and exhaustiveness of data.

40. The responses revealed difficulties of ensuring comparable consolidations of different business units to the enterprise level. They also underlined the usefulness of having a third source (e.g., commercial databases) to help reconcile cases where two agencies have different estimates for the same entity.

41. Data exchange requires good coordination within the National Statistical System, creating cooperation agreements with other producers of statistics and data providers and understanding institutions' different objectives. Many replies highlighted the significance of providing high-quality meta-data. The different scope, definitions, timeliness and quality of administrative data are the key challenges for data exchange with administrative data providers. It is important to have staff who know well the administrative sources and good documentation.

42. Despite all efforts made in data exchange, there are still significant asymmetries in the data between countries. The lack of common tools and methods was mentioned as one of the main reasons.

C. Key results achieved

43. One of the key results of improved cooperation is the better international comparability of data. Reduced burden for all parties is another important achievement as a result of more effective data exchange and reuse. Much less surveying is needed when the once collected data (e.g. administrative records) are reused for different statistical purposes.

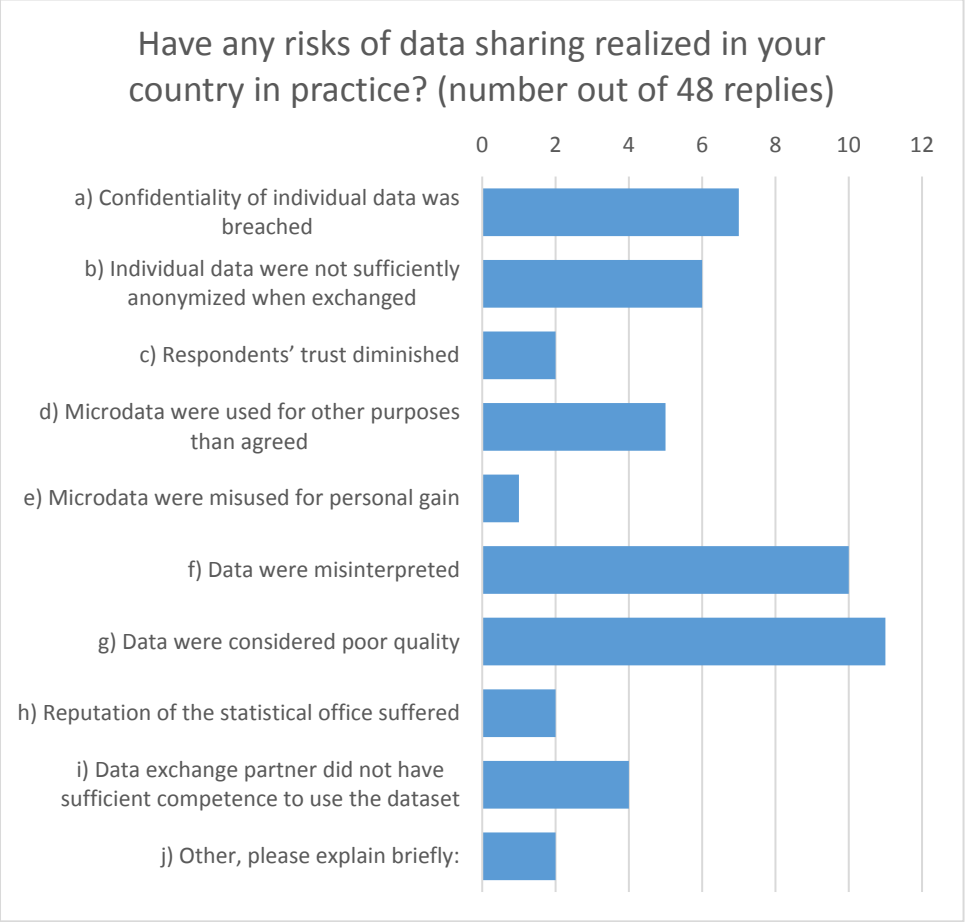
44. It was also mentioned, that the international exercises that were conducted have reduced asymmetries significantly. Offices have noted improvements in data quality such as relevance, accuracy, timeliness.

45. Some statistical offices observed that thanks to data exchange it has been possible to increase geographic and industrial detail of statistics without imposing additional burden on survey respondents.

46. Furthermore, data exchange and sharing has facilitated integration of different business statistics as well as national accounts data.

47. The questionnaire surveyed (Q 3.4) risks of data sharing that were experienced by countries (see the chart below).

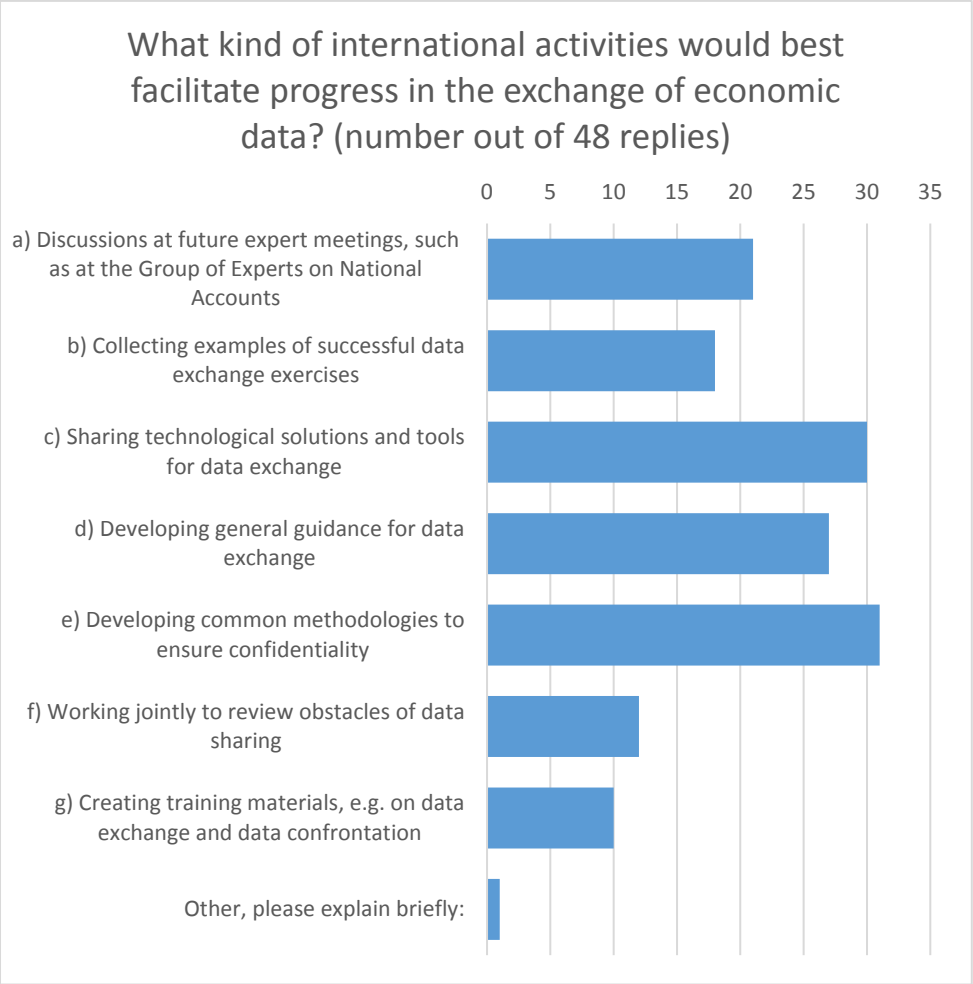
48. It seems that not many risks have been realized with data sharing. Eleven offices reported that data was considered poor quality and ten reported that data were misinterpreted. Other risks seemed less common. The most critical risks have to do with possible confidentiality breaches, which were reported by seven offices.



