

Summary Report from the Leadership Group (LEG) on Quality

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SUMMARY REPORT FROM THE LEADERSHIP GROUP (LEG) ON QUALITY

1 Introduction

We have witnessed a quality revolution in society during the last two decades. Successful organisations realize that continuous improvement is necessary to stay in business. Improvement implies change and successful organisations have developed measures that help them change. Statistical organisations are no exception. They, too, must have a number of quality strategies in place that are related to such factors as style of management, customer orientation, employee empowerment, scientific approach, understanding variation and distinguishing its causes, teamwork, and experimentation. Quality as an important concept is not new to statistical organisations. Quality in terms of accuracy is imperative and part of what statistics is all about. Many people working in statistical organisations have had problems appreciating the need for focusing on improving quality beyond accuracy, which is typically defined as the mean squared error of an estimate. However, like other businesses, statistical organisations need to work with a broader definition of quality since users are interested in more than the mean squared error. Users also need, in varying degrees, relevant, timely, coherent, accessible and comparable data as inexpensively as possible.

In 1999, Statistics Sweden proposed the formation of a Leadership Group (LEG) on Quality to attain improved quality in the European Statistical System (ESS). The ESS comprises Eurostat and the National Statistical Institutes (NSIs) associated with Eurostat, i.e. those organisations that are responsible for producing official statistics in the European Union. NSIs are organised differently in different countries, but to simplify the presentation we will refer to one NSI per country even though the responsibility for producing official statistics in some countries and for some areas is shared with other agencies and organisations. Two issues were explicitly mentioned in the proposal: Total Quality Management philosophies and Current Best Methods (CBM). Statistics Sweden had worked extensively in these areas for a number of years; other countries had shown interest in these areas as well. The main purpose of the proposal was, however, to let the LEG define its task in more detail and to provide a number of recommendations for the ESS regarding its quality work. The LEG was given such a relatively vague mandate because there was no self-contained overall description of quality work in the NSIs and Eurostat at the time of the proposal. It was felt that the LEG should make the choice of issues following discussions in the group and with other countries and after collecting data on quality initiatives in the NSIs and Eurostat. The LEG mandate also included a compilation of its main findings in the final summary report.

The SPC decided to set up a LEG on Quality along the lines outlined above at its meeting in Brussels on 11 March 1999. The LEG provided an interim report in Oporto on 31 May 2000, where the decision was taken that a draft final report should be presented at an International Conference on Quality in Official Statistics to be held in Stockholm on 14-15 May 2001. This would enable a discussion of the recommendations and other findings by a large international audience where other contributions on quality in official statistics would also be presented.

The LEG has met nine times. It has produced background chapters on:

- The Quality Framework
- The Position of Quality Work in the eight LEG countries and eight other so-called “network” countries
- Quality and Users
- Strengths and Weaknesses of the European Statistical System
- Data Quality
- Different Quality Management Models and their Interrelationships
- Assessment Tools
- Current Best Methods and Minimum Standards
- Documentation
- Dissemination of Information
- Implementation of Quality Management Models in NSIs.

During the course of its work, the LEG has felt the need for the ESS to agree on a common set of values and ideas on how to work with quality-related matters. Some NSIs have developed policy statements for their quality work, but there are no statements pertaining to the entire ESS. The LEG believes that policy might be too strong a notion for such a common set of values and ideas. Instead, the LEG has drafted a Quality Declaration consisting of a mission statement and a vision for ESS together with a number of principles or values for quality work in the ESS. *The LEG proposes that the SPC sign the declaration.* It is understood, of course, that the Declaration will be subjected to revision from time to time.

The background chapters were discussed at the above noted conference. The Summary Report and the Quality Declaration were discussed at a high-level meeting preceding the conference. All documents were subsequently revised and the final documentation of the LEG consisted of five parts: (1) The Summary Report, (2) the Quality Declaration (Annex 1), (3) the terms of reference proposed to an Implementation Group with the task of coordinating the implementation of the LEG recommendations (Annex 2), (4) a separate list of the LEG recommendations (Annex 3) and (5) the detailed background chapters covering the listed topics. The latter will be assembled in a separate volume.

The LEG was chaired by Statistics Sweden and included the other LEG member NSIs France, Germany, Italy, Greece, The Netherlands, Portugal and the U.K. Two members from Eurostat attended. The remaining EU countries, together with Norway and Iceland, formed a “network” that was

consulted at a LEG seminar held in October 2000. Network countries also had opportunities to comment on the LEG work on a more continuing basis. Their main information sources were the minutes from the LEG meetings and the discussions from the October seminar.

2 Terms of Reference

The first task for the LEG was to establish the terms of reference. These were

- to establish a framework for considering quality issues
- to identify key elements to be considered
- to obtain information on the status of these elements in the ESS
- to demonstrate with examples how improvements in NSIs and in the ESS could be made, and
- to propose future actions for the ESS.

One important part of the mandate given to the LEG by the SPC was to define its task in more detail. The LEG defined a total list of key elements that was much more extensive than foreseen in the original proposal by Statistics Sweden. A first list of key elements was produced at the first LEG meeting. This list was eventually supplemented with information from a survey that the LEG conducted among all EU countries (except Luxembourg) plus Norway and Iceland. In connection with the survey all network countries were visited by a LEG member to make sure that quality activities were reported as intended by the LEG. Each LEG meeting also devoted considerable time to detailed presentations of quality work in each LEG country. Thus, the list of key elements and good practices was gradually extended and discussed in the background chapters.

The survey and the presentations have revealed that important quality work is conducted in many of the countries. It is obvious that many examples of how improvements can be made are available from that information. The LEG has summarized knowledge on the key elements in the background papers and provided recommendations based on some of the findings. It is important to realize that there is a need for future actions associated with the recommendations. Therefore, the LEG proposes the creation of an implementation group (see Section 11).

3 The Quality Framework

3.1 The meaning of quality statistics

Quality has many meanings. In everyday speech, its synonyms range from luxury and merit to excellence and value. It is by no means easy to define, and any definition is likely to change over time as new aspects gain importance. Brackstone (1999) points out that the quality concept has been overused to some extent and questioned because of its vagueness.

