Laying the Foundation for Standardisation in the European Statistical System

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The European statistical system (ESS) has identified standardisation as a means to improve efficiency in the long term. In order to prepare future decisions in this domain, a team of statisticians from several national statistical institutes has investigated some issues in standardisation with the support of Eurostat. In the first phase, the project team (called ESSnet) dealt with the definition of standardisation. It conducted an analysis of some EU methodological handbooks to put forward which conditions of formal standards are fulfilled. Some conditions for standardisation were put forward. In the second phase, a typology of formal standards that could be adopted in official statistics is being drafted. The ESSnet is analysing the features of formal standardisation processes in order to define what would be fit for the production of official statistics in the ESS. The ESSnet will provide in October a report to a group of ESS directors, who are in charge of setting up a strategy for the development of standardisation in the ESS.

1- BACKGROUND OF THE STANDARDISATION INITIATIVE IN THE ESS

The ESS is a network of national statistical authorities, i.e. national statistical institutes (NSIs) and other official statistical producers in each Member State of the European Union, coordinated by Eurostat. Each of these national statistical authority has its own management structure and is funded by the Member State to which it belongs. All these national institutions existed before their country joined the EU and had their own statistics, production methods and culture. Statistics measuring EU aggregates are produced by aggregation of national statistics. In order to reach a sufficient level of quality for EU aggregates, national statistics have to be harmonised. As in all EU policies with competence shared between the EU and Member States, it has been decided that harmonisation should follow the subsidiarity principle: only decisions that have to be taken at the EU level for efficiency reasons can be ruled by the EU legal system. Other decisions remain the responsibility of Member States.

The system of EU statistics is nowadays very well harmonised and national statistics are quite comparable from Member State to Member State. In particular, all concepts used in EU statistics are standardised. This encompasses the definition of:

- o Statistical units
- o Populations of statistical units
- o The scope of every statistic
- o Characteristics to be measured
- o The reference period
- o The precise definition of aggregates (types of indices for instance)
- o Classifications to be used.

For some statistics, the expected minimum accuracy of estimates is defined, for other statistics only quality reports are required.

All this harmonisation process took place mainly in the 90s for countries that were Member States of the EU, and in the accession phase for countries that joined the EU later. Each EU treaty transferred new policies from the Member State level to the EU level. For these policies, harmonised statistics were required, that lead to new harmonisation of national statistics. In some domains like business statistics or national accounts, statistics were mainly "*output harmonised*": each NSI chooses freely its statistical source (i.e. an

administrative source, a survey, a mixture of both, or even some indirect estimation process). In other domains, like social statistics, statistics are often "*input harmonised*": NSIs have to conduct national surveys with some harmonised features.

But either for input harmonisation or for output harmonisation, statistics are produced using national measurement processes: the sampling phase, data collection phase (including the design of the questionnaire), data editing phase, estimation phase (including the estimation of item non-response and imputation), disclosure control, and - when relevant - seasonal adjustment remain under the responsibility of national statistical authorities (NSA), which decide production methods and tools to be developed and used.

It should be mentioned as well that most NSAs still produce additional national statistics for policies that are under Member State competence.

Directors Generals of National Statistical Institutes from the ESS examined in ad-hoc task-forces in 2007-2008 how to overcome the ever-increasing demand for official statistics by EU Institutions in a context of stagnant and sometimes even decreasing resources. They agreed in a conference (The Hague, January 2009) on a series of about 50 actions to be conducted, among which "*Promoting the further standardisation of processes and methods*".

Eurostat integrated some of these proposals for action in an official Communication of the European Commission (COM, 2009) in which it stated its vision for the next decade with respect to EU statistics. This vision includes an integration of national statistical systems in order to improve efficiency and quality. A joint strategy was agreed by the ESS in May 2010, that mentions in particular the links between integration and standardisation. The ESS established in May 2011 a sponsorship on Standardisation that will set up a proposal for a strategy on standardisation. An ESS "sponsorship" is a Task-Force of directors or DGs of NSIs that prepares strategic decisions of the ESS. This standardisation strategy will be submitted for approval to the ESSC Committee in September 2013.