IV. International activities and national capacity

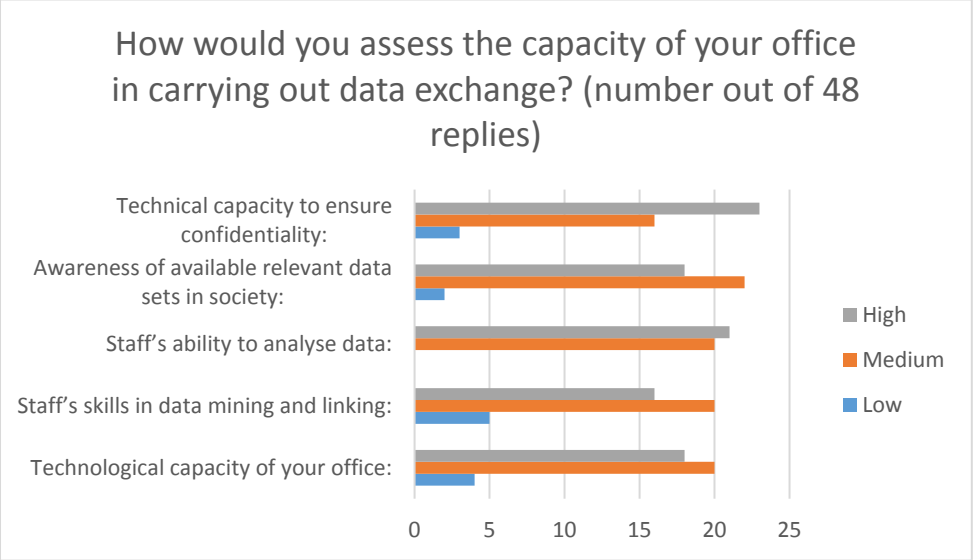
49. Offices were also asked (Q 4.1) what kind of international activities would best facilitate progress in the exchange of economic data (see the chart below). They were requested to indicate the three most important activities.

50. In general, the role of international organizations was seen as a facilitator of sharing best practices and forums for discussions. Countries would need international guidance on defining legislation and agreements that facilitate data exchange without compromising data confidentiality and further standardization of data exchange rules and procedures across countries. The following international activities would best facilitate data exchange: developing methodologies to ensure confidentiality (31 out of 48 offices indicated it as top priority), sharing technological solutions and tools for data exchange (30) and developing general guidance for data exchange (27).



51. Respondents were also requested (Q 4.2) to assess their capacity in carrying out data exchange.

52. Staff's ability to analyse data and the office's technical capacity to ensure confidentiality were evaluated as "high" most often. Other broad categories were assessed at a medium level. However, the responses varied quite a lot (see the Chart 4.2). Even some very developed offices assessed their technical capacity and staff's skills in data mining and linking as being on low level.



53. In question 4.3 respondents evaluated what kind of practical solutions should be developed in the near future for data exchange, and how to achieve improvements.

54. Technical specifications for data exchange were regularly mentioned. The exchange of information should happen online and through a protocol defined by statistical agencies. Data exchange should be facilitated by introducing commonly developed and agreed modern tools. The implementation of the SDMX and other relevant data exchange standards is extremely important. Clear standard rules (content, format, meta-data) would be needed for all participants in the data exchange process. Data exchange using the SDMX system should be further developed in order to cover more statistical domains. The solution chosen in the SIMSTAT project could be used more widely.

55. There is similarly a need to improve the legal framework, infrastructure and provide relevant training. New legislation should allow increased data exchange. Statistical offices would benefit from international recommendations on the organization of data exchange.

56. In addition, common standards for data security need to be agreed. Effective and secure data exchange requires consistent accreditation processes that all countries can sign up to. We need to ensure the use of most efficient statistical disclosure control (SDC) methods in the area of business statistics, and develop common procedures for that. In order to exchange data, methodological and practical guidance to ensure confidentiality should be developed.

57. Greatest utility in bilateral comparisons would result from better meta-data about national systems, from having common international identifiers for legal units/enterprises in every data source and using common definitions and agreed types of statistical units.

58. Offices would benefit from having a central management to ensure overall coordination of data exchange. We should work together internationally to ensure confidentiality while facilitating data exchange.

59. It would be beneficial to include data reconciliation or international data integration workshops back-to-back to regular international meetings, (for example, the UNECE Expert group on National Accounts or OECD Working Party on Trade in Goods and Services) to allow major trading countries to reconcile trade and investment

flows. This would have a dual benefit. It would improve the overall quality of each country's statistics while at the same time facilitating the integration of the data into multijurisdictional data products such as regional supply and use tables. Organizing other meetings via videoconferences in order to exchange data and methodologies, ensuring the consistency of data and their international comparability and developing general guidance for data exchange could also be useful.

60. Within the EU, micro-data exchange in certain areas could be enabled by EU legislation. Similarly, establishing the sets of economic data that could be commonly exchanged at international level (international organizations should jointly require a unique questionnaire) could be considered.

Question 4.4 explored the key priorities for international work that might support the exchange of economic data. The following priorities were listed:

- Sharing technological solutions and tools (including legal agreements) for data exchange and related training;
- Development of a standard system for exchange of external trade data;
- Creation of mechanisms and infrastructure supporting the exchange of information such as data transfer protocols, generic agreements guaranteeing the confidentiality of data providers, and the facilitation of face to face meetings or teleconferencing meetings;
- Legal basis for micro-data exchange introducing an appropriate balance between data sharing and confidentiality;
- Further advancing the adoption of Legal Entity Identifiers (LEIs).

61. Respondents also assessed the role of international organizations in cooperation and coordination of data exchange, the related tools and methodologies (Q 4.5).

62. International organizations should coordinate all aspects of data exchange e.g. methodological, legal and technical. The role of international organizations is especially important in promoting best practices and initiatives related to data exchange and sharing and its benefits to regional and global developments and trends. In addition, the international organization should work to develop harmonized tools and methodologies to achieve better data consistency and coherence through data sharing.

63. Further, international organizations should create conditions for joint work of national statistical offices, organize platforms for the exchange of views, analyze and synthesize information about trends in data exchange, make recommendations on country practices and share the results achieved by statistical offices.

64. International organizations should facilitate 'data reconciliation' meetings where experts from countries are brought together to undertake actual reconciliation work such as reconciling trade flows and investment flows.

65. International organizations should play a key role in developing the legal framework for data exchange. Especially EU should provide a sound legal base for its member countries for data exchange. Promoting data sharing on the political level is also very important.

66. Finally, offices also recognized international organizations role in financing the development of appropriate tools for data exchange.

V. Other issues

67. At the end of the questionnaire respondents had the opportunity to mention other relevant issues.

68. They highlighted that respondents' confidence is at the heart of NSI's ability to compile robust, high quality and trusted official economic indicators. Any loss of engagement or trust among the relatively small number of large enterprises dominating the economy would be detrimental to the ability of statistical offices to compile key economic indicators.

69. The data laboratories giving researchers access to micro-data, at the same time taking care of the confidentiality of respondents, should be further developed.

70. It was also stated that the biggest obstacle to data exchange is the culture of risk aversion. Instead, we need to develop modern tools that enable data exchange and disable confidentiality breaches to the highest extent possible.

Annex 3

International Data Sharing Agreements: Statistics Canada

I. Introduction

1. Data sharing agreements between domestic organizations are an effective way of reducing respondent burden and increasing efficiency. While the benefits are numerous, challenges in establishing and maintaining these agreements do exist, as the individual organizations are often constrained by their particular legislative, policy and operational requirements. These challenges multiply when cross-territory data sharing agreements are considered. The increasing interconnectedness of the global economy has led statistical organizations to explore entering into cross territory data sharing agreements where they would be able to connect the dots found in global value chains, international financial transactions and complex multi-territory organizational structures.

2. Since 1990, Statistics Canada and the United States Census Bureau have shared customs import transactions and used the data to compile official export statistics. This paper outlines this agreement and highlights the infrastructure needed to establish and maintain cross-territory data sharing agreements.

II. Background

3. In 1987, Statistics Canada, the customs arm of the Canada Revenue Agency, the United States Census Bureau (USCB) and the United States Customs Service began discussions on the possibility of entering into an international data sharing agreement by which import statistics between the countries would be exchanged. These import statistics would then be used in the reporting of each country's exports to each other. In that same year, a memorandum of understanding was signed by the four parties noted above and by 1990 the data exchange was in effect. This paper discusses the Memorandum of Understanding on the Exchange of Import Data between Canada and the United States and presents the factors that have contributed to its success over the last 25 years. It is hoped that this paper stimulates international discussion concerning cross-territory data sharing agreements, leading to a greater use of these types of agreements, given the increasingly global nature of the economy.

