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# Survey Methodology

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## Note of appreciation

Canada owes the success of its statistical system to a long-standing partnership between Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued cooperation and goodwill.

# The Importance of a Quality Culture

Dennis Trewin <sup>1</sup>

## Abstract

The reputation of a national statistical office (NSO) depends very much on the quality of the service it provides. Quality has to be a core value – providing a high quality service has to be the natural way of doing business. It has to be embedded in the culture of the NSO.

The paper will outline what is meant by a high quality statistical service. It will also explore those factors that are important to ensuring a quality culture in a NSO. In particular, it will outline the activities and experiences of the Australian Bureau of Statistics in maintaining a quality culture.

Key Words: Continuous quality improvement; National Statistical Office.

## 1. Introduction

Fellegi (1996) provides a strong argument that the trust in the national statistical agency is how most users judge the quality of its statistical products.

“Credibility plays a basic role in determining the value to users of the special commodity called statistical information. Indeed, few users can validate directly the data released by statistical offices. They must rely on the reputation of the provider of the information. Since information that is not believed is useless, it follows that the intrinsic value and usability of information depends directly on the credibility of the statistical system. That credibility could be challenged at any time on two primary grounds: because the statistics are based on inappropriate methodology, or because the office is suspected of political biases.”

Trust will not happen unless the culture is right. Culture is a word with many meanings but I am interpreting culture as “the way we do things”. Core values are important to this. They cannot be just statements hanging on the wall. They have to be understood. They have to be reflected in behaviours, particularly by leaders of organizations.

The Australian Bureau of Statistics (ABS) places great reliance on adherence to its core values. More than anything, they distinguish us from other survey providers in Australia. The core values are:

- Relevance – regular contact with those with policy influence, good statistical planning, which requires a keen understanding of the current and future needs for statistics, are essential, as is the need for statistics to be timely and relatable to other statistics.
- Integrity – our data, analysis and interpretation should always be objective and we should publish

statistics from all collections. Our statistical system is open to scrutiny, based on sound statistical principles and practices.

- Access for all – our statistics are for the benefit of all Australians and we ensure that equal opportunity of access to statistics is enjoyed by all users.
- Professionalism – the integrity of our statistics is built on our professional and ethical standards. We exercise the highest professional standards in all aspects of ABS statistics.
- Trust of providers – we have a compact with respondents; they are encouraged to provide us with accurate information and we ensure that the confidentiality of the data provided is strictly protected. We keep the load and intrusion on respondents to a minimum, consistent with meeting justified statistical requirements.

Adherence to core values is just one element of maintaining a quality culture. Part 2 discusses the key steps the ABS uses to maintain a quality culture.

It is now widely recognized that quality is much more than accuracy (*e.g.*, Brackstone 1999 and Carson 2000). In Part 3, the different dimensions of quality are discussed before identifying in Part 4 what I think are some of the major quality challenges for the ABS over the medium term. Many of these will be shared by other national statistical organizations.

## 2. Towards a High Quality Statistical Service

Quality assurance is a responsibility of all staff in the ABS. There is no central “quality management” group although Methodology Division is encouraged to be our conscience on quality issues – a role it takes on with

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enthusiasm, sometimes to the annoyance of others. However, that is a good sign – they are provoking debate on some of the more difficult quality issues. Support from senior management for this type of role is very important.

The key strategies for ensuring a high quality are described under six broad headings.

- A high degree of credibility for the ABS and its outputs.
- Maintaining the relevance of ABS outputs.
- Effective relationships with respondents.
- Processes that produce high quality outputs.
- Regular review and evaluation of statistical activities.
- Staff who are skilled and motivated to assure the quality of ABS outputs.

### 2.1 A High Degree of Credibility

Credibility is fundamental to the effective use of official statistics. Credibility arises from a system of statistics which provides an objective window upon the condition of a nation's economy and society.