In order to prepare this work, Eurostat called NSIs to volunteer for setting up an ESSnet, i.e. a project team of statisticians from several NSIs, funded by the EU Commission. The mandate was to define standardisation in statistical methods, and to analyse the conformity of ESS methodological manuals with such a standardisation. This analysis had to be extended to other dimensions of the statistical process than statistical methods. Statisticians from Istat (IT), ONS (UK), KSH (HU), CBS (NL), Destatis (DE), GUS (PL) and Insee (FR) set up this ESSnet that started its work in January 2011 and will deliver a report at the beginning of October 2011.

2- DEFINITION OF VOCABULARY TO BE USED IN STANDARDISATION

2.1 Stocktaking of literature on standards and standardisation

Based on US NIST (2009, 2010), CEN (2010), ISO/IEC (2004) we can state that there is a very similar view to the definition of standards and to the management of standards in standard-setting organisations. First, standards relate either to physical measurement standards (like meter, kilogram, Watt, Coulomb, Kelvin, etc) or to documentary standards.

The general aim of (documentary) standards is to improve the functioning of the market for goods and services. They provide reliable information at a very low cost to customers on the goods or services they are looking for. Standards improve the transparency of the markets and lead to higher efficiency.

A first definition of documentary standards is the following: ***documentary standards*** *are written agreements containing technical specifications or other precise criteria that may contain rules, guidelines, or definitions of characteristics. Standards ensure that materials, products, personnel qualifications,*

processes, and services are adequate for their purpose, compatible and/or interchangeable, if necessary; ensure public health and safety; protect the environment; and/or improve economic performance.

Standards are classified according to several typologies. ISO/IEC (2004) lists eight types of standards according to their nature. First, it is convenient to consider the following typology, made of two classes: product standards and process standards. ***Product standards*** specify requirements to be fulfilled by a product (or a group of products) to establish its fitness for purpose. ***Process standards*** specify requirements to be fulfilled by a process to establish its fitness for purpose. It is not yet clear if *product standards* apply only to goods or can also apply to all sorts of services. This is why a specific category has been defined for ***service standards***, i.e. standards that establish requirements to be fulfilled by a service to establish its fitness for purpose. The domain of *service standards* is under development in several standard-making organisations. It is recognised that *service standards* may be prepared in fields such as laundering, hotel-keeping, transport, car-servicing, telecommunications, insurance, banking, trading. It is generally expected that service standards will belong to the category of process standards. However, activities like design that are typically innovative and very frequent in services will not easily fit within a *process standard*. Since statistics are classified in services (according to UN CPC), it can be expected that standardisation of some aspects of official statistics might be tricky. The other types of standards listed by ISO are *basic standards*, *terminology standards*, *testing standards*, *interface standards* and *standards on data to be provided*. A ***basic standard*** has a wide-ranging coverage or contains general provisions for one particular field. ***Terminology standards*** are concerned with terms, usually accompanied by their definitions. ***Testing standards*** are concerned with test methods, sometimes supplemented with other provisions related to testing, such as sampling, use of statistical methods, or the sequence of tests. ***Interface standards*** specify requirements concerned with the compatibility of products or systems at their points of interconnection. ***Standards on data to be provided*** contain a list of characteristics for which values or other data are to be stated for specifying the product, process or service.

There might be several examples for the categories *Terminology standards*, *interface standards* and *standards on data to be provided* in the ESS statistical background.

There is another typology for standards that might be of interest for us. This typology considers the "markets" to be standardised. These markets can be defined both by the geographical location of their customers and by their "size". In particular, a group of companies, a particular industry or the whole national economy can agree standards. ***Company standards*** are for use by a <u>company</u> or an <u>organisation</u> for its own products or for the products it purchases. ***Industry standards*** are developed and promulgated by an industry for materials, products, processes, and services related to that industry. ***Government regulatory standards*** are those designed to be used by national regulatory agencies in rulemaking and related activities.