III. Structure of the Agreement

4. The strength of the Memorandum of Understanding on the Exchange of Import Data between Canada and the United States lies in its simplicity. It is five pages in length and contains five articles and two annexes. The memorandum of understanding (MOU) is structured as follows:

Preamble

Article 1 – Information Sharing

Article 2 – Problem Resolution and Monitoring

Article 3 – Operational Modifications

Article 4 – Costs

Article 5 – Entry into Force, Modification and Termination

5. In addition to the above noted articles, the MOU contains Annex 1, outlining the data development work each partner needed to undertake before the MOU could take effect; and Annex 2, which outlines the manner and frequency by which the data are exchanged.

A. Preamble

6. Data sharing agreements between domestic organizations are an effective way to reduce respondent burden and increase efficiency. While the benefits are numerous, challenges in establishing and maintaining these agreements do exist, as the individual organizations are often constrained by their particular legislative, policy and operational requirements. These challenges multiply when cross-territory data sharing agreements are considered.

7. For a data sharing agreement to be successfully implemented there needs to be clear motivation—an overriding benefit that is greater than the cost of developing, maintaining and administering the agreement.

8. The Memorandum of Understanding on the Exchange of Import Data between Canada and the United States includes these motivations within the agreement. Specifically, it references the facts that:

- There is a significant volume of trade between Canada and the United States: "Considering that Canada and the United States account for the largest volume of international trade in goods of any two countries,"
- Trade agreements, trade disputes and trade negotiations rely on accurate measures of trade: "Considering that the management of bilateral trade relations between Canada and the United States in particular requires the accurate and complete collection and recording of statistics reflecting the trade flows between them, and that the records kept by both countries confirm rather than contradict each other";
- Import statistics are more accurate than export statistics: "Recognizing that import statistics are a more accurate measure of trade flows than the counterpart export statistics and that the exchange of such statistics will serve their respective interests"; and,
- Harmonized concepts, classifications and processing bring about greater symmetry: "Desiring to take advantage of their geographic proximity, and the introduction of a common method of describing and classifying goods in international trade."

9. The first factor that has contributed to the success of the MOU is the fact that the motivation for the agreement was incorporated into the agreement itself. It forms a part of the preamble and serves as the collective international memory as to why the agreement was initially developed. Each time the MOU is reviewed, it functions as a 'test' of whether the original motivators still exist.

B. Article 1 - Information Sharing

10. Article 1 of the MOU identifies the information that will be exchanged between the parties to the MOU. It contains four sub-sections. The first sub-section deals with the data points to be exchanged, the second sub-section details the use of the data, the

third sub-section identifies data development work that is required before the MOU can take effect, and the fourth sub-section outlines the delivery mechanism.

11. The article is purposely vague and includes the general statement that:

"Information exchanged pursuant to this Memorandum of Understanding shall include information regarding importation of goods collected by the respective Customs services that exists or may exist in data captured form and that is submitted to the respective statistical agencies of the Parties."

12. This somewhat vague statement is followed by a more restrictive which places specific restrictions on the information which cannot be shared:

"The information described in the preceding sentence does not include, however, data elements which identify individuals, businesses, or corporations to whom the information relates."

13. At first glance the agreement seems contradictory in that it is both vague and prescriptive in the same section. This intentionally vague/prescriptive nature is an indication of where the parties are willing to accept risk and where they are not willing to accept risk. The parties are willing to have a more or less carte-blanche exchange, of information provided that the data does not include information which identifies individuals, businesses or corporations (i.e. the US cannot give Canada information about US firms and Canada cannot give the US information about Canadian firms). It should be noted that the countries are allowed to share information collected about individuals and corporations in the partner country. For example, the U.S. can collect information about Canadian businesses and provide Statistics Canada and the Canada Border Service Agency with this information.

14. Another important element of Article 1 reflects the permitted use of the information that is exchanged between the parties.

"The information exchanged is to be used by the receiving party exclusively for statistical purposes, subject to the laws and regulations of the supplying party regarding the dissemination of confidential business information."

15. This is important in two respects. The fact that it can only be used for statistical purposes is not surprising, but what may be surprising is that it cannot be used for anything else, such as monitoring, regulatory or enforcement purposes. This is an important restriction. The second, more substantial item is that each partner agrees to 'adopt' the laws and regulations of the supplying party regarding the dissemination of confidential business information. This means that the United States adheres to Canadian laws and regulations and Canada respects American laws and regulations regarding the dissemination of confidential business information.

16. The agreement not only directs the partners to provide existing information, it also binds them to develop additional information.

"The Parties agree that those data elements not presently available from import entry documents are described in Annex I to this Memorandum of Understanding."

17. This clause was incorporated for two reasons. First, it ensured that the partners were no worse off (with respect to data holdings and data elements) once the agreement took effect. Secondly, an important part of any data sharing agreement is the harmonizing of concepts, methods and data elements. This sub-article ensured that once all changes were made, both Canadian imports and American imports were harmonized to as great an extent as possible with respect to classification, code sets and data elements.

18. This explains why, while the agreement was completed in 1987 it was not implemented until 1990. Annex 1 of the agreement outlines the changes each country had to implement prior to the enforcement of the agreement, as per the MOU:

"Requirements of Canadian Export Statistics (changed to be made by USCB)

1. Identification of Canadian vendors.
2. Identification of the Province of Origin of Canadian exports.
3. Gross shipping weight of merchandise imported from Canada regardless of mode of transport.
4. Estimated freight charges to Canadian point of exit or to final destination.
5. Container information for all shipments."

"Requirements of United States' Export Statistics (changes to be made by the CBSA)

1. U.S. port of export ----- The crossing point for rail and truck shipments. For air and vessel shipments, the last port of call before carrier left U.S.
2. Air carrier/vessel manifest number or name.
3. Identification of State of Origin of U.S. exports.
4. Shipping weight for air and vessel shipments.
5. Relationship of the parties to the transaction - Related/Non-related.
6. Foreign trade zone number for exports out of zones.
7. Identification of U.S. vendor -- Name and Address (or ZIP Code) and/or identification number.
8. Estimated freight charges to U.S. point of exit or final destination.
9. Date of exportation of merchandise."

19. Article 1 concludes by stipulating the manner and frequency which the information will be exchanged.

"The Parties agree that information is to be exchanged in a manner and at a frequency mutually agreed upon by the Parties as described in Annex II to this Memorandum of Understanding."

20. The sub-article is somewhat vague—reserving the detail for Annex 2—which provides significant specifications with respect to data elements, record layouts, the medium to transmit the data and the parties that can receive the data.

21. The second factor that has contributed to the success of the MOU is that it clearly identifies the uses of the information, what can be shared, how the information is exchanged and how common classifications and concepts will be achieved and maintained.

B. Article 2 - Problem Resolution and Monitoring

22. The second article of the MOU deals with problem resolution and monitoring. Similar to other parts of the agreement, this wording is purposely vague.

"The Parties will each designate an official to be part of a committee of four persons, comprising one representative from each party, to monitor the administration and implementation of this Memorandum of Understanding. The Committee will resolve technical problems that may arise and will report to the Parties on the activities of this

Memorandum of Understanding. The Committee will meet at least annually, or more frequently if necessary. The office of chairperson will rotate annually among these four Committee members."

23. The MOU calls for the establishment of a committee of four persons who will be responsible for the overall implementation and monitoring of the MOU. This committee is empowered to handle the day-to-day operations and any technical problems that may arise. This section does not outline how unresolved problems are to be dealt with. It is implied that if there are items that cannot be resolved at the committee level they will be brought forward to the signatories for resolution. It is important to note that this committee has been operating since 1990 and has yet to bring an unresolved issue forward to the signatories of the MOU.

C. Article 3 - Operational Modifications

24. From time to time the production systems, processes and timelines for any one of the participants may change—either on a permanent basis or on a temporary basis. The MOU includes the following statement to deal with these instances:

"The Committee members will provide to each other reasonable prior notification of any intended changes regarding the production and availability of the data exchanged between the two countries."

25. The intent of this article is to ensure that consultation takes place; with changes being implemented only after all parties have had sufficient time to adapt. A recent example of the use of this article was when the USCB was requested to increase the timeliness of the release of their international merchandise trade estimates, from roughly 45 days to 35 days following the reference period. The implementation of this change had to be coordinated with both Statistics Canada and the Canada Border Service Agency (CBSA). Not only did Statistics Canada and the CBSA need to ensure that the USCB received the data in time to meet the new timeline, but Statistics Canada also had to commit to moving up its release date, since the two agencies have an operational constraint requiring both parties to release their monthly international merchandise trade statistical release at the same time.