The legislative framework within which the ABS operates is an important pre-condition for the integrity of Australia's official statistics. The Australian Statistician (*i.e.*, the chief executive of the ABS) is guaranteed considerable independence by law. This helps ensure that the ABS is, and is seen to be, impartial and free from political interference. In particular, the independence of the Statistician supports his objectivity in determining the statistical work program and determining what statistics are published. Although the legal authority is there, it still needs to be reflected in the way senior staff behave.

Government statisticians must not just apply professionalism skills to their work; they must also be seen to adhere to high ethical standards, especially with respect to objectivity and integrity. We are frank and open when describing our statistical methods to users; we publish information about our performance – for example, in terms of both sampling and non-sampling errors, and revision histories for key series; we are willing and able to identify and address user concerns regarding quality; we are receptive to objective criticism and prepared to respond quickly even if the problem is one of perception rather than reality. We promote good relationships with the media as they have a major influence on public opinion of the ABS and its outputs. Also, most Australians find out about official statistics through the media. We engage in other user education activities aimed at fostering intelligent use of official statistics.

The fact and perception of ABS objectivity are reinforced by our policies of pre-announcing publication dates for main economic indicators, allowing very limited pre-release of publications (the details of which are in the public domain),

and making special data services available on an even handed basis to all.

### 2.2 Maintaining the Relevance of ABS Outputs

There can be, of course, tension between (on the one hand) being responsive to changing policy needs and (on the other) maintaining the continuity of a system of statistics that can objectively monitor performance. Senior staff of the ABS devote a great deal of attention to maintaining personal contact with key users, to gather intelligence about policy issues and emerging areas of economic, social and environmental concern. This includes regular meetings with the most senior staff of the government agencies responsible for policy. The Directors of our State offices have similar arrangements with State officials. That intelligence feeds into strategic planning and the reviews of national statistical programs.

The ABS has a range of other means for communicating with the users of statistics, to ensure that our products are relevant to their needs. For example, advisory groups representing users and experts in various fields provide valuable guidance to our statistical activities.

There may also be some tensions or trade-offs between the different aspects of quality. The ABS positions itself at the higher accuracy end of the information market, to protect the valuable ABS "brand name". But if, for example, there is an urgent demand for data in a new field, some aspects of quality may be traded off in order to achieve timeliness and relevance. Nevertheless, there is a "bar" below which we will not go. Because it is probable that the new statistics will be used to inform significant decisions or debate, the ABS makes very clear statements about the accuracy of the data to help users understand how they can be used. On occasion, such new statistics may be differentiated from our other products by labelling them "experimental" or releasing as an information or occasional paper, rather than a standard publication. We regard this form of branding as very important to reliable interpretation of our statistics.

### 2.3 Effective Relationships with Respondents

An official statistical agency must maintain good relations with respondents, especially trust, if it wants them to co-operate and provide high quality data. The ABS approach includes – explaining the importance of the data to government policy, business decisions and public debate; a policy of thoroughly testing all forms before they are used in an actual survey; obtaining the support of key stakeholders; minimizing the load placed on respondents particularly by using administrative data where possible; and carefully protecting privacy and confidentiality.

The ABS monitors and manages the load it imposes on both households and businesses; we have developed 'respondent charters' for both groups. As well, a Statistical Clearing House has been set up within the ABS to

coordinate surveys of businesses across government agencies (including the ABS), to reduce duplication and to ensure that statistics of reasonable quality are produced.

All ABS forms and collection methods are tested to ensure that the data we seek are available at reasonable cost to respondents, and the best available methods are used to collect them. For business surveys, our units model, classifications and data items, are designed to be as consistent as possible with the way businesses operate. This now corresponds closely with their reporting for taxation purposes, making it easier to integrate survey data with data collected for taxation purposes. For household surveys, the extensive use of cognitive testing tools within the ABS, and the establishment of a questionnaire testing laboratory, have helped to improve quality and to reduce respondent load. Standards for form design and form evaluation are set out in manuals and are promoted and supported by experts in form design.