A few years ago, quality in the statistical context would usually have referred to the accuracy of the statistical product, which might have been measured by the “mean squared error”. It may still have this meaning in some contexts. But this view of quality has gradually changed to encompass a wider set of attributes: relevance, accuracy, timeliness and accessibility. Comparability, coherence and completeness have been added following discussions in the context of the European Statistical System and other statistical systems.

This extended view of quality stems from a more general definition, in which quality is “the totality of features and characteristics of a product or service that bear on its ability to satisfy a given need” (ISO 8402 from 1986). This definition could imply covering the “service aspects” of quality, for instance, the extent and type of commentaries, analyses, helpful diagrams, and the agreeableness of the relationship with the NSI. Here the focus is even more on satisfying the user. Of course, different users have different needs and this complicates quality assessment.

Another often-quoted quality concept is “fit for purpose”. This implies that the product need not be perfect in every way to meet a particular need. This is important since many desirable attributes are mutually exclusive in practice, especially where cost is a major consideration, as in services paid from tax revenues. Cost and “compliance cost” (the burden on respondents) are not usually considered to be quality attributes, but they need to be taken into account in the broader sense of “total” quality (see below).

The bottom line is that the concept of quality in statistical organisations has changed during the last decade. Thus, accuracy is no longer the sole measure of quality. Quality consists of a number of features reflecting user needs. In this setting, quality can be defined along a number of dimensions of which accuracy is one. All these dimensions constitute the product quality. Generally, the products we have in mind here are all types of statistics. For example, Eurostat’s quality vector has the following components:

1. Relevance of statistical concept
A statistical product is relevant if it meets users’ needs. Thus, users’ needs must be established at the outset.
2. Accuracy of estimates
Accuracy is the difference between the estimate and the true parameter value. Assessing accuracy is not always possible due to financial and methodological constraints.
3. Timeliness and punctuality in disseminating results
This is an important dimension for many users, since it is so obviously linked to an efficient use of the results.

4. Accessibility and clarity of information

Results have high value when they are easily accessible and available in forms suitable to users. The data provider should also assist users in interpreting the results.

5. Comparability

Reliable comparisons across space and time are often crucial. Recently, new demands for cross-national comparability have become common. This in turn puts new demands on developing methods for adjusting for cultural differences. Obviously, comparability is a necessary prerequisite for harmonised statistics.

6. Coherence

Statistics originating from a single source are coherent in the sense that elementary concepts can be combined in more complex ways. Statistics originating from different sources, and in particular from studies of different periodicities, are coherent insofar as they are based on common definitions, classifications and methodological standards.

7. Completeness

Domains for which statistics are available should reflect the needs and priorities expressed by users as a collective.

The documents describing this ESS quality vector in more detail are Eurostat (2000a, b).

Other organisations use slightly different sets of dimensions. Statistics Canada uses relevance, accuracy, timeliness, accessibility, interpretability and coherence, i.e. six dimensions (Brackstone 1999). Statistics Sweden uses five (Rosén and Elvers 1999). Typically, each dimension is further divided into a number of sub-dimensions. Recently, the International Monetary Fund has also started development of a framework for data quality assessment (see Carson 2001). There is, however, a very good convergence among these alternative frameworks.

It is quite obvious that the dimensions conflict with each other, as discussed by Holt and Jones (1998). For instance, timeliness is in conflict with accuracy since good accuracy generally takes time to achieve. Consequently, the various dimensions cannot be treated as if they were independent.

One important purpose of a quality vector is that it should make it easier for users to judge and compare the quality of statistical products. It is difficult to describe the status of each dimension so that this goal is accomplished.

Recommendation no. 1: Each NSI should report product quality according to the ESS quality dimensions and sub-dimensions.

3.2 How to achieve good product quality

The dimensions of product quality are discussed above. These dimensions are not always measurable in an objective and direct way. Often, proxy measures or qualitative assessments must be used. Thus, if we accept the existence of a set of dimensions and sub-dimensions, we inevitably have a vector where some components are quantitative and others are qualitative. Accuracy is quantitative but most other components are qualitative. A component such as timeliness and punctuality can be measured in quantitative terms, such as “three days late” or “estimates concern the population state eight months prior to the release date”, but in essence, this component is also qualitative in nature. As far as we know, there have been no successful attempts at calculating a total quality index. Instead, quality reports or quality declarations have been used that provide information on each dimension. For instance, a quality report might provide a description and assessment of quality based on information on user satisfaction, sampling and non-sampling errors, key production dates, forms of dissemination, availability and contents of documentation, changes in methodology or other circumstances, differences between preliminary results and final results, annual and short-term results, and annual statistics and censuses. Such descriptions typically cover the various dimensions with a varying degree of success. It is very common that quality reports emphasise what is known rather than what is not known. The calculation of a total quality index presupposes that quality components can be measured in a quantitative way and that weights can be assigned to the resulting assessments. Therefore, one should strive for the development of more quantitative measures for each component.

Work on standard quality reports is underway in several countries. Some examples are the development of business survey reports for French official statistics, the development of model quality report in business statistics in a SUPCOM project led by ONS, Sweden’s rule stating that every survey in official statistics should be accompanied by a quality declaration, and the so-called quality profiles produced for some surveys and survey systems in the U.S. A quality profile is a collection of all that is known about the quality of the system. Quality profiles have been developed for U.S. surveys, such as the Survey of Income and Program Participation, the Annual Housing Survey, and the Schools and Staffing Surveys. The purpose of a quality profile is to summarize knowledge on the quality of data from the surveys and to provide information about design and procedures. Rather than following a standard set of quality dimensions, one simply lists what is known. The summary character is user-friendly in that the interested reader would otherwise have to research a large body of literature, some of it not readily accessible. References are provided for the interested reader (National Center for Education Statistics 2000 and Jabine et al. 1990). The problem with a quality profile is that it cannot be particularly timely since it compiles the results from studies of the quality. As noted above, such post-survey activities take time. The profile on U.S. school surveys concerns surveys carried out during 1987-1995. The profile strongly emphasises the

accuracy dimension. A similar emphasis is found in the profile on the U.S. Survey of Income and Program Participation.