26. In addition to operational modifications, the MOU also directs the parties to put in place certain controls to ensure the accuracy of the data being exchanged. The Annex to the MOU outlines a number of control totals that Statistics Canada must provide to the USCB in the transmission of Canadian data to the United States, and that the USCB needs to provide to Statistics Canada on the transmission of the American data to Canada. These include:

CANADA TO U.S.

- Total number and value of transactions by entry type.
- Total number and value of transactions by clearance port.
- Total number and value of transactions by entry month.
- Total number of amendments processed during the reference month and their associated values by two-digit Harmonized System categories.

U.S. TO CANADA

- Total number and value of transactions included in general imports from Canada and consumption imports from Canada.

- Total number and value of transactions by date of export month for each import type.
- Total value of imports from Canada by two-digit Harmonized System category.
- Total number of amendments processed during the reference month and their associated values by two-digit Harmonized System categories.

27. Each time Statistics Canada receives the import data, tabulations are generated and the results of these tabulations are compared to the control total supplied by the USCB. The same procedure is undertaken by the USCB when it receives data from Statistics Canada.

28. The third significant factor contributing to the success of the MOU is that the agreement stresses the importance of consultation when one of the partners is considering a change to its program.

29. A fourth factor contributing to the success is that quality control measures are embedded into the MOU, which ensures data accuracy. One of the risks associated with international data sharing agreements is that they add a layer of complexity, and with every layer of complexity comes an associated data quality risk. This MOU recognizes this and addresses it by stipulating that each partner engage in certain quality control measures.

D. Article 4 – Costs

30. An important part of the MOU relates to the cost of implementing, administering and monitoring the agreement. Given that, as already determined, the benefits outweigh the costs of the agreement, it only stands to reason that each agency absorbs all expenses related to the agreement.

"All expenses incurred in the provision of import data under this Memorandum of Understanding or its annexes will be paid by the country supplying such data."

31. The fifth success factor is that the partners not only agree to the implementation costs but also the ongoing costs associated with administering the agreement. This is important because at the time the agreement was signed, the on-going costs were unknown—in some respect each agency was writing a blank cheque to the other, indicating that they were prepared to make substantial investments to ensure the agreement remains in effect.

E. Article 5 - Entry into Force, Modification and Termination

32. The final article of the MOU lays out the framework for modifying or terminating the agreement. This section notes that any change must be on a consensus basis and that termination is possible but each party must be given at least one year to adapt their systems and processes to deal with any change.

"This Memorandum of Understanding shall enter into force upon signature by authorized representatives of Statistics Canada; the Department of National Revenue, Canada Customs and Excise; the Bureau of the Census of the United States, Department of Commerce; and the U.S. Customs Service of the United States, Department of Treasury.

33. Any Parties to this Memorandum of Understanding may at any time propose modifications to it; such modifications as are adopted shall be in writing signed by all Parties. The respective Parties of each country may withdraw from this Memorandum

of Understanding one year after notifying in writing to each of the other Parties of the other country of such intent."

IV. Some challenges over its history

34. Throughout the 25 year history of the MOU, the partners have faced and overcome a host of challenges. The majority of the challenges pertained to operational matters that were generally outside of the control of the various partners.

35. In both 1996 and 2013, the United States government shut down operations for short periods, with staff from all departments, including the USCB, locked out of their workplace. USCB staff were not able to transmit the import data to Canada, nor were they available to receive transmissions from Canada. In both cases, while the lockout was short-lived, both the USCB and Statistics Canada had to delay their release of the international merchandise trade statistics.

36. As noted earlier, another challenge was the decision by the United States government to increase the timeliness of their international merchandise trade statistics program. Prior to January 1, 2013, these statistics were released with a 45 day lag. As of reference period January 1, 2013, the timeliness of the release was increased from 45 days to 35 days from the reference period. This was an operational challenge for Statistics Canada, since it had to adjust internal operations, not only with respect to the processing of exports to the U.S. but also the process of exports to non-American destinations and the processing of import transactions. Release schedules needed to be modified and revision policies revised.

37. The majority of the challenges over the years have been of an operational nature. Each time the agencies have been able to adjust and adapt to the situation. The overriding success factor was a highly collaborative approach, intensive consultations and a common understanding of the challenges.

V. Possible Extensions

38. Both Canada and the United States have been well served by the Memorandum of Understanding on the Exchange of Import Data between Canada and the United States. Not only has the agreement enhanced the quality of the trade statistics and reduced respondent burden in each country, it has also resulted in a number of additional benefits.

39. One additional advantage is a general openness between Canada and the United States with respect to data confrontation and joint analysis. Each month, Statistics Canada and US Census Bureau highlight export transactions for review, which are then discussed by subject matter experts on both sides of the border. A second good example of an extension of this MOU is the bi-annual Canada-U.S. Balance of Payments reconciliation. Every second year, Statistics Canada and the Bureau of Economic Analysis meet to discuss and reconcile components of each country's Balance of Payments. This includes trade in services, investment flows and income flows. During these meetings both Statistics Canada and the Bureau of Economic Analysis are able to investigate – on site – discrepancies between the two sets of statistics. While these bilateral meetings do not constitute an exchange of the micro-data used to compile official statistics, they represent another avenue for the exchange of information between national statistical offices.

40. Another example of where the MOU has provided a launch pad for future data exchange is in the area of foreign affiliate statistics. The United States Department of

Commerce has asked Statistics Canada to look into the possibility of exchanging Canada and U.S. micro-data pertaining to the operations of foreign affiliates in each country's economic territory. Not only would this result in an improvement of each country's outward foreign affiliate statistics program, it would also enhance the amount of detail available to each national statistical office.

41. A third example of where this work may be extended is in the area of regional supply-use tables. Recently, a proposal was put forward by the United States International Trade Commission to build a North American supply-use table to better analyze global value chains operating in the North American market. In order to strengthen the quality of these tables it would be beneficial to access certain suppressed or company level data. Memorandums of understanding are being established to facilitate this work.

42. A fourth example leveraging international statistical conferences to engage in data confrontation activities. A major step forward in this regard is the recently initiated efforts at OECD to facilitate bilateral data confrontation as a supplement to the OECD Working Party on Trade in Goods (WPTGS) and Services at its March 2015 meeting. This lowers the cost of bilateral data confrontation and links it to ongoing data development work. This initiative was judged to be a success, and is intended to become a regular extension to the annual WPTGS meeting. In addition, the OECD Working Party on International Investment is considering a similar exercise.

VI. Conclusion

43. The Memorandum of Understanding on the Exchange of Import Data between Canada and the United States has been a success and is entrenched in the programs of both Statistics Canada and the United States Census Bureau. This paper has provided an overview of the agreement and identified seven key factors that have made the MOU a success. These include:

1. A clearly identified net benefit
2. A willingness to harmonize concepts and data requirements (NAICS, NAPS, coordination of HS8 and HS10, transaction review protocols between subject matter experts, regular meetings and near-daily correspondence).
3. A willingness to coordinate statistical programs
4. A willingness for each partner to adapt
5. A willingness to consult
6. A willingness to implement quality control measures
7. A willingness to incur costs

44. It is also clear that data sharing agreements like the Memorandum of Understanding on the Exchange of Import Data between Canada and the United States can be a launching pad for the establishment of additional data sharing work, improving the quality and relevance of official statistics.

Annex 4

Measurement challenge posed by MNEs - Profiling in the UK

I. Introduction

1. The national accounting framework continues to evolve in order to remain relevant through the SNA 2008, ESA 2010 and BPM 6 providing the foundations to a sound conceptual framework. The definition and choice of the statistical unit, and in turn, the collection of relevant and appropriate statistics through business surveys all have an impact feeding into the National Accounts and Balance of Payments.

2. In a rapidly changing world, businesses are continually changing the way they are structured, and operate, embracing the opportunities generated through globalization to remain highly competitive and maximise profitability.

3. Therefore, the ever-increasing number, and changing activity, of multi-national enterprises (MNEs) poses one of the largest 'measurement' challenges to the National Statistical Offices.