If the ESS were to develop documentary standards, should they be considered as "company standards", "industry standards" or some regulatory standards? This is of importance, when we consider the ethical principles for the development of standards. As mentioned in US NIST (2009), the principles of Consensus, Transparency, Balance, Due Process, and Openness are considered as important for the efficiency of standard development. Government regulatory standards would have to be adopted with openness and due process, i.e. associate all those in society that can be considered affected by -or having an interest in- such standards. In particular, it should then make sense to associate academics and delegate form the private sector (in market research or opinion polls). This was done when the ISO/IEC drafted the standard 20252 "Market, opinion and social research- Vocabulary and service requirements", since it associated official statisticians and academics to the working group.

The ISO/IEC definition of a documentary standard is the following:
A standard is a document, established by consensus and approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results,

aimed at the achievement of the optimum degree of order in a given context. <u>Note:</u> Standards should be based on the consolidated results of science, technology and experience, and aimed at the promotion of optimum community benefits.

ISO/IEC defines precisely *consensus*, which can be summarised as the absence of sustained opposition to a substantial issue by an important part of concerned interests and by a majority of 2/3 at the final vote. CEN has similar rules. A "recognised body" is an organisation that is responsible for standardisation. Such organisations can be companies or foundations and do not belong to the administration. International standard organisations like ISO or CEN are non-governmental organisations, whose members represent national standardising organisations. Standardising organisations consider that standard setting is important, but cannot be efficient without *conformity assessment* and *certification*.

It should be noted that a standard is **not mandatory by nature**. It is designed to be used voluntarily by companies who design new products or services. Once the company has decided to claim that its product/ service follows a given standard, this product/ service has to apply the rules, guidelines and characteristics that are mentioned in the standard. Such rules become compulsory for the companies that have decided to apply a standard. A government can decide for its own purpose to regulate some markets, in particular to conduct its health, security or environmental policy. It can then make some standards compulsory by law. In the EU, such regulations monitor not only the standards to be applied, but also the conformity assessment to be conducted.

The ISO/IEC has a very structured classification of terms to be used and of different stages in the development of standards. The basic layer is the **normative document**, i.e. *a document that provides rules, guidelines, or characteristics for activities or their results*. A normative document is itself made of *provisions*. Such provisions can be *statements* (conveying information), ***instructions*** (conveying actions to be performed), ***recommendations*** (conveying advice or guidance) or ***requirements*** (conveying criteria to be fulfilled). A normative document covers such documents as *standards*, *technical specifications*, *and codes of practice*. A standard is a normative document that is adopted by consensus and approved by a recognised body. A **technical specification** is a document that prescribes technical requirements to be fulfilled by a product, process or service. In practice, a technical specification should indicate, whenever appropriate, the procedure(s) by means of which it may be determined whether the requirements given are fulfilled. A **code of practice** is a document that recommends practices or procedures for the design, manufacture, installation, maintenance or utilization of equipment, structures or products. From the ISO/IEC point of view, a technical specification or a code of practice can be standards, or parts of a standard.

2.2 Is the ISO/IEC vocabulary suitable for the ESS needs?

This glossary is highly consistent and suits all needs expressed by private companies and the organisation of markets. CEN has similar or common concepts. The US NIST (2009) presents a similar conceptual and organisational system for the USA and mentions that the same set of concepts is relevant for standardisation under various conditions. The EU (1998) decided some years ago to follow this approach for the monitoring of the EU single market, relying on standards developed by CEN. In addition, the multilingual glossary is very adapted to current needs of ESS. This conceptual architecture is compatible with the architecture already in place in the ESS. However, whereas the ESS used to focus on non-mandatory documents some twenty years ago, it has mainly invested in legal texts since. As explained above, for the output based harmonisation of statistics, several EU regulations define the rules that statistics produced by NSIs have to follow. Such regulations are developed and adopted in a way that is very similar to that of ISO or CEN standards. For some statistics, like (business) Short Term Statistics regulation, the regulation contains only rules and guidelines are included in a manual referred to in the regulation.