The ABS uses efficient survey designs to minimize sample sizes to achieve a specified level of accuracy, and hence total reporting load; we also control selection across collections to spread the load more equitably. To take advantage of current reforms of the Australian taxation system, the ABS is seeking every opportunity to improve the efficiency of our sample designs, through the use of taxation data as benchmarks, as well as using it as a substitute for some of the data now gathered through direct collections. We have changed the business unit structure used in our surveys to make it consistent with the structure used for taxation purposes.

For household surveys, the introduction of computer assisted interviewing has helped to streamline interviewing procedures, reduce respondent load, and improve the quality of data collected.

## 2.4 Processes that Produce High Quality Outputs

The quality of ABS statistics is underwritten by the application of good statistical methods during all stages of a collection including the design stages. The ABS has a relatively large Methodology Division (about 120 staff) which reports directly to the Australian Statistician. The Division is responsible for ensuring that sound and defensible methods are applied to all collections and compilations. The Methodological Advisory Committee, a group of academic experts, provides independent reviews of our statistical methods.

The ABS puts substantial effort into developing statistical standards, including concepts, data item definitions, classifications, and question modules. All ABS surveys must use these standards. The standards are supported by relevant data management facilities to ensure they are accessible and to make it easier to use standard rather than non-standard approaches.

Sample design and estimation methods are the responsibility of the Methodology Division. Where possible, a “total survey design” is used – accuracy requirements are set

according to the intended use of the data, and accuracy is measured in terms of both sampling and non-sampling errors. For example, in business surveys total survey design guides the allocation of resources to the intensive follow up of non-respondents or the editing of questionnaires; the effort for reducing non-sampling errors is optimized according to the impact of errors on overall quality. The cost to data providers is also taken into consideration. The “total survey design” has to be approved by a senior ABS committee before it is implemented.

In recent years, the ABS has made substantial progress by applying standardized best practice across surveys. For example, business surveys based on the business register now draw their frames at a common date each quarter, and use a common estimation method to ensure all collections have a consistent and complete coverage. Standard rules are adopted for frame maintenance, field collection and estimation, and generalized processing facilities are available to support the use of these rules. Standard methods are used to allow for “new businesses” not yet included on the survey frame. The ABS is thereby able to increase the coherence of estimates across different business surveys.

For household surveys, a master sample system has been adopted since the mid 1960’s. The system is updated regularly after each five-yearly census, and has been the cornerstone for ensuring the accuracy of statistics collected from household surveys.

Achieving quality in surveys is easier when computer systems support current best practice. The ABS has invested in generalized tools. They have been developed for all major processing steps of both business and household surveys, including sample frame management, data input and editing, imputation, estimation and aggregation.

The ABS embraces a rigorous continuous quality improvement approach wherever appropriate. The Australian Population Census is a classic example of raising quality through a strategy of measuring quality and involving all staff in examining and devising solutions to quality problems. This approach was applied very effectively at the data processing centre for the 1996 and 2001 Censuses. In both cases, the centre achieved significant budget savings, better quality and an improvement in timeliness. Continuous quality improvement is also applied to the coding of businesses on the business register, and to many other ABS processes.

At the output end of collections, each subject group is required to confront its data with other ABS data and with external information, to ensure the coherence of our statistics. The key macroeconomic data have to be “signed off” by the national accountants in meetings established especially for the purpose of clearing the statistics. The national accountants then have an obligation to use this data without further adjustment in the compilation of the accounts, enhancing consistency between the national accounts and source data collections. More generally, confrontation of different data sources is undertaken by our

national accountants through use of an 'input-output approach' to compiling national accounts estimates. The new methodology has led to more consistent accounts. Furthermore, the data confrontation and balancing process at detailed levels have helped to identify data deficiencies. Information about quality is fed back to the economic collection groups and is resulting in a more focused approach to improvements in the quality of source data.

One important quality improvement initiative that the ABS has pursued is the development of an Information Warehouse to manage and store all of our publishable data. By drawing together different datasets into a single database, the Warehouse enables our statisticians to confront statistics produced from different collections. Furthermore, all forms of publication, be they paper based or electronic, are to be produced from a single data store, with the objective of ensuring that the same data released in different products, and at different times, are consistent.