4. In recent years, the UK statistical office has been undertaking an increasing amount of detailed profiling of MNEs and visiting MNEs. These efforts have involved staff from the Business Register and National Accounts generating:

- changes to the structure and coverage of the enterprise as well as classification of some legal units held on the Business Register;
- changes to the estimates in the business surveys, and in turn, the National Accounts and Balance of Payments; and
- much better understanding of the activity of the enterprise.

5. The following sections briefly describe some of the UK profiling practices, and findings, covering visits to large complex companies to improve the measurement of their activities as well as comparisons with the European approach.

II. What is profiling?

6. The process of Profiling is defined as:

"Profiling is a method of analysing the legal, operational and accounting structure of an enterprise group at national and world level, in order to establish the statistical units within that group, their links, and the most efficient structures for the collection of statistical data."[14]

7. With international profiling, this will cover MNEs of all sizes, all businesses on the Euro-Groups Register and in the UK, this is achieved on a case by case basis and over 25 cases have been completed.

8. With national profiling, this will cover small and large complex groups, which in the UK is undertaken on a regular on-going basis.

[14] Business Registers Recommendation Manual 2010, annex 3.1, paragraph 19.9

III. Profiling techniques applied

9. There are different profiling techniques applied in the ONS and the distinction of the types is made in terms of their intensities, for example:

- Manual "intensive" profiling covers the activity of sending staff to the headquarters of a large business (group) to discuss the delineation of statistical, reporting and observation units on the basis of the operating structure of the business.
- "Manual "light" (or "desk") profiling does not require a visit is carried out to the business and just public information (annual reports, business' website, etc.) plus survey information is used.
- Automatic profiling covers procedures run by nationally defined automated rules by making use of data from national business registers and EGR on enterprise groups that operate on administrative units or legal units in order to delineate enterprise groups.

10. The best practice for delineating enterprises in enterprise groups for large and complex MNEs is of course the intensive profiling.

IV. ONS Business Profiling Team

11. The ONS Business Profiling Team (BPT) is within the Business Registers Division and has a portfolio of over 2,500 complex enterprise groups. The primary aim of the 12 profilers is to ensure the correct legal and operational structure of these groups on the Inter-Departmental Business Register (IDBR). This team has been in operation since the late 1990s and therefore is well established and experienced in profiling the largest and complex businesses.

12. The largest groups on the IDBR continuously change and evolve, therefore their continuous maintenance is needed and this can be achieved by effective communication and negotiations with the groups.

13. ONS have defined the profiling population of candidates to be manually profiled using criteria on employment and activity. The criteria captures all live Enterprise Group (Truncated or Domestic only) which have greater than 2,000 employment or employment of greater than 250 **and** where there is secondary activity (NACE) which has greater than 125 employment.

14. Within this population, the team prioritises cases based on the following methods:

- The first priorities are the cases which are referred to the team by the business survey result areas as they relate to structural or data anomalies.
- The next priority is those that have a discrepancy between administrative data (data from Her Majesty's Revenue and Customs department) and the data returned from business surveys. These discrepancies may indicate that there issues in terms of the structure and anomalies in the data returned by the business to ONS.

15. The profilers aim was to profile the largest Enterprise Groups every four years. However the criteria and frequency need continual review as evidence suggest that the largest businesses are continually re-structuring and diversifying – thus profiling such businesses every four years is not sufficient. The average number of Enterprise Groups reviewed and maintained by the team every year is approximately 270. The priorities applied to the selection of cases are also being examined in order to ensure that they are fit for customer requirements.

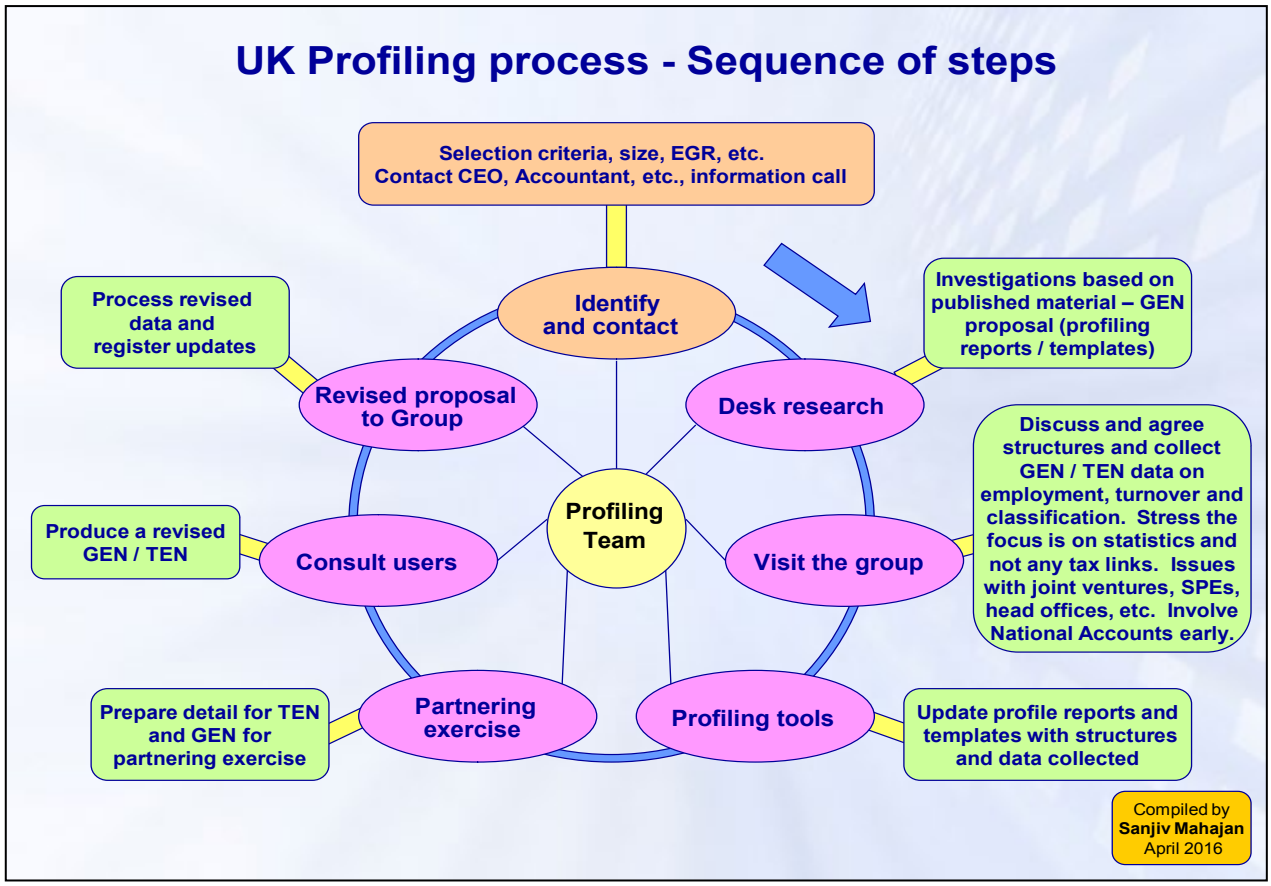
16. Profiling uses information from ONS Surveys, Companies House, Dun and Bradstreet and other administrative sources. The majority of profiling is undertaken via desk work but for the very largest of profiles, profiling encourages visits to meet the GEGs on a face to face basis.

V. Roles and responsibilities of profilers

17. It is important to note that profilers in the ONS are responsible for maintaining the correct and appropriate legal and operational structure of the large and complicated groups. They ensure that the Employment, Turnover and NACE codes are correctly held on the IDBR, however, they are not responsible for the collection of data unlike INSEE (France) and Statistics Netherlands who collect data as part of their Accounts Management approach.