In the ISO/IEC vocabulary, what is specific to standards among normative documents is that they are adopted by consensus and approved by a recognised body. This is not linked at all to the level of requirement

of the normative requirement. In addition, a standard may be of a heterogeneous nature, since it includes *requirements* and *recommendations*, in a proportion that depends from standard to standard.

ISO/IEC standard 20252 on "Market, opinion and social research- Vocabulary and service requirements" is a very good example of the suitability of ISO standardisation for the ESS purpose. This standard - which is probably the only ISO standard dealing with the production of social statistics - deals with the whole production process of statistics intended for market research. This is a 30 page document including rules and guidelines. It is intended for the private sector, and quite typically deals for the sampling phase with issues like quota sampling and does not consider random sampling, which is beyond the ambit of these companies. This is good example of what is intended by the clause "***aimed at the achievement of the optimum degree of order in a given context"*** in the ISO definition of standards.

A careful review of several references in statistics was conducted. The use of the vocabulary referring to standardisation was analysed in ESS (2005), EU (2009), Council (2010), COM (2006, 2009, 2010, 2011). It has shown both that the nouns "standard" and "standardisation" are used frequently, but also that there is no common precise meaning to the word "standard". Whereas some documents refer to standards with the same definition as for ISO/IEC (for example when dealing with SDMX which is an ISO/IEC documentary standard), there is a great variability in the meaning of the word standard: sometimes definitions of concepts (and classifications) are considered as part of standards, sometimes they are excluded from them. Sometimes a standard is regarded as logically equivalent to one single "requirement" - as defined by ISO/IEC - sometimes it refers to a whole set of rules and guidelines (for example the European System of Accounts manual).

This work was extended to two references outside the ESS. In US OMB (2006), the meaning of standards was uniform. However, in our view, it was closer to what is called "principles" in the ESS Code of practice than to what is defined by ISO/IEC as a standard or as a requirement. In particular, the OMB document refers for each standard to a set of guidelines "that may be useful in fulfilling the goals of the standard". In Canada PWGS (2007), the meaning of the word **"**standard" is equivalent to a *requirement* in the ISO/IEC vocabulary. Symmetrically, the meaning of "guideline" is equivalent to a *recommendation*. Both terms are explicitly defined at the beginning of the Canadian document, which is internally coherent.

Since the ESS has no consistent definition of the word "standard", since referring to other well-known benchmarks in statistics does not settle this lack of consistency, since on the contrary the ISO/IEC provides a fully consistent vocabulary and is already widely used in many domains outside statistics and since the ISO/IEC approach is consistent with other standard setting organisations like CEN or the US ones, **the ESSnet STAND PREP proposes that the ESS uses the ISO/IEC vocabulary in the domain of standardisation**. For more information, see ESSnet STAND PREP (2011).

3- ARE ESS METHODOLOGICAL MANUALS REAL STANDARDS?
3.1- Quick answer

In addition to all EU regulations that define statistics to be produced by National Statistical Authorities, the EU develops and maintains methodological manuals in various domains. Whereas they are sometimes referred to as "standard" in the usual wording of the ESS documents, Eurostat commissioned the ESSnet STAND PREP to assess if these manuals where appropriate standards for the ESS initiative of standardisation. If relevant, the ESSnet had to consider if subsets of these manuals could be considered as standards, and which changes would have to be brought to produce real standards. Since these manuals are very heterogeneous and free from any editorial policy, Eurostat considered that this heavy work should be first conducted on a few (about six) well-chosen manuals. In addition, it was possible to include in this list relevant manuals produced by other organisations. The ESSnet STAND PREP selected the following manuals in order to represent as many phases as possible in the production process: "*Handbook of recommended practices for questionnaire development and testing in the European Statistical System*",

"*Eurostat sampling reference guidelines - Introduction to sample design and estimation techniques*", "*Survey methods and practice*" (Statistics Canada), "*Guidelines for statistical metadata on the Internet*", "*ESS handbook for Quality reports*", "*Edimbus: editing and imputation of cross sectional business statistics*". The analysis of these documents was conducted with the ISO/IEC vocabulary and the underlying conceptual framework.