Another important element of quality management is documentation. Good documentation supports review activity and facilitates the dissemination of quality information to users, so they can assess the fitness of the data for the purposes they have in mind. As part of the Information Warehouse initiative, the ABS can now enforce standards for documentation of the metadata that describe concepts, definitions, classifications and quality.

A relevant and responsive statistical service must do more than provide data to clients. The ABS has recently strengthened its analytical ability. A team of analysts has been set up to develop new measures of socioeconomic concepts, to explore relationships between variables and to prototype new analytical products. The expanded program of analysis work is expected to deliver significant benefits in the form of insights into data gaps and quality concerns.

## 2.5 Review and Evaluation of Statistical Activities

Each ABS area is responsible for continuous quality review and improvement. For statistical collection areas, quality management is supported by sets of performance indicators. A standard set of measures has been developed to permit a comparison of quality across collections. Tools are now being developed to calculate these measures as part of our normal survey processes, and the Information Warehouse will allow us to store and display the measures. The key indicators are also included in the annual reports each Branch makes to the ABS Executive for review.

Quality measures are of interest to the users of statistics. The Information Warehouse will improve users' access to information about quality issues. As well, the ABS places high priority on helping users understand the quality of data and their implications for them, and has adopted active education strategies to promote such understanding. As highlighted in Lee and Allen (2001), there is much to do to improve user understanding of quality.

Each ABS household survey now includes an evaluation program which reviews the effectiveness and efficiency of

all survey activities and assesses the extent to which the data are used by clients. The Statistical Clearing House conducts a review of each ABS business survey. These initiatives ensure that all collections are subjected to at least a basic evaluation, and brings to light opportunities for improvements to quality and efficiency.

As well as making internal comparisons of performance across its own collection areas, the ABS has established a benchmarking network with overseas statistical agencies; the aim of the network is to share information about survey design, processes and costs. The benchmarking exercise is providing very useful guidance to the ABS's efforts to improve its processes and outputs.

## 2.6 Skilled and Motivated Staff

The ABS could not provide high quality information to its user community if it did not employ people who bring skills and energy to our statistical work. The staff are responsible for implementing the strategies discussed above. They must take a professional approach and be committed to the development of new methods, to continuous quality improvement, and to the open discussion of methods and quality issues.

Quality improvement and on-going statistical work compete for the time and energies of our staff. The ABS approach is, as far as possible, to integrate quality work with on-going processes and systems. We emphasize to staff that quality management is a corporate priority and ensure that tools and resources are made available to support it. In particular, the ABS is implementing a tighter approach to project management; this is being supported by manuals, systems and training.

Statistical training plays an important role in maintaining and improving quality. The ABS is always searching for new, more effective, approaches to skills development. An important element of our performance management system is a focus on identifying and addressing individuals development needs.

Relationships with other national and statistical agencies are a very important element of the ABS efforts to improving official statistics. The ABS is committed to using international standards; we take advantage of the wide range of expertise embodied in those standards. On the other hand, there is an obligation for us to make a positive contribution to the development of the standards. In doing so, we try to take account of the interests of the Asia/Pacific region as well as those of Australia. With ever increasing globalization of economic activity and the pursuit of world wide social goals, the compatibility between Australian statistics and those of other countries, is an important element of quality. The ABS maintains strong links with many overseas agencies. We are fortunate that there is a lot in common in the challenges we face and there are great benefits from sharing experiences with other statistical agencies.

### 3. Dimensions of Quality

Figure 1 is taken from Lee and Allen (2001). Among other things, it neatly summarizes, on the left hand side, three existing frameworks for judging quality. There are some differences with the descriptors used but basically they are providing the same message – there is much more to quality than accuracy. This is now widely accepted although it was not so long ago that discussion of the quality of a statistic focussed on its accuracy and the sampling variability in particular.

There are several messages in the right hand side of Figure 1.