VI. UK Profiling process - MNEs

18. A summary description of the sequence of steps followed by the UK Profiling Team is shown in the diagram below.



VII. European Project – ESSnet on International Profiling

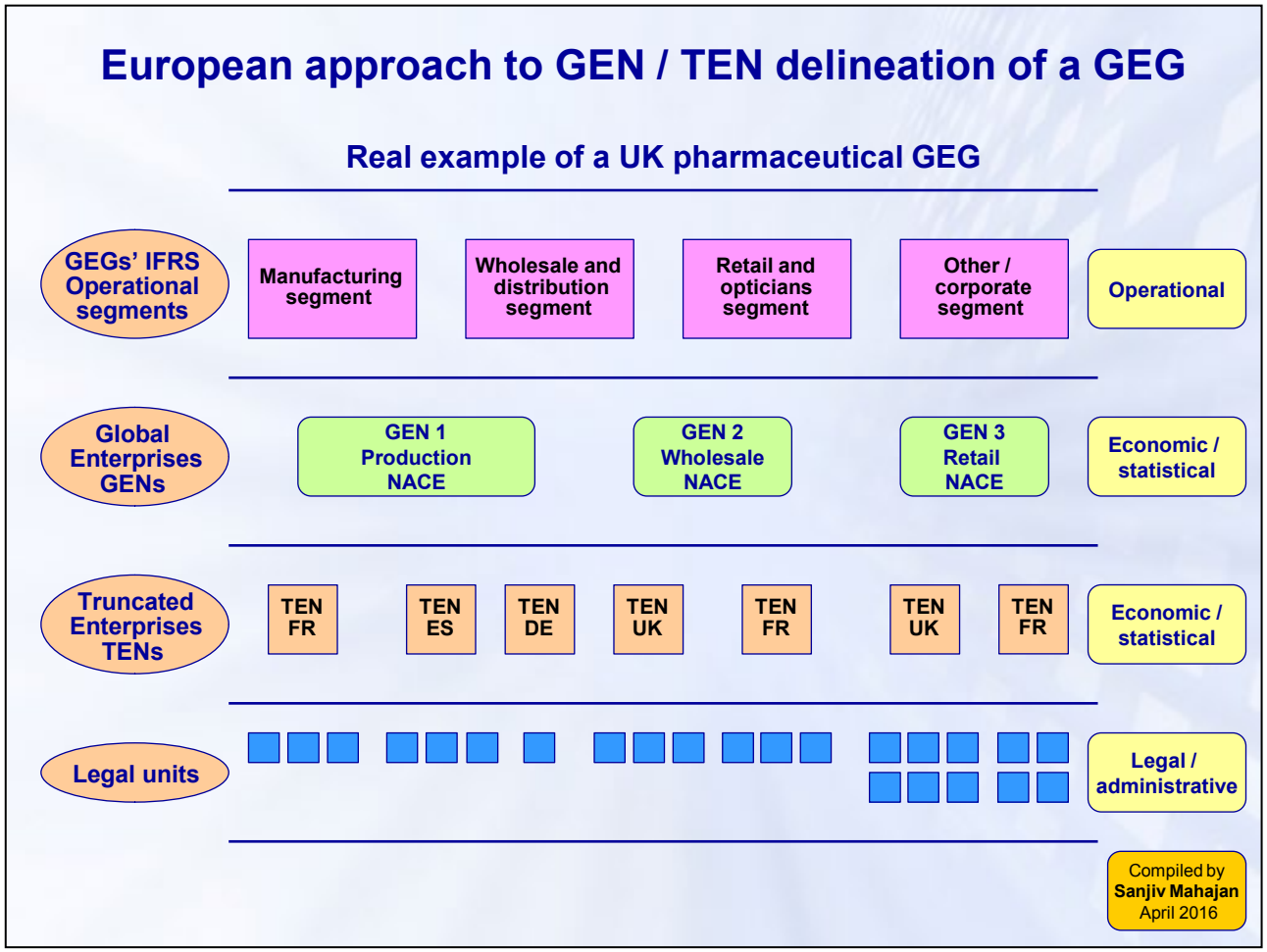
19. Over the last five or so years, the ONS Business Profiling Team has been heavily involved in several ESSnets funded by Eurostat (European Commission) focused on profiling at a Global Level. The ESSnet on International Profiling projects tested

different methodologies and provided coaching to countries new to profiling. ONS are seen as one of the experts in the field across Europe and have made a significant contribution to the deliverables and the success of the projects.

20. Over this period, a new "Top-down" approach to Profiling was developed and tested through this ESSnet. The Top-down profiling sub-divides the activities at GEG level resulting in the delineation of Global Enterprises called GENs. All Legal Units controlled by the group in the countries in which it operates are checked to ensure they are included in the group's perimeter on the Euro-Groups Register (EGR). Once all the countries where there is activity are identified, the national parts of the GENs are created to form Truncated Enterprises. Therefore the national part of the GEN is called the TEN.

21. The delineation of the GENs aims to reflect the GEG's operational segments published within its Annual Consolidated Reports and Financial Statements.

22. A real example of the GEN and TEN delineation is shown in the diagram below.



23. Some key points to note of European profiling from the UK perspective:

- European profiling is not an isolated activity of one NSI but requires collaboration across several NSIs, and in some cases, as well as National Central Banks.

- The country of residence of Ultimate Controlling Institution (UCI) of the GEG - assuming within the EU - is responsible for the first profiling proposal.
- New "Top-down" approach to profiling developed and tested through ESSnet on Profiling – can have a significant impact on classification by industry, and in turn, results through to National Accounts.
- Top-down profiling sub-divides activities at GEG level resulting in the delineation of Global Enterprises called GENs.
- All Legal Units controlled by the group in the countries in which it operates checked to ensure are included in the group's perimeter on EGR.
- Once all the countries are identified where there is activity, national parts of GENs are created to form Truncated Enterprises called TENs.

24. The progress was very good but the way forward is now less clear.

VIII. A Collaborative Process with NSIs, Users and GEGs

25. Communication with statistical users, other NSIs and GEGs is a vital part of the process required to succeed in carrying out a European profile.

26. European profiling is not the sole activity of one NSI, as the results can affect the statistics of all countries in which the GEG operates. Therefore the involvement of an NSI in the profiling of a particular GEG is based on the following criteria:

- The country of residence of the UCI of the GEG is responsible for the first profiling proposal and will take the profiling lead.
- The "Partnering" NSIs are the non-UCI countries in which the GEG carries out activities. These countries have the task to confirm the proposals of the UCI-NSO based on a defined process. This confirmation process includes checking, commenting and approving. If the proposals of the UCI are not approved, the partnering countries are asked to make counter-proposals for GENs and TENs and the UCI will be required to re-define the Enterprises.

27. The profiling process requires agreement between all involved parties (NSOs, Statistical Users and GEGs) on the statistical unit structure, GENs and TENs as this will form the basis of the national statistics, which will then be consistent on a European basis.

28. The GEG itself is an important partner in the profiling process. Good, intensive profiling will fail without the co-operation of the GEG.

29. The discussions with the statistical users (e.g. National Accounts, SBS, STS, FATS and FDI) in both the leading and partnering NSIs are a key element to the international profiling process, since they will use the newly created enterprises for their statistics.

30. All need to be consulted in order to agree the proposed Enterprise structure that profiling has defined and they should be informed and consulted at every step of the profiling process.

31. Before visiting the GEG, there must be confidence that the first proposals for new GEN and TEN structures are acceptable to the national statistical users (in both lead and partnering NSIs). For example, for those GEGs where there are many diverse activities but the operating segments do not reflect this activity, it is important to look at the possibility of creating more GENs and TENs, within the restrictions of the autonomy of the GEN. Therefore discussions should take place with the users in order to ensure the new unit structure will be appropriate.

IX. Differences and Commonalities between ONS Profiling and ESSnet on International Profiling Methods

32. There are various differences between the steps taken for the National UK method and International Profiling Process covering each of the following aspects:

- Selection of cases and priorities.
- Choice of method.
- Enterprise delineation.
- Scope of checking legal unit perimeter / structure and relationships.
- Data checks.
- Sources of data.
- Communication with key players.
- Tools and documentation.
- Frequency of profiling.
- Resources / costs.