First, all these manuals qualify as "normative documents". Second, most of them aim at assisting in the training of statisticians, sometimes fully and sometimes only partially. In general, ESS methodological documents do not clearly mention which "<u>activities or their results</u>" are covered. Third, some methodological manuals tend to be heterogeneous: some chapters present some summaries of academic manuals, which in the ISO/IEC wording represent "*consolidated results of science, technology and experience*". Fourth, these ESS methodological documents cannot be considered to be "*established by consensus and approved by a recognized body*", since they were not adopted by the ESS Committee. Since none of the selected manuals could lead to a proper ISO-type standard, the ESSnet STAND PREP adapted its analysis and focused mainly on the systematic analysis of the structure of these manuals, considered as normative documents, and their content in terms of provisions.

Some other manuals, that were not selected, would probably qualify better as real standards. For instance the *ESS Guidelines on Seasonal adjustment*, or the manuals referred to in statistical regulations (like the one on Short Term Statistics) focus on specific activities and are agreed or updated by clear procedures of the "consensus" type.

3.2- Paving the way for future work in the ESS

In order to provide an in-depth analysis of the normative information conveyed by the manuals, a conceptual scheme was developed and tested for the selected six manuals. Each manual was allocated to two different NSIs, in order to compare the analyses. This very structured method was very useful in securing that everybody in the ESSnet STAND PREP had the same understanding of the standardisation concepts used, and on how the latter were fit to describe existing practice in drafting methodological manuals. It became then clear that such a tool could be very helpful in future either for developing a knowledge base of all normative documents available. It could also be used as a tool to monitor the development of future ESS standards: it would provide an inventory of all provisions pertaining to an activity and improve consistency of such standards.

The conceptual model is mapped on next page as an entity-relationship model. Main attributes of the entities are given below.

*Table 1: Main attributes of the entities in the model*

Entity	Main attributes
Normative document	Type (standard/ pre-standard/…), geographical level (national, EU, international…), body, aim
Group of provisions	Logical and physical location, process step as in GSBPM
Provision	Content, type (statement/ instruction/ …), sequence number
Statistical activity	Domain as in classification of UN ECE (2010)
Methodology	Description
Method	Description
IT tool	Name of the package, owner
Classification	Name, version
Definition	Description, version

The iterative development of the model, using a small tool to implement it in practice and comparing analyses by several partners in different NSIs convinced us that the model was relevant for our purpose. In

particular, some diverging analyses of the normative content in the same manual showed that rules for the drafting of methodological manuals would reinforce the uniform interpretation of such texts. Differentiating a *requirement* from a *recommendation* is quite important in practice. The definition of "group of provisions" is sometimes subjective for the reviewed manuals. This helps to understand why strict rules of drafting used by some standard setting organisations, as shown in ISO/IEC (2011), are necessary. For instance, the latter defines precisely the verbal forms to be used for the expression of provisions and the structure of docu mentary standards.