- (i) There are many different ways of compiling official statistics – from modelled data/analytical outputs to censuses and sample surveys. In Australia we are making greater use of administrative data, systems of accounts (linked to the national accounts) and model based and other analytical methods to produce statistical outputs, compared with five years ago. The quality challenges differ between the different means of compiling statistics.
- (ii) There are several groups of activities associated with statistical outputs – from “frameworks, concepts, standards and classifications” through to “services/ dissemination”. Each is important in its own right and has its own quality challenge.

- (iii) The performance of a National Statistical Office is extremely important to its quality image as recognized in the opening quote of the paper. A number of the elements are specified in Figure 1. All are important. Indeed you cannot have a high performing statistical office unless you rate well against each of these elements; including management and financial performance.
- (iv) There are other elements such as institutional settings (e.g., legislation) which are also important.

The main purpose in describing the above is to emphasize that the list of quality challenges for a national statistical office is very large. All have to be tackled in some way – this would not be possible unless you have a quality culture, i.e., attention to quality is the responsibility of all staff. There are many “moments of truth” to genuinely test whether a quality culture exists or not.

### 4. Current Quality Challenges at ABS

Psychologists say that it is difficult to grasp more than seven points at one time so the remainder of the paper is limited to identifying seven major quality challenges for the ABS.

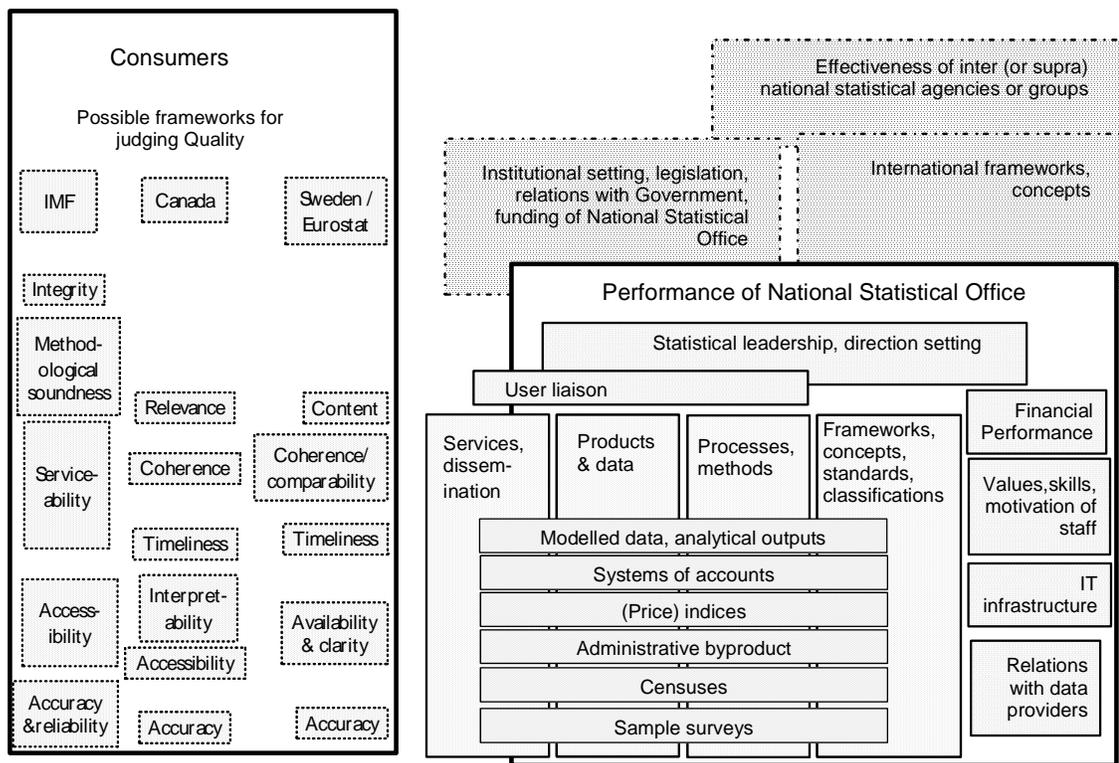


Figure 1. A Framework for Assessing Quality.