33. The **relative strengths** of the UK profiling approach are as follows:

- The UK method encourages the development of good relationships to be built and maintained with all internal statistical users.
- BPT ensures that changes are communicated effectively and are implemented timely across all relevant areas avoiding duplication or issues to the publications.
- The BPT method allows close working relationships and collaboration between profilers. The method ensures that communication is strong between team members and all are kept informed of development, changes to processes. This makes it easier to ensure consistency in profiling methodology.
- Profilers provide a central point of contact for questions / queries between the ONS and the Group. The good relationship that is achieved between the profiler and the respondent at the Group level enables prompt notification when structure changes are taking place.
- Essential data is returned accurately and on time from the most important businesses. Profilers ensure better quality data for National and European outputs due to the correct delineation of the group.
- UK profilers are the first point of contact in terms of resolving complex data issues for the survey results and National Accounts. Without, prompt intervention, anomalies would feed through to results and as a consequence can potentially cause reputational damage.
- Profiling experience shows that due to ONS's current data collection structure, which is split into different divisions who take responsibility of validation, analysis, results and publication, there is a gap in understanding the 'real' economic view of a large group. Subsequently, there is potential failure in identifying the right statistical reporting structures that meet the ONS's requirements. Profilers aim to fill this gap by having an overall view of the group. For example, it examines the group as a whole and all data returns associated with the group at the same time. They aim to ensure consistency in the data returned between surveys and highlights and resolves issues.
- For cases profiled, the profilers quality assure data returned using all economic surveys against available administrative data and other sources. It is common to identify structural and data anomalies such as duplication, omission, miss-classifications.
- Profilers aim to try and reduce the burden ONS places on the largest businesses. In some cases, ONS sends hundreds of questionnaires to all different parts of

the Group over a whole year. BPT ensures that the structure established for the group is one that suits them and minimises burden.

- The team has the ability to deal with more complex technical issues such as accountancy issues i.e. inter-company flows, global view of all of the data being returned. Congruency checks are carried out between surveys, ensuring consistency in data.
- The profiling team has a good understanding of the commonalities between the different types of businesses and industries which is very important. Building industry expertise leads to quicker identification of anomalies and discrepancies.
- The team also take the lead in coordinating large changes as a result of Legislation change such as changes in institutional sector classifications. In addition to this the team have recently taken on the responsibility of updating the register in line with the new ESA 2010 changes for Head Offices and Holding Companies.
- The team that process the data to supply to the EGR are the same Business Profiling team and therefore this allows for full coordination between the two processes.

34. As with most processes, there is always room for improvement and the UK profiling team recognises that there are some weaknesses with the current method and are looking to make changes. The **relative weaknesses** of the UK profiling approach are as follows:

- One of the limitations identified by the profiling team is that as data collection, validation, analysis and results is carried out in a separate structure, no one area fully understands the whole view of the Global Enterprise Group. Most changes that trigger profiles are reactive to data changes highlighted by the enterprise through ONS surveys. It is often the case that inconsistencies are often only identified once they have entered the results process. It is also the case that as the results areas are separate from the data collection areas, their main focus is to ensure comparable data and often the true economic picture of a Global Group is not in their focus.

35. The **relative strengths** of the International (based on the ESSnet) profiling approach are as follows:

European benefits

- This Top-down approach to profiling (analysing the group at a Global level and deriving Enterprises) leads to improved understanding of GEG structure. It also ensures that consistent Enterprises are derived across Europe and therefore aims to collect consistent data for Europe.
- The ESSnet on Profiling proposes that cases are re-profiled every year. This improves accuracy of global group structures that change regularly.
- There are big benefits to the EGR as the European profiling of the 600 largest EU GEGs will ensure the EGR is more accurate and up to date.
- Data is shared with other NSIs and a full perimeter of global legal units is requested from the group therefore for the EGR there is less reliance on private data providers such as BvD and D&B.

Scope of Data

- There will be improved coverage of the legal unit perimeter of the group. The ESSnet on International Profiling allowed for the collection of all legal units across the world.
- IDBR currently only holds information about the relationships between domestic legal units and those between domestic units and foreign legal units.

However, International profiling aims to collect all the legal units that operate as part of a global group and therefore coverage is much improved.

- International profiling collects all legal units in the consolidation perimeter. This is a larger scope than the current UK method which only looks at those relationships between legal units that own more than 50 controlling shares of another legal unit. This means that there is improved coverage in terms of selection for the OFATS and FDI surveys which require relationships where there is a minority interest.

Burden

- The proposed method could potentially reduce the burden placed on GEG by using reporting structure that resembles their own segmental reporting (IFRS8) rather than legal unit and in turn makes it easier to send data back to NSIs. In other cases, combining legal units into Enterprises will mean that there could be potentially less survey questionnaires sent out. However, this differs between NSIs. As the UK has already moved from sampling legal units to Enterprise, the impact is not as great in terms of a reduction in the number of survey forms. For some NSIs, administrative data at legal unit level already provides enough information needed and therefore survey data is not required. In these cases burden could potentially increase.

Collaboration

- Collaboration with other EU NSIs results in profilers sharing knowledge and skills and learning from each other's best practices.
- A common approach results in improved understanding of specific industries i.e. the oil and gas industry.
- Improved understanding of consolidated annual accounts and company accounts leads to an improved knowledge of group structures.

36. The **relative weaknesses** of the International (based on the ESSnet experience) profiling approach is as follows:

Resources and timing

- International Profiling is a costly and time-consuming exercise. It requires additional work to the existing national profiling method. For the UK, which has a large proportion of the 600 EU cases to be profiled, the burden and cost will be greater than other NSIs.
- The 600 cases to be profiled are determined by Eurostat, however these cases may at a national level be less important.
- It can take up to a year for the entire profiling actions to be completed for just one case. This is due to the number of stakeholders in the process who all need to be consulted (GEG contacts, statistical users and other NSIs) throughout the entire process. The long winded process of completing the large template, report and timesheets makes the process even longer. Hopefully the Interactive Profiling Tool (IPT) will help reduce the time taken to document the profiles.
- International profiling requires a good understanding of company accounts, financial variables and a variety of skills and expertise that are hard to obtain. Therefore resourcing for a profiling project is not easy.

Co-operations from suppliers

- There is currently no legal obligation for GEGs to contribute to the profiling activity. It is on a completely voluntary basis that they contribute and supply the appropriate information. On a national level, the UK has legislation (Statistics of Trade Act 1947) which legally requires groups to provide the

domestic data required. It does not cover the questions or data required to be collected on a global level.
- Profiling requires the cooperation of all NSIs across Europe in order to collate all data required for a full European picture for the group.
- A small number of groups were reluctant to provide data to be shared across other NSIs across Europe.

Differences in data collection between NSIs

- Understandably, there are large differences between NSIs in terms of Business Registers, definitions of data and sources of data available. This means that there are issues regarding the quality and consistency of the data collated by NSIs. Results of all the cases profiled by ONS show that there are large discrepancies when making comparisons between the data collated by the Global Decision Centre (GDC) NSI and via partnering NSIs. There are many reasons for these differences including; reference dates of data is often inconsistent; turnover is provided in different currencies; turnover can be consolidated or not, employment can be provided on different basis such as full time equivalent or head count. Therefore, presently, it could be argued that the data collated is not yet at a usable state.

Ownership of the data / results

- The ESSnet still need to define rules around who will take responsibility for the final results and data collated from profiling. There are many examples which show that data collected by the GDC (from the group itself) can be very different from information collected by partnering NSIs via SBS, Register data, admin data and in some cases directly from the group within their country.

Impact on results

- It is important to note that international profiling has not collated a full set of SBS variables from GEGs based on TEN and therefore the ESSnet has not carried out a full impact assessment of the move to data collection at the TEN level.
- In a small number of cases, the enterprises defined by GDC may not suit the national needs for NSIs. This is more common in NSIs who have already moved to the Enterprise from Legal Unit, the UK being one of them. Rules on how to treat these conflicts, still need to be resolved.

Implementation Issues

- The new International Profiling method allows for one legal unit to operate in more than one Enterprise and for some of the GEGs profiled and tested this is the case. On a practical level, it means that is the legal unit needs to be split across Enterprises. This creates difficulties for the UK as at National level, as our rules state that these legal units can only be present in one Enterprise.
- Presently, the IDBR does not allow for the storing of all information collated via International Profiling. For example, only relationships between legal units with 50 or greater share ownership is held and relationships between two foreign legal units is not presently held.

X. UK experience to date - is profiling worthwhile?

37. A summary of the benefits and challenges are covered in this section.

Data quality

38. The testing of European Profiling demonstrated a number of potential improvements to the economic data collected at the UK national level. For example, analysing data at a global level using annual accounts and data shared by other NSIs resulted in the identification of significant missing UK turnover.

39. Of the 26 cases that ONS profiled during this testing period, 19 were successful in terms of gaining agreement from all parties involved, i.e. the GEG, national statistical users and Partnering NSIs. For the majority of these, Employment, Turnover and NACE variables were collected at the new Enterprise level.