Knowledge of the quality level of products is imperative both for informing users and as a basis for prioritising improvement activities and measuring the effects of improvements. However, as noted above, measuring quality dimensions or components can be very difficult in many respects. For some components (e.g. coherence), there is currently a lack of adequate measures while for other components (e.g. accuracy) measures do exist but are difficult to calculate on a continuing basis. Despite the ongoing work noted above and the extensive work conducted by the Working Group on “Assessment of quality in statistics”, we must conclude that the current level of measurement capability regarding quality dimensions is low. Recommendation no.1 is therefore justified only if it is linked with further development of the quality measures.

Recommendation no. 2: The measurability of each ESS quality dimension and sub-dimension should be improved.

Thus, the starting point is to measure. But in order to achieve good quality, measurement is not enough. We need to distinguish between the different types of quality.

The product quality is the quality of the output. We are referring to data quality and the quality of various kinds of services provided by the NSI. The product quality can be seen as a vector with components that can be measured (quantitatively or qualitatively, easily or with difficulty).

The product is generated by an underlying process. It is unlikely that the product will have good quality if the underlying process is not up to par. Therefore the concept of process quality comes into play. In theory, good product quality can be achieved through evaluations and rework. However, this is not a feasible approach since it is costly and time-consuming. Instead, it is believed that product quality will follow from improvements in process quality. A number of business processes are involved in the production of statistics and the key process variables or attributes generally differ from the key product characteristics. Process quality can be improved by applying, for instance, ONS’s process design and continuous improvement cycle in:

- establishing requirements
- designing and implementing the production process
- operating the system
- disseminating the results
- re-establishing the requirements

The aims of process quality are to gain efficiency, effectiveness, robustness, flexibility, transparency, and integration. Various processes have an impact on product quality. For instance, user contacts are key aspects of establishing and re-establishing requirements. Processes like recruitment and development of staff skills can be viewed as parts of the operating system process. Concepts such as current best methods and minimum

standards are part of the design stage. The process quality is improved by identifying key process variables (i.e. those variables with the greatest effect on product quality), measuring these variables, adjusting the process based on the measurements, and checking what happens to product quality. If improvements do not materialize, alternative adjustments are made or new key variables are identified and measured. This is an example of the so-called PDCA (Plan, Do, Check, Act) cycle advocated by the late Edwards Deming in the spirit of continuous improvement. The ONS cycle is clearly an adaptation of the PDCA cycle.

Recommendation no. 3: Process measurements are vital for all improvement work. A handbook on the identification of key process variables, their measurement, and measurement analysis should be developed.

The concept of Total Quality Management (TQM) takes these ideas a step further. It emphasises processes but covers wider aspects of the business, for example, customer focus, leadership and the importance of involving all staff. The objective of TQM and other quality systems is to enable the organisation to deliver products with a continuously improving quality.

There are numerous quality systems where an assessment of organisational performance provides a basis for improvement. TQM is a management philosophy, or way of working, based on a number of core values, such as customer orientation, leadership, participation of all staff, process orientation, teamwork, staff development, and continuous improvement. Different organisations emphasise different core values (as noted above). The main point is that organisations should abandon fragmented approaches for achieving good quality and embark on a more systematic approach.

All ESS members do not accept TQM as a concept. Furthermore, TQM does not offer any guidance to its practical implementation. But the idea of delivering good quality is, of course, universally accepted as is continuous improvement, measurements, experiments and user involvement. All NSIs must deliver products at low cost that can be used with confidence. Therefore, organisations must perform self-assessments in one way or another. One way is to use a business excellence model. Examples of such models are the Malcolm Balridge National Quality Award, the Swedish Quality Award and the European EFQM. These have been developed so that organisations can assess themselves according to these models' criteria. Examples of criteria include leadership, strategic planning, customer and market focus, information and analysis, human resources focus, process management, and business results.

In this assessment, the organisation must respond to three basic questions for each criterion: (1) Which approach or method is in place? (2) To what extent is this approach used throughout the entire organisation? (3) How is the approach evaluated and continuously improved? These might appear to be innocent questions, but that is not the case. The typical scenario is that all organisations have some activity that they use for each criterion, but it is not uniformly or even almost uniformly applied throughout the organisation,

and it is evaluated very seldom. Instead, many organisations use ad hoc and local approaches with respect to improvements. Good procedures are not always transferred throughout the entire organisation. The good example does not spread automatically. As noted above, there must be a process of change. The assessments help reveal weak and strong points in the organisation. All business excellence models are based on a set of core values similar to those for TQM.

Other assessment tools are available, such as ISO certification, the balanced scorecard, and business process reengineering (BPR). Note that these tools vary greatly from each other, as discussed in the background chapter on this topic.

The LEG considered several models and concluded that there was little difference between them (with the exception of BPR). One business excellence model is EFQM, which is used by some statistical organisations and many public administrations in Europe. The model consists of enablers (what the organisation does) and results (what the organisation achieves). The criteria for enablers are leadership, people, policy and strategy, partnership and resources, and processes. The results are people results, customer results, society results and key performance results. The fundamental concepts of the model are very similar to those in other excellence models, i.e. the organisation should strive for results orientation, customer focus, leadership and constancy of purpose, management by processes and facts, people development and involvement, continuous learning, innovation and improvement, partnership development, and public responsibility.

Recommendation no. 4: All organisations in the ESS should adopt a systematic approach to quality improvement. ESS members should use the EFQM excellence model as a basis for their improvement work except for those already using a similar model.

3.3 Relationship with respondents and other data suppliers

Producers of official statistics cannot do their job unless they have a good relationship with those who supply the data. There are two kinds of data suppliers in official statistics production, namely regular respondents and intermediaries. Suppliers of data for official statistics usually differ from suppliers in most other businesses. In most other businesses, suppliers compete and are compensated for their efforts. This is not the case in official statistics. Respondents are not standing in line offering their input. Instead, producers of official statistics must take measures to compel suppliers to cooperate and participate. The reluctance of the suppliers has three general consequences: non-response, late response, and measurement errors.