Figure 1: Entity-relationship model of methodological manuals

Normative documents are mapped as sets of provisions, taking into account characteristics specific to statistical methods
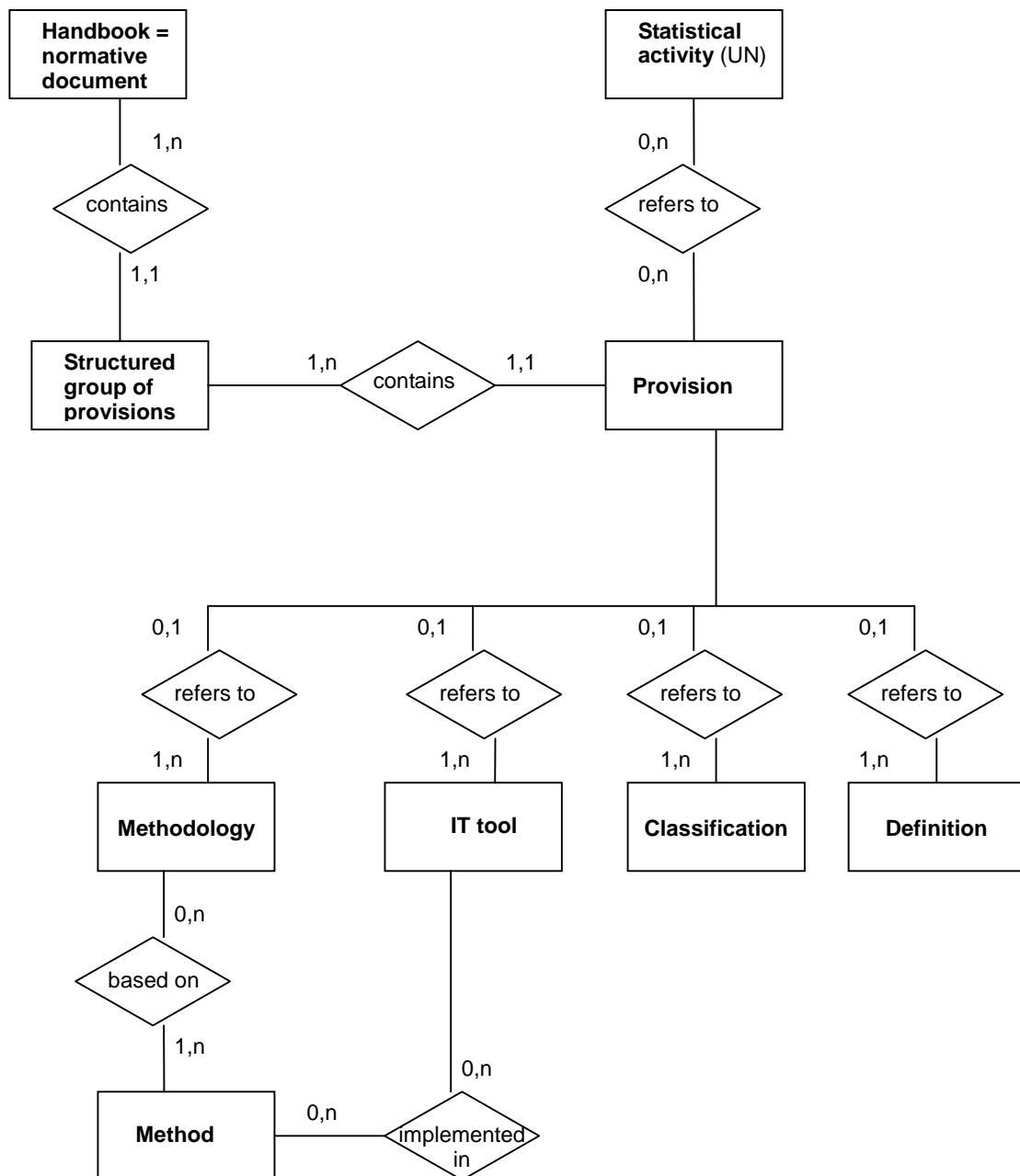
4- CONDITIONS FOR STANDARDISATION THROUGH DOCUMENTARY STANDARDS
4.1- Learning from the experience of standard setting organisations

American National Standards Institute, CEN or ISO consider that **conformity assessment** is at the core of standardisation. They refer to similar reasons to explain why it is so important. For the ISO (2005), *"Products and services are like promises. Business customers, consumers, users and public officials have expectations about products and services relating to features like quality, ecology, safety, economy, reliability, compatibility, interoperability, efficiency and effectiveness. Conformity assessment means evaluating and confirming such features as defined in standards, regulations and other specifications. In this way, conformity assessment makes sure that products and services deliver on their promises"*. The ESS has already some experience in conformity assessment for some existing standards, like for instance regulations on EU statistics dealing with National Accounts or with General Government deficit and debt. The ESSnet STAND PREP considered how conformity assessment for ESS standards could be designed. Since this requirement for assessment has consequences for the drafting of standards, it is necessary to tackle this issue from the start.