Cooperation with the GEGs

40. The recruitment process took place at the start of each year with GEGs identified as being suitable for profiling contacted by letter (signed by the Business Directors), raising awareness and inviting them to take part in the project.

41. In order to achieve the agreement of 20 GEGs to participate in the project in 2012-13, contact was made with 79 GEGs. This was a success rate of 25% and highlights the challenges faced trying to convince UK Headquartered GEGs to take part in a voluntary project.

42. There is a great variation between NSIs in securing cooperation from the GEGs. One ESSnet NSI secured 100% buy-in from the groups while others achieved even lower rates than the ONS. This variation may result from difference in culture, better relationships with groups, the number of groups in the profiling remit, relationships with Business Federations and the existing burden on the largest of GEGs.

43. A legal framework needs to be in place in order to ensure the successful collection of Global or European data across NSIs.

Data sharing

44. The UK's experience was that, once cooperation was given by the GEG, most had no issues regarding sharing the data securely with other NSIs in Europe. For some cases, the majority of this information was available in published accounts and therefore there were no resulting issues with the sensitivity of data. However, concerns about data sharing were raised in a few cases, especially in the oil industry, and whenever additional detailed data was requested to what had already been published.

45. The result of not getting buy-in from the groups and not having a legal framework in place was that some of the key European groups could not be profiled during this testing period. Some GEGs which had agreed to co-operate, subsequently informed NSIs that data sharing was not a possibility. This is a concern if profiling is to be successful for the largest and most important GEGs.

46. Although ONS has been visiting groups for many years, more intensive profiling highlighted the many benefits of meeting senior group accountants on a face to face basis to strengthen relationships.

47. Through visiting the GEGs, ONS profilers learned a great deal about why they set up specific organisational structures. Some similarities have been identified in the way groups operating in specific industries are organized, i.e. the oil and gas and chemical industries.

48. Positive feedback from the GEGs was received, acknowledging the potential benefits that European profiling could bring to them. For some GEGs, there would be a decrease in burden, as the proposed structure aligns with their own financial accounts. This means faster survey completion times and fewer survey questionnaires to complete.

49. Some GEGs welcomed the idea of a central contact point within the NSI and some liked the possibility of reporting all data to just one NSI. A few even invited ONS to tap into their own internal accounting systems to pick the required data directly (e.g. via an XBRL taxonomy).

Account Management Approach

50. The experience has also demonstrated that the collection and analysis of accurate and timely data from GEGs demands a multi-disciplinary approach. Survey managers, statisticians, business register experts and accountants all need to work together to ensure the availability and quality of data. The use of multi-skilled teams organized centrally within NSIs is known as the Account Management approach. This has already been adopted in some NSIs including INSEE (France) and Statistics Netherlands.

Resources required

51. Profiling requires the entire Group to be analysed, including evaluating all Legal Units (often hundreds) within the perimeter and requires intense cooperation with many varied stakeholders. As a result, European profiling is a lengthy process. Of the 26 cases the UK profiled during the last three years, the average elapsed time to complete a case was six months compared to an average of just a few weeks for a national profile.

52. There is also a disproportionate burden placed on the NSIs that have the largest concentration of GEG UCIs in their country. Based on the latest EGR there are two EU NSIs, UK and Germany that have over 175 of the largest EU GEG headquarters located there. Consequently, since the profiling process is lead by the NSI that contains the UCI legal unit there would be a significant impact on resources in these two countries.

53. Agreement of the delineation of Enterprises between all parties was not always achieved. For example, the GENs and TENs suggested by an NSI, although suitable for their own national needs, were not always suitable for all other NSIs. Sometimes no new structure was agreed, even after re-negotiation with stakeholders.

Automatic delineation of enterprises for smaller GEGs and domestic groups

54. The top 600 European Groups are within scope for this type of profiling action but there are still questions on the treatment of the small and medium GEGs and also domestic groups.

55. It is proposed to define automatically the Enterprises for *all Enterprise Groups* held on National Business Registers, including all domestic groups, using set rules. This could have a large impact on the overall structure of the Business Register and would be at a high cost. The ONS believes that an automatic approach to defining Enterprises may not be feasible as interaction with the GEG is crucial in order to ensure data can be reported in the proposed way. It is also necessary to ensure that each automatically defined Enterprise fulfils National Accounts' needs. Further impact analysis of applying automatic rules will be tested in the ESSnet ESBRs and under the UK-specific grant agreements.

Agreement of GEN and TEN proposals

56. Of the 26 GEGs profiled by the UK, the GEN structure was accepted by the partnering NSIs for 19 of the GEGs. For five GEGs, the initial GEN proposal was rejected and subject to a change before the final GEN proposal either as a result of the intensive profiling visit or because of a partnering NSI request. In three UK cases, still no formal agreements have been reached on a structure which would be suitable for all stakeholders.

57. Although there are many UK cases where agreement has been reached on GENs and TENs and the groups have confirmed that in future a set of core variables can be

collected, there have also been cases where not all the core variables can be collected from the GEGs.

58. Most GEGs could supply variables on an annual basis but short-term variables are rarely available.

59. One of the main difficulties encountered in dealing with the new GEN statistical unit was how to treat Legal Units that operate in more than one GEN. This scenario occurred in around six of the 16 intensive profiles completed by the UK over the three year testing period.

60. Seeking agreement for the new Enterprise structures from all parties has had a large impact on the time taken to profile. In some of the UK's cases, agreement still has not been reached (despite the investment of much effort and dedication to resolve this), mainly due to the conflict between national and international needs.

61. There is currently no mechanism for the resolution of such disputes. These cases should be re-examined by the ESSnet ESBRs.

Impact on statistics

62. So far, only employment, turnover and classification data at the Legal Unit, Global Level and in some cases (Truncated) Enterprise Level have been collected using the new Enterprise structure. As a result, we cannot say that the new Enterprise definition has been fully tested. The potential impact on all national and European statistical users has not yet been evaluated, including the impact on time series data.

63. The ESSnet ESBRs should carry out further work at an early stage, in order to reach agreement regarding a larger set of core variables. The collection of this larger set of core variables should then be tested by the ESSnet members and those Member States which have country-specific grant agreements for profiling.

Further work required

64. The profiling methodology should now be tested on GEGs which are headquartered outside the EU, as only European Headquartered GEGs have been tested. Also, the methodology has not yet been tested on any financial groups, including the major banks and the ESSnet ESBRs should now attempt these groups.

65. More analysis needs to be carried out to estimate the resources and investment required in order to carry out this new process, in particular where an Account Management approach is applied. The timeliness of the data to be supplied and frequency of profiling needs to be considered in more detail, recognising the dynamic nature of the business world. The UK's view is that good quality data will only be obtained if the 600 largest groups are profiled every year.

66. In terms of the benefits of profiling international businesses, these include:

- Improved quality of recording structures of businesses.
- Better understanding of businesses' activity and changes to businesses.
- Reconciliation of Top-Down and Bottom-Up approaches.
- Avoid missing activity and remove any double-counting.
- Improved data feeding into National Accounts and Balance of Payments.
- Central contact point and reduction in burden on MNEs.

67. In terms of the challenges, these include:

- **International profiling** can be time consuming and resource intensive on NSIs, for example, there are 600 cases at EU level, of which UK has a large proportion.

- Staff needed with wide-ranging skill sets covering company accounts, registers, legal units, statistical units, etc.
- **Cooperation from respondents** - agreement may not be achieved as there is no legal obligation beyond national levels or the UCI is outside EU.
- **Micro-data sharing is "essential"** for reconciliation and reducing respondent burden on MNEs amongst NSIs / NCBs across the world.
- Need to widen the data collection to cover other variables beyond just employment and turnover.

68. The way forward with MNEs has to consider the following key points for large entities:

- Speak to businesses and 'understand' what they are doing.
- They are continually changing / restructuring rapidly.
- Profiling of business structures plus regular review.
- Map out the economic ownership, flow of monies, goods and services with the business.
- Sharing of businesses' data across countries is essential
- Need to develop data sharing (is key) and reconciliation processes across countries' NSIs / NCBs covering MNEs.
- International profiling of MNEs.

69. Overall, the investment in profiling businesses (internationally and nationally) is essential for correctly recording large and small complex businesses including MNEs and keeping up to date. The MNEs do not provide a 'conceptual challenge' but a 'measurement challenge'.