All three consequences affect data quality, but to some extent, they can be dealt with in similar ways. Many statistical organisations emphasise the importance of building trust by providing confidentiality pledges, by creating Statistical Acts that regulate the relationships with the suppliers, and by adhering to existing ethical guidelines (for instance, those developed

by the International Statistical Institute, see International Statistical Institute (1986) and Jowell 1986)). It is important not to unnecessarily burden the suppliers. This can be done by being restrictive when investigating sensitive topics and by keeping the number of questions to a reasonable level. Sometimes society's interest is so strong that sensitive topics and a large number of questions cannot be avoided. In these cases, various forms of incentives can be used to encourage response; thereby creating an environment that resembles that found in other businesses where effort is compensated. There are also other ways to stimulate survey participation that are worth exploring (see Groves and Couper 1998).

In recent decades, most NSIs have experienced increasing problems gaining cooperation from respondents. The non-response rate is the most visible indicator of this state of affairs. Non-response rates have increased considerably in many countries and for various products, but the increase is not solely an effect of a decreased willingness to participate. Much non-response is a result of increased difficulties in establishing contact at all due to the increased mobility in human populations and rapid and complex changes in business populations. It is probably fair to say that people and businesses are less survey-minded than they were 20 years ago. For most suppliers, the pressure to supply information has increased greatly since then and statistics are just a small part of that pressure. Nevertheless, some businesses have a rule not to engage in non-mandatory statistical data collections. Obviously there is a need to strengthen ties with our data suppliers by emphasising the role of statistics in society, but we should also make sure that they receive feedback to this effect after data collection is finished. It is important that we make life as easy as possible for suppliers by reducing the burden and ensuring that data are used in the ways previously conveyed to them. There are also a number of practical design steps that can be taken to reduce burden. Examples are efficient sample design, effective questionnaire design, avoiding redundant data collection, and sharing the respondent burden fairly among data suppliers. It is also important to offer, if possible, collection modes that fit the suppliers' preferences. However, to build trust we need to know more about how suppliers view their roles in the production of official statistics.

Recommendation no.5: NSIs should strive to improve their relationships with data suppliers, and research should be conducted on how data suppliers perceive their task. A special emphasis should be placed on issues that involve a decrease of the respondent burden and enhance suppliers' awareness of the role of statistics in society.

4 Quality and Users

One of the key principles of quality management in official statistics is user orientation (Brackstone 1993). The types of users are, however, manifold and the relationship between users and producers is very complex. This is particularly true for official statistics. Therefore, user orientation requires much greater attention and will certainly be one of the main fields of interest in coming years.

One important reason for the great variety of user types lies in the fact that statistical information (as the main product of NSIs) must be provided as a public good (informational infrastructure for democratic societies) and as a private good (tailor-made analyses demanded by individual customers). Different types of users with different and (partly) conflicting requirements correspond to this distinction (Linacre 2001). In this respect, statistical products differ from many other products on the market.

In addition to the diverse and partly conflicting needs of users, the relationship of the producer with each single user is very complex. An intensive dialogue between user and producer must be established to achieve an optimal solution. In this user-producer dialogue, the user and producer negotiate and define the statistical system comprising the statistical programme as well as the product characteristics and processes. The user-producer dialogue should also cover the interpretation of statistical figures.

Despite the inherent difficulties, an enhanced direct or indirect integration of users in the planning process is imperative to increased quality. Various instruments can be used to establish an effective user-producer dialogue so that users can play a more prominent role in the planning and development of surveys. These instruments include the following:

- statistical councils, i.e. institutions where experts external to the statistical institution discuss the general development of the statistical programmes;
- user-producer groups (e.g. sub-committees of statistical councils that treat problems in specific statistical areas);
- customer surveys exploring the needs of a large group of users;
- formalised agreements between producers and important key users of statistics (e.g. Service Level Agreements in the UK Office for National Statistics);
- research in the social sciences on the different uses of statistics;
- cooperation with partners in the social sciences and economics, as well as in market research;
- programmes promoting user awareness of quality characteristics and possible uses of statistical figures.

In the ESS, the statistical councils and their sub-committees are currently the most important institutions seeking to integrate users in the process of review and improvement of statistics. Statistical councils exist in nearly all European NSIs as well as at Eurostat. They have often existed for decades.

Typically, two types of councils can be distinguished: the “independent expert” type and the “interest group” type. The functions assumed by the councils can vary. Of course, the overall task is to review a statistical programme. But councils can have responsibilities beyond that, including

priority setting, the auditing of product quality and establishing quality requirements.

The customer satisfaction survey is an important tool to detect user needs, and potentially user feedback could be integrated into the planning process of official statistics. A brief look at the current situation in Europe shows that very few NSIs use customer satisfaction surveys on a systematic and regular basis. A large majority of NSIs use customer satisfaction surveys occasionally, but many indicate a desire to introduce them on a larger scale in the future. The methodology for these surveys is still in its infancy, and there are severe methodological problems relating to frames, satisfaction concepts, scales, and non-response.

Another instrument worth noting in this context is the so-called Service Level Agreement used by the Office for National Statistics in the United Kingdom. The ONS has put into place a set of “concordats” and “service level agreements” to describe the roles and responsibilities in the customer - supplier relationships. Concordats operate as comprehensive agreements regarding statistical services and products covered by several service level agreements. Such a concordat exists, e.g. between the ONS and Her Majesty’s Treasury.

As an example, the Service Level Agreement between ONS and the Bank of England describes the services, performance standards and arrangements governing the supply of information by the ONS to the Bank of England and the UK Monetary Policy Committee. The agreement is not a legally binding contract. Rather, it seeks to present a clear understanding of the services that the ONS will provide and specific performance levels to be achieved. The agreement is publicly available and includes issues related to coverage, parties and contact points, consultation and review, services provided by the ONS, obligations of the Bank of England, targets and indicators, costs, and signatories. This agreement will automatically serve as a quality checklist.