- (i) The increasing use of large, but imperfect, administrative and transactional data bases for compiling official statistics.
  - (ii) Increasing user expectations raising the quality “bar”.
  - (iii) Managing the tension between improving business processes (which can mean removing those responsible for statistical outputs from direct involvement with input processes) and maintaining or improving the quality of statistical outputs.
  - (iv) Quality assurance on electronic outputs.
  - (v) The presentation of statistics on the internet, including the need to educate the user community on quality of official statistics.
  - (vi) Managing the transfer of knowledge and skills with an ageing senior management team, many of whom will retire over the next 5 years.
  - (vii) Use of international statistical standards to maintain comparability where the standard may not be the most appropriate for national statistics.
- they often contain an identifier which facilitates analysis across data sets (*e.g.*, the Australian Business Number will facilitate analysis across business tax data sets, customs data, and ABS surveys)
  - they might be cheaper than directly collected data sets.

There are negatives of course – for example, the definitions may not be consistent with the preferred statistical concepts; less attention may have been given to incoming quality; and they may be out of date. Managing privacy aspects is a particularly important element. Although our motives are entirely honourable, and are in the public interest, matching data bases is a sensitive issue and ignored at our peril. Many of our users, particularly those in the academic community, are not as sensitive to these concerns.

There is also the question of whether the ABS should produce the statistical outputs or the agency responsible for the data sets. A number of issues come into consideration – the importance of the outputs to the national statistical service, costs, the extent to which quality can be managed and the basic question of whether the administrative agency is prepared to give up custodianship. Only the most important data sets will be brought into the ABS for compiling official statistics; for the others, we will work with the administrative agency to help them deliver “fit for purpose” statistical outputs into the public domain.

What have been our key responses to this important quality management issue?

- We are developing protocols for the publication and management of data from administrative sources. Associated with this is the promotion and support of good statistical and data management practices.
- For each statistical field, we are preparing information development plans in conjunction with other stakeholders which identify those areas of greatest importance and set out specific activities which will lead to increased availability of non-ABS data, particularly quality management issues.
- We are actively promoting good practice in information management.
- A major investment project has been the greater utilization of taxation data to provide cost-effective statistics.
- We are investigating methods for assuring the quality of the very large but imperfect data sets that are available through administrative and transactional data holdings.

#### 4.1 Increasing Use of Administrative/Transactional Data Bases

We have used administrative data bases for many years (*e.g.*, vital registrations for births and deaths, customs for trade data) to compile official statistics. Others have been used to develop frameworks for statistical collections. The issues at hand are the increasing availability of these data bases, their under-utilization for statistical purposes, and taking advantage of the potential to link across data bases and ABS collected data sets using a common identifier (*e.g.*, the Australian Business Number for business statistics).

Examples of administrative data bases that are becoming available are extended personal and business income tax data bases, health insurance transactions, and details of those on income support.

Transactional data bases are becoming available, although not in readily accessible form. Data bases of particular interest to the ABS are scanner data bases from retail outlets and eftpos (*i.e.*, electronic fund transfers between customers and retailers) data bases.

There are some particular advantages in using administrative or transactional data bases:

- they reduce the compliance cost we impose on respondents
- they are often “censuses” and therefore provide scope for producing detailed data sets (*e.g.*, by geography)
- they often have a longitudinal element (*e.g.*, tax data) to support this form of analysis

#### 4.2 Increasing User Expectations

User expectations on quality are changing – they are much higher than what they were as recently as 5–10 years ago. This trend is likely to continue. The increasing

globalization of financial markets will mean that key macroeconomic statistics have international, as well as national prominence.

There is a perception that statistics have become more volatile. In some cases they have because the underlying phenomenon has become more volatile. However, we do not believe statistical measurement methods are a significant contributing factor – in most cases methodological developments have led to improvements although the perception may be different. For example, the volatility in the key national accounts series is considerably less than what it was 10–15 years ago yet this is quite different to the perception of some users.

We also receive more criticism of inaccuracies in very detailed data (*e.g.*, Population Census tables) than previously. Again, it is not that the quality is deteriorating – it is that the expectation is higher.