Defining the **quality of documentary standards** seemed relevant for the ESSnet. It should ease the negotiation for the adoption of future ESS standards if all members used the same concept of good quality work in the domain of standardisation.

Support measures for standardisation were tackled as well.

4.2- Proposal for conformity assessment in ESS standards

The ISO (2005) provides detailed principles and methods for conformity assessment. In short, there are different levels of reliability of the assessment, from self-assessment to assessment by a third party via assessment by the user (second party), with various requirements for testing and possibilities of inspection. The different methods for conformity assessment are defined in specialised standards. Third parties have to be independent and qualified in the domain under assessment. Some third parties can be accredited by the standard setting organisation.

The EU has developed its own system of conformity assessment for the management of the single market in Council (1993). It defines six types of conformity assessment procedures, with increasing levels of control/guarantee. The directives regulating products on the EU market require fit-for-purpose conformity assessment procedures, balancing guarantee for users, level of risk and assessment burden for producers.

In the case of candidates for ESS standards in the domain of methodological manuals, two problems were faced. The methodological standards are intended for the production of statistical specifications, especially in the domain of statistical processing (sampling, detection of reporting errors and imputation of missing values). They are the result of a *design activity*. This raises specific difficulties in conformity assessment. In addition, such products are "one of a kind". All aspects related to mass production that lead to techniques like control of samples of the overall production are not directly relevant for a design activity. Proposals have been made by the ESSnet to overcome (at least partially) these difficulties. They depend largely from the evaluation of the risk attached to non-conformity. Such an evaluation of risk depends from the future ESS business model based on standards. The ESSnet STAND PREP had to make hypotheses on this business model that is still to be developed by the sponsorship on standardisation. This lead us to focus on the hypothesis of a third party conformity assessment. In the case of the ESS, Eurostat would be a reasonable choice in our view, even if this would imply they hire experts in the production of statistics to perform such assessment. For more information, see (ESSnet STAND PREP, 2011).

The feedback of conformity assessment activities on the drafting of standards is analysed as well in specialised literature. ISO has defined the principle of "*verifiability*" for the drafting of standards: "*Whatever the aims of a product standard, only such requirements shall be included as can be verified*". Accordingly,

detailed instructions for the drafting of standards in order to implement this principle have been drafted - see paragraph 6.7 of ISO/IEC (2011).

4.3- Quality of documentary standards

The ESSnet based its analysis on the ISO 8402:1995 definition of quality, i.e. *'totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs'*. The idea behind the standardisation initiative in the ESS is that interested partners of the ESS community could work together in the development of methodology or other areas of cooperation leading to the application of standards. The ESS objective is to reduce the production cost of EU statistics without reducing the quality of statistical production. The ESSnet took stock of existing work either in Eurostat (1999) or at standard setting organisations, as presented in ISO/IEC (2011). This definition of quality is a first contribution. The following components of quality seem fit to describe the features of different sorts standards that are expected in the ESS context: Relevance, Universality/ Stability, Verifiability, Parsimony, and Coherence.

Relevance characterises in which way standards would correspond to the ESS needs. They should in particular be applicable in the ESS legal and organisational framework and contribute to the control of quality in statistics. **Universality/ Stability** describes how far the norm can be understood in a homogeneous way through the statistical authorities of the European Economic Area, and through a sufficiently long time period. **Parsimony** relates to the inclusion of the budgetary consequences imposed by the choice of standards during the statistical production of derived statistics. **Coherence** focuses on the consistency of different standards either of the same type, or of different types. **Verifiability** is defined above.