A recurring problem in the user-producer dialogue is the general lack of a good understanding among users of the quality problems associated with the production of official statistics and survey data. Many sources of error and their effects are not well understood by users. ESS members should promote an enhanced awareness of the quality characteristics and the strengths and weaknesses of statistics produced in the ESS.

Recommendation no. 6: ESS members should develop service level agreements for their main programmes.

Recommendation no. 7: A development project regarding the design, implementation and analysis of customer satisfaction surveys should be initiated.

Recommendation no. 8: Each ESS member should provide a report regarding the present status of its user – producer dialogue including descriptions of any user involvement in the planning process. Good practices in promoting user awareness of quality problems should be collected and made available to ESS members.

5 Strengths and Weaknesses of the ESS

The LEG has conducted an inventory of strengths and weaknesses of the ESS. The purpose was to advise on any areas in need of improvement. It might seem odd that the conclusions include some of the strengths as areas in need of improvement. However, sometimes it is vital to develop the strengths of a system further, which is the case here. All the identified strengths and weaknesses do not carry the same weight. The most important ones should be dealt with first, and the Pareto principle applies in this context.

The LEG has provided an extensive listing in the background chapter dealing with strengths and weaknesses of the ESS. The LEG has chosen a number of areas that it finds to be most important and which are under the control of the ESS, at least to a large extent. These are:

Strengths that need further improvement:

- . The ESS encourages a culture of partnership and willingness to learn from others.
- . Systematic quality work has started in Eurostat and most NSIs.

Weaknesses that need immediate attention:

- . There is no overall and consistent long-run set of priorities in the system
- . The effectiveness and coordination of working parties and task forces at the European level must improve.
- . There are deficiencies in coordination in Eurostat and in the NSIs
- . Timetables for data production at the national level are sometimes unrealistic.
- . There are difficulties related to the exchange of staff between NSIs and Eurostat and between NSIs.

The work undertaken by the LEG suggests that further in-depth analysis is needed to reach firm conclusions and to serve as a basis for a future plan of action.

Recommendation no. 9: An in-depth analysis of the most important ESS strengths and weaknesses should be conducted. An action programme should be developed based on the findings of this analysis.

6 Current Best Methods and other Standardisation Tools

The initial LEG proposal contained a specific mandate to recommend practices regarding the development of CBMs on a large scale in the ESS. The basic thought was, and still is, that CBMs help reduce the unnecessary variation associated with the performance of many processes.

Variation in approach leads to variation in product characteristics or to some variants becoming more expensive than others. An increased standardisation has many advantages. It facilitates documentation, the induction of new employees, internal rotation of staff, the introduction of process changes, and the adoption of new solutions developed by those who share the same process. The obvious effect is an efficiency gain in quality assurance.

The initial proposal simply stated that the LEG should identify which processes were suitable targets for CBM development and how such development work should be organised. The proposal also emphasised the need for minimum standards for survey work in the ESS.

While acknowledging the large variation in the quality of statistical products and processes in the ESS, the LEG quickly recognized some formidable challenges in tackling the issues in the proposal. The LEG agreed that it was presently not feasible to construct and maintain CBMs at the ESS level, partly because “best” would be too restrictive. Minimum Standards presented similar difficulties and the prospect of unproductive controversy. Instead, the LEG decided to discuss two other concepts, Quality Guidelines and Recommended Practices. These concepts seemed to be more feasible on an ESS level. The Quality Guidelines constitute what to consider doing, while Recommended Practices state how to do it. CBMs and Minimum Standards still have their place, but on a more local NSI level.

These concepts are defined below:

CBM is a description of the best methods available for a specific process, such as editing or non-response reduction. Administrative processes are also eligible.

Minimum Standards specify the absolutely necessary criteria to be met when performing a certain part of the production process. They are defined in terms of design requirements rather than product characteristics. Examples of minimum standards include known selection probabilities and lower and upper limits for an average interviewer workload.

Quality Guidelines represent generally accepted principles for the production of statistics. They also provide guidance as to what is considered important and less important regarding effects on the product quality. But the programme manager and his/her team are free to make the final choices.

Recommended Practices are a collection of good methods from which the planning team can choose. Clearly, the methods of a CBM would be a subset of recommended practices.

These concepts provide guidance on how to best produce the statistics. Experience tells us that there is a great need for these kinds of documents. In the past, this need has manifested itself in various ways. For instance, organisations like the UN and FAO have produced handbooks on design aspects. Another example is the need for technological transfer between countries, i.e. one country helps another improve its production and methodological skills. A third example is the minimum standards that have been developed for some international surveys to enable country comparisons with reasonable quality. The set of agreed minimum standards takes a form that resembles a service level agreement.

In our survey of LEG and network countries we noted that some methodology areas are less developed than others in terms of tools being in place to assure quality. Our survey particularly revealed that tools for reduction of measurement errors, testing questions, conducting customer surveys, and reducing coverage errors are lacking. Therefore these problem areas seem to be good candidates for the development of Recommended Practices on the ESS level.

Recommendation no. 10: NSIs should develop CBMs for their most common processes. A handbook for developing CBMs covering construction, dissemination, implementation and revision of CBMs should be developed. Existing and relevant CBMs should be collected and distributed in the ESS.

Recommendation no. 11: A set of recommended practices for statistics production should be developed. The work should start by developing recommended practices for a few areas followed by a test of their feasibility in the ESS.

7 Dissemination of Information

Better dissemination of information is a crucial element of quality improvement in the ESS. It is clearly important that information is managed well. The LEG has compiled a set of good practices for use at different levels, such as within and between statistical agencies (in a broad sense), between NSIs and Eurostat, between NSIs and international organisations such as the UN, OECD, ILO, IMF and FAO, between Eurostat and the same international organisations, and between NSIs (including Eurostat) on the one hand and data providers, users, academic institutions and statistical firms on the other.

A summary of the different types of information with a particular view to the needs of the ESS has been compiled in the background chapter on dissemination of information.

The current ESS database should be supplemented with information on all Eurostat working parties and task forces, their members, terms of reference, starting date, meeting dates, agendas and minutes and perhaps other documentation.

The LEG has found that there are no European statistical meetings devoted to official statistics that resemble the meetings organised by the American Statistical Association. Meetings organised by ESS and organisations working for ESS tend to be ad-hoc. There is a need for a regular forum that can bring together people from all relevant statistical disciplines to the ESS. Short courses could be offered in connection with such a conference. This activity could preferably be linked with existing European conferences such as DGINS.

Recommendation no. 12: ESS members should use the list of current good information management and dissemination practices compiled by the LEG and consider actions for internal use.

Recommendation no. 13: The user needs of the current ESS information system should be reviewed and Eurostat's current database expanded accordingly. Guidelines regarding the future management of the information system should be developed.

Recommendation no. 14: A biennial conference covering any methodological and quality-related topics of relevance to the ESS should be organised.

8 Assessment Tools

The LEG has recommended NSIs to use the EFQM model as one way of assessing the performance of the organisation. EFQM is a tool for self-assessment, even though help from experienced quality award examiners will enhance the quality of the assessment. Another type of self-assessment is to use simple quality checklists. This is an approach used, for instance, by Statistics Netherlands, by the ONS, and by Statistics New Zealand. Such checklists are typically focused on the statistical processes and products. Working with the actual processes and products increases the awareness of quality issues and reveals areas in need of improvement. Examples of items that can be part of such a checklist are (examples taken from Statistics New Zealand):

- The programme has a good understanding of who the key users are and emerging new stakeholders.
- Documentation is complete and accessible
- Data definitions are consistent
- The sample is regularly redesigned
- Seasonal adjustment analysis is performed
- Release dates are advertised in advance
- Standards for time taken to meet requests are met
- Releases are checked for confidentiality
- Indicators of quality are regularly measured and monitored
- Requirements of the Statistics Act are met

This kind of checklist can be developed by introducing follow-up questions containing such key words as when, how, etc. These follow-up questions make it almost impossible to provide too bright a picture of the current situation. Typically, checklists of the kind described above are suited for specific products or programmes, while EFQM or other models are suitable for assessing the whole or parts of the organisation.

Self-assessment is a first step. The second step is to bring in assessors from the outside, either from other parts of the NSI or external experts. Internal audits are also becoming more frequent as are external audits. Statistics Netherlands uses a system of audits for evaluating the quality of the statistical production process and its results. The standard for these audits is a provisional quality guideline. Every five years, each programme in the agency will undergo such an audit by special independent audit teams taken from a pool of approximately 40 trained auditors. The programme must present a plan of improvements to the Director General based on the audit. Not surprisingly, the audits have revealed a number of common shortcomings that are probably fairly familiar to other agencies as well. For instance, there is inadequate interagency cooperation and communication, insufficient methodological skills, unclear tasks and responsibilities, and doubts about the overall quality of the products.

External reviews have taken place, for example in Statistics Netherlands and in the Swiss National Office. Typically, such reviews must be concentrated to a few days. Nevertheless, an external scrutiny can quickly reveal the most problematic areas and come with proposals. A suitable review period can be three days up to a week.

It is important to involve staff in the assessment process. Continuing staff surveys can be used to assess changes in the “climate” of the organisation. They can also shed light on how well the corporate plan and other initiatives are functioning. Furthermore, staff suggestions for improvements can be sought via the questionnaire and other indicators. It is important that management undertakes such action and react to any staff perceptions.

Recommendation no. 15: A generic checklist should be developed for a simple self-assessment programme for survey managers in the ESS.

Recommendation no. 16: The methods for auditing on different levels and for different purposes such as internal, external, one point in time, continuing or rolling, rapid, and more extensive (such as EFQM assessment) should be reviewed and recommendations should be provided to the ESS.

Recommendation no. 17: ESS members should study staff perception. One way to do this is to conduct staff perception surveys..

9 Documentation

Documentation has two main purposes: (i) to ensure and improve quality and (ii) to facilitate the understanding and use of data.

It should be noted that documentation concerns all activities carried out in the ESS, among which we distinguish the production of statistical information and other processes that support this activity (e.g. administrative procedures). With regard to statistical activity, it is important to have adequate documentation concerning the production process and

data. Documenting the production process involves documenting all steps of the activity from the planning phase to the data dissemination phase.

Producers need detailed documentation so that an alternate staff can reproduce a process. In general, users are particularly interested in the information content of the statistical product. Extensive documentation is required to satisfy the different levels of information needs since there are different kinds of users and even producers. The actual documentation should consist of metadata on the production process and the information content, quality measures and indicators concerning the product, and data on the producing organisation's strategies, policies and user relationships.

Most NSIs have problems finding resources for documentation and its associated costs. Thus, there is a need to find means for facilitating the documentation activity, such as information systems that enable the reuse of produced information, providing support to people in this activity and helping standardise the documentation activity. These tools will also make the documenting process cheaper in the long run.

Learning from failures is also valuable to avoid repeating the same mistakes even if there might be a certain resistance towards documenting negative experiences.

Recommendation no. 18: ESS members should analyse their documentation status in a report. The report should include an action plan with clear priorities for improvement and a timetable.

Recommendation no. 19: Each ESS member should make publicly available documents describing its mission statement, dissemination policy and quality policy.

10 Implementation of Quality Management Systems

All NSIs and Eurostat need to work with quality issues in a systematic way. The LEG has indicated a number of methods and strategies that can be used. These methods and strategies cannot be uniformly applied across the ESS. The varying circumstances in terms of legal frameworks, funding, methodological resources and cultural differences make a uniform approach impossible. But there are some aspects that apply to all ESS members despite these differences. These aspects are:

1. The existence of customers or users. They should be more involved in the planning and production of statistics. Their involvement automatically leads to an increased relevance of what is being produced. The LEG has indicated a number of ways to improve user-producer relationships.
2. There is a process behind each product. Streamlining and standardising processes lead to increased product quality. The LEG has pointed to methods like CBMs, measurements, documentation, and experiments to achieve this.