5- WORK IN PROGRESS

5.1: Exploring the universe of future standards and classifying them

In the first phase of the project, the explicit or implicit references for standards in statistics were the existing methodological manuals. The ESSnet has proposed to refer to the ISO/IEC vocabulary and business model in order to define the standardisation framework for the ESS. In order to check the robustness of this proposal, two other kinds of possible standards (other than standards in statistical methodology) have to be analysed. So as to select adequately these two examples, the ESSnet STAND PREP has described the universe of possible standards and has proposed a preliminary typology. Using the ISO/IEC definition of standards, our task has been to describe all possible "*activities or their results*" that could be involved in the standardisation initiative of the ESS. This is obviously dependent from the description of the Business architecture of statistical offices. As shown in UN ECE (2011), such a model requires to refer not only to a Statistical business model like GSBPM, but also to consider a model for management of statistical information, like GSIM which is still under development. Detailed analysis of possible standards in statistics leads to a multi-dimensional structure. If "*activities and their results*" to which a standard apply lead to considering both the GSBPM and the GSIM, the "*achievement of the optimum degree of order in a given context*" that is taken into account in the definition of standards can be in practice equivalent to the statistical domain for which the standard is relevant.

Furthermore, as shown in Shintaku, Ogawa and Yoshimoto (2006), the definition of the global architecture and the parts to be standardised is highly connected to the global strategy for the development of the whole production system. In the case of methodological standards, the ESS could envisage several sorts of architecture for the production process that would imply different uses of the standards for statistical methods. For instance, we can imagine a first option in which each NSI would be in charge of implementing in its own production process the statistical methods agreed in the standard(s). A second option would correspond to another possible organisation: for each statistical domain, one NSI could be in charge of developing specifications based on the standard, and each NSI would be in charge of implementing these specifications in its IT system. In a third option, for each statistical domain one NSI would be in charge of

developing the statistical specifications and another NSI of implementing these specifications into a portable IT application. In these three options, the role of standardisation and the risks attached to non-conformity would be quite different.

It should be mentioned that the ESS is elaborating in another ESSnet - called CORE for Common Reference Environment - a new architecture linked to the issue of standardisation in the IT statistical processes. The outline of this project is given in ESSnet CORE (2011).

5.2: Case studies for two other types of standards

Taking into account the experience of NSIs in standardisation at the national level and the first reflections on standardisation by the chair of the sponsorship on standardisation, the ESSnet STAND PREP has selected SDMX as one of the types of standards other than methodological ones. The other case will consist in analysing how statistical packages that are agreed as common tools fit into the framework of documentary standards. Our preliminary analysis for the former is that although SDMX was a pure ISO standard, it has faced a limited success in the ESS. As for common statistical packages, they are thought to contribute efficiently to standardisation in practice, but cannot be classified as documentary standards.

5.3: Which process for the adoption of standards in the ESS?

The ESSnet STAND PREP is taking stock both of the practice of international standardisation bodies like ISO/IEC and CEN. As explained in Blyth (2006) about the adoption of ISO/IEC standard 20252 on "Market, opinion and social research- Vocabulary and service requirements", the development of international standards can build on existing national standards or existing professional standards. The total duration of the standardisation process can be quite long.

We have as well learned from existing practice in standardisation, especially in the UK statistical system that has experience in the standardisation across several national statistical authorities and the German statistical system that has experience in the standardisation of the production process between regional offices and the federal office. For standardisation of the production process across statistical domains, the experience of Statistics Netherlands as described in Braaksma (2009) will be used as well. We will in addition draw lessons from the history of two successful packages that have contributed to ESS standardisation, DEMETRA in seasonal adjustment and ARGUS in disclosure control. In particular, experience has shown in the case of the Demetra package that there was a strong connection between the progress in the negociation and the availability of a tool that could incorporate the advantages and limitations of competing methods.

6- CONCLUSION

The work conducted by the ESSnet STAND PREP shows in our view that experience and best practices developed in standard development organisations could be a sound base for the development of a standardisation initiative in the ESS. This should help the ESS sponsorship on Standardisation to identify the issues that are key in the standardisation initiative. In particular, whereas standardisation bodies refer to an underlying strategy for developing efficient markets, the ESS has to define its own strategy in particular the future role of all statistical authorities. Such a strategy will feed back the detailed definition of standardisation procedures in the ESS. There is a shared expectation that such a process will be long.

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