3. Quality work is relevant for all levels of the organisation. Everybody, from top management down, must be committed to quality.
4. Continuous improvement is a survival issue for the ESS. If quality, in a broad sense, is not achieved, then others will take over or statistics will lose their role as a basis for decisions.

Studies find that the implementation of a quality management system, which can take many different forms depending on each organisation, is a long-term commitment. The status report on activities in NSIs and the examples provided in the background LEG chapters show that most NSIs already have more or less developed quality assurance systems in place. What is lacking is a systematic approach. In addition, there are obstacles to excellence such as staff resistance, reluctance or reservations on the part of top or middle management (top or middle management might have delegated all quality work), insufficient resources devoted to change, insufficient communication in the organisation, or lack of clarity in the organisation's goals and objectives.

The following are important steps for setting up and implementing a quality management system.

1. Leadership defines objectives for the organisation. Objectives should be supported by a vision, a mission statement and a number of core values.
2. Staff is well motivated and committed to the main quality ideas. An infrastructure allowing staff to actively contribute to increased quality is established.
3. The implementation must be viewed as an investment. Investments are expected to pay off, but initially they are costly. The organisation must be willing to find resources to make the initial investment.
4. There must be an organisation for the quality work.
5. There is a need for an initial evaluation of the quality status in the organisations. The LEG has described a number of tools for an evaluation. The evaluation is necessary to establish the starting point (the benchmark) and to identify areas with the most urgent need for improvement.
6. The organisation's main processes must be identified and subjected to evaluation and improvement.
7. All staff should be trained in quality issues. Some staff should receive more specific training so they can serve as quality facilitators.
8. The effects of the quality efforts should be monitored and evaluated. As a result, changes in 1-7 above might become necessary.

Recommendation no. 20: All staff should be trained in quality work with different types of training programmes for different types of staff. Each ESS member should develop a training programme. Training on a European level should be enhanced.

Recommendation no. 21: A biennial quality award in official statistics should be established. The award could be given to a single improvement project team, for an innovative idea, to a well-performing ESS organisation or to a statistical programme team.

11 Implementation

The LEG has provided a number of recommendations. The recommendations are of two types. One set of recommendations is directed to individual ESS members. The other consists of recommendations where some kind of development work or common action is needed. There is a need for an Implementation Group with the task of collecting information and coordinating recommendation activities. The LEG has drafted terms of reference for the Implementation Group and these are found in Annex 2. The Implementation Group can be viewed as a Quality Advisory Group to the SPC and should be chaired by Eurostat. The Implementation Group should cooperate, when necessary, with the Working Group on "Assessment of quality in statistics". It should be stressed that the success of implementation depends on active participation from ESS members. For the first type of recommendations, the Implementation Group merely collects information on activities undertaken; but for the second type, the group will lead and coordinate the recommended work.

Recommendation no. 22: There is a need to establish a LEG Implementation Group that coordinates the activities generated by recommendations approved by the SPC.

12 References

- Brackstone, G. (1993): Data Relevance. Keeping Pace with User Needs. In: *Journal of Official Statistics* 9, 49-56.
- Brackstone, G. (1999). Managing Data Quality in a Statistical Agency. *Survey Methodology*, Vol. 25, No. 2, 139-149.
- Carson, C. (2001). Steps Towards a Framework for Assessing Data Quality. Paper presented at the International Conference on Quality in Official Statistics, Stockholm, May.
- Eurostat (ed.) (1999): Quality Work and Quality Assurance within Statistics. DGINS Conference in Stockholm 1998. Luxembourg.
- Eurostat (2000a). Definition of Quality in Statistics. Eurostat Working Group on Assessment of Quality in Statistics, Luxembourg, 4-5 April
- Eurostat (2000b), Standard Quality Report. Eurostat Working Group on Assessment of Quality in Statistics, Luxembourg, April 4-5.
- Groves, R. and Couper, M. (1998). *Nonresponse in Household Interview Surveys*. Wiley.
- Holt, D. and Jones, T. (1998). Quality Work and Conflicting Quality Objectives. Paper prepared for DGINS meeting, Eurostat.
- International Statistical Institute (1986): Declaration on Statistical Ethics. *International Statistical Review*, 54, 2, p. 227-242.
- Jabine, T.B., King, K.E., and Petroni, R.J. (1990). *Survey of Income and Program Participation: Quality Profile*. U.S. Bureau of the Census, Washington. DC.
- Jowell, R. (1986). The Codification of Statistical Ethics. *Journal of Official Statistics*, 2,3, p.217-253.
- Linacre, S. (2001): Understanding Users and Managing Data Quality in a Statistical Agency. Paper presented at the International Conference on Quality in Official Statistics, Stockholm, May.
- Rosén, B. and Elvers, E. (1999). Quality Concept for Official Statistics. *Encyclopedia of Statistical Sciences*, Update Volume 3, 621-629. Wiley.
- U.S. Department of Education (2000). *Quality Profile for SPSS*. National Center for Education Statistics.

Annex 1

Quality Declaration of the European Statistical System

The mission of the European Statistical System

“We provide the European Union and the world with high quality information on the economy and society at the European, national and regional levels and make the information available to everyone for decision-making purposes, research and debate.”

The vision of the European Statistical System

“The ESS will be a world leader in statistical information services and the most important information provider for the European Union and its member states. Based on scientific principles and methods, the ESS will offer and continuously improve a programme of harmonised European statistics that constitutes an essential basis for democratic processes and progress in society.”

To realize this mission and vision, the members of the European Statistical System strive for joint cooperation according to the following principles:

- **User focus**

We provide our users with products and services that meet their needs. The articulated and non-articulated needs, demands and expectations of external and internal users will guide the ESS, its members, their employees and operations.

- **Continuous improvement**

The needs and demands of users will change as will the environment we operate in. Globalisation and advances in methods and technology will avail new possibilities. It is imperative that we actively strive to improve our work methods to take advantage of the new possibilities and to better meet the demands of our users.

- **Product quality commitment**

We produce high quality statistical information according to scientific methods in accordance with objectivity and confidentiality. We provide information on the main quality characteristics of each product so that users are able to assess product quality.

- **Accessibility of information**

We provide statistical results in a user-friendly and accessible form. Utilizing the possibilities of new media ensures easy access to the information. As far as possible, we will enhance user awareness of the strengths and limitations of the produced statistics. Consulting on how to use data is an integral part of dissemination.

- **Partnership within and beyond the European Statistical System**

The cooperation between current and future members of the ESS as well as with other organisations will be encouraged. Only by working together, can we learn from others and gradually develop our system. The broad knowledge of staff and our users, suppliers, partners and other parties must be combined for us to excel in our purpose.

- **Respect for the needs of data suppliers**

The suppliers of data for statistics – the respondents – are an especially important group with which a mutually rewarding partnership must be established. The producers of statistics should strive to always minimise the respondent burden, both the objective and the perceived burden.

- **Commitment of leadership**

The leaders of the organisations in the ESS exercise a personal, active, and visible leadership to create and sustain a culture of quality. By providing a clear overall direction, prioritising improvement activities and stimulating empowerment and innovation, leaders enable the staff to perform a successful job and to continuously strive for improvement.

- **Systematic quality management**

We systematically and regularly identify strengths and weaknesses in all relevant areas to continuously identify and implement improvements where needed. A long-term strategic orientation is vital for the development of the ESS. The long-term effects in all situations must be considered with the more obvious short-term effects.

- **Effective and efficient processes**

ESS activities should be seen as processes that create value for the users. We work efficiently to produce output with as little resources as possible and to prevent errors in the processes and products. The processes and their quality are continuously reviewed and improved.

- **Staff satisfaction and staff development**

To attract and keep competent staff, it is vital to satisfy staff needs. The ESS members should treat their employees as the key resources they are.

Annex 2

Terms of References for the LEG Quality Implementation Group

1. Introduction

The Leadership Group (LEG) on quality has produced its final report. The core of the report consists of some 20 recommendations, which refer to individual ESS members and to further studies with possible implications for the ESS as a whole. The LEG Quality Implementation Group will closely follow the implementation of the recommendations and particularly concentrate on the recommendations that require study.

2. Features of the LEG Quality Implementation Group

- a) In order to guarantee the continuation of the LEG work, the members of the implementation group should consist mainly of LEG members. A few new members might come from the LEG network group and perhaps from a regional statistical office to cover this aspect of the ESS. The overall size of the implementation group should not exceed 10 members.
- b) The group reports once a year to the SPC on progress in the implementation of the recommendations developed by the LEG.
- c) The group exists for two years. The SPC can prolong its mandate.
- d) The group tries to work through virtual meetings.
- e) English is the working language of the group.
- f) The group closely follows the implementation of all recommendations of the LEG as finally agreed to by the SPC in its meeting of September 2001, hereby following in particular the proposed study work. This task includes in particular:
 - Development of an overall action plan for all studies, including a timetable. The action plan should establish priorities in case not enough resources are available to conduct all studies at the same time;
 - Preparation of task descriptions for individual studies, including a time table and cost estimates;
 - Follow-up of the study results;
 - Preparation of the annual report to the SPC;
 - Collection of necessary information for the annual report to the SPC;
 - Support in the dissemination of LEG work results.
- g) The NSIs carry out the study work as far as possible with financial support from the European Commission (Eurostat). The financial opportunities of each budget year of the European Commission limit the extent and number of the studies.

Annex 3

List of LEG on Quality Recommendations

Recommendation no. 1: Each NSI should report product quality according to the ESS quality dimensions and sub-dimensions.

Recommendation no. 2: The measurability of each ESS quality dimension and sub-dimension should be improved.

Recommendation no. 3: Process measurements are vital for all improvement work. A handbook on the identification of key process variables, their measurement, and measurement analysis should be developed.

Recommendation no. 4: All organisations in the ESS should adopt a systematic approach to quality improvement. ESS members should use the EFQM excellence model as a basis for their improvement work except for those already using a similar model.

Recommendation no.5: NSIs should strive to improve their relationships with data suppliers, and research should be conducted on how data suppliers perceive their task. A special emphasis should be placed on issues that involve a decrease of the respondent burden and enhance suppliers' awareness of the role of statistics in society.

Recommendation no. 6: ESS members should develop service level agreements for their main programmes.

Recommendation no. 7: A development project regarding the design, implementation and analysis of customer satisfaction surveys should be initiated.

Recommendation no. 8: Each ESS member should provide a report regarding the present status of its user – producer dialogue including descriptions of any user involvement in the planning process. Good practices in promoting user awareness of quality problems should be collected and made available to ESS members.

Recommendation no. 9: An in-depth analysis of the most important ESS strengths and weaknesses should be conducted. An action programme should be developed based on the findings of this analysis.

Recommendation no. 10: NSIs should develop CBMs for their most common processes. A handbook for developing CBMs covering construction, dissemination, implementation and revision of CBMs should be developed. Existing and relevant CBMs should be collected and distributed in the ESS.

Recommendation no. 11: A set of recommended practices for statistics production should be developed. The work should start by developing recommended practices for a few areas followed by a test of their feasibility in the ESS.

Recommendation no. 12: ESS members should use the list of current good information management and dissemination practices compiled by the LEG and consider actions for internal use.

Recommendation no. 13: The user needs of the current ESS information system should be reviewed and Eurostat's current database expanded accordingly. Guidelines regarding the future management of the information system should be developed.

Recommendation no. 14: A biennial conference covering any methodological and quality-related topics of relevance to the ESS should be organised.

Recommendation no. 15: A generic checklist should be developed for a simple self-assessment programme for survey managers in the ESS.

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Recommendation no. 17: ESS members should study staff perception. One way to do this is to conduct staff perception surveys..

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Recommendation no. 22: There is a need to establish a LEG Implementation Group that coordinates the activities generated by recommendations approved by the SPC.