We have to accept that “the bar is rising” and do what we can to improve quality to the expected level. That is not always possible of course so managing expectations is important. This can be done by:

- providing good explanations of the strengths and weaknesses of particular data sets;
- talking to key users whenever possible about the strengths and weaknesses of data series;
- responding to their informed criticism (seek partnerships in improving quality *e.g.*, in our detailed foreign trade statistics we openly seek feedback from users on the quality of the statistics); and
- providing as much explanation as possible for statistics that might seem unusual or different to expectation.

### 4.3 Improving Business Processes

Like several statistical organizations, the ABS is looking at how it might use new technologies, and other elements such as increased access to taxation data, to improve the efficiency of its business statistics processes.

We are also investigating the business processes associated with household surveys, particularly as increased use is made of computer assisted interviewing (CAI). However, in this section the paper will concentrate on the changes we are making to the way we manage business statistics to describe this particular quality challenge.

A team was set up to look at the possibilities. As a consequence, a number of significant changes were agreed to – this is to be known as the Business Statistics Innovation Program. We are looking at revised business processes that will be in place for at least 10 years and will yield a significant return on the investments required to set it up. We will:

- extend the responsibilities of the Business Register Unit to capture and store taxation data with a direct link to the Business Register through the Australian

Business Number (ABN). The ABN is now allocated through the taxation registration scheme and is available with most business transaction data bases. The data will be stored in a way that it can be used by the various ABS statistical areas to compile statistics directly from taxation data or in combination with ABS survey data;

- improve the way we manage business respondents – this will include some preference in how they provide data to us;
- set up an input data warehouse, with the Australian Business Number as the link across the various data sets;
- establish a business statistics processing environment based around the input data warehouse; and
- increase centralization of a number of the functions associated with compiling business statistics.

We can see the positives in these developments – more efficient delivery of business statistics, enhanced use of taxation data and other administrative data, data bases that support a wider range of statistical analysis. However, it will reduce the level of contact that statistical output areas have with their input data sources. What impact will that have on quality? What strategies can we deploy to mitigate the impact? These are important questions that we will have to answer. It is the main risk we will have to manage in implementing the Business Statistics Innovation Program.

### 4.4 Quality Assurance on Electronic Outputs

Great care is taken on the quality of our paper products. This has been built on many years of experience. Our record is good and the quality assurance processes well embedded in the way we go about our business. Yet, more and more of user community receive their data in electronic form only. They will make analyses based on these outputs often leading to important decisions being made. It is just as embarrassing to us to have errors in electronic outputs as to have them in paper outputs.

Our quality assurance procedures for electronic outputs are not as sophisticated, but they are evolving. The key responses have been as follows:

- Our data warehouse supports the storage of all the objects associated with the dissemination with a particular set of statistics, including data cubes and meta data.
- Statistical areas are asked to approve each object – they are individually developing their own techniques for quality assurance (but sharing ideas on best practice).
- A publishing system has been developed to support the simultaneous release of all outputs. If they are delivered from the same set of objects, there is less chance of inconsistency between the outputs.

#### 4.5 The Presentation of Statistics on the Internet

Ultimately the user can only make judgements about the fitness of a statistical output for their purposes. These vary of course and what might be fit for one purpose may not be for another. There is an obligation on us to provide a range of supporting information on data outputs, including that on quality, so that the statistical users can make their own judgements on fitness of use. There are a number of existing, well proven practices relating to declarations about the quality of statistics. These activities are now a routine part of existing dissemination practices. They include:

- Concepts, Sources and Methods publications that describe in detail the methods used to compile major statistical outputs. These are available on our web site as well as on other media.
- An assortment of Information and Working Papers, and feature articles in publications, which are used to draw attention to issues specific to particular outputs or changes that are being made to their compilation methods.
- A policy of “no surprises” when there are significant changes to the methods used for the compilation of statistical series. As well as Information Papers *etc*, if there are important changes to statistical series, we embark on a program of seminars and bilateral discussions with key users to explain the changes and the reasons for their changes.
- Material on methods is included in all our publications. The ordering and physical presentation of this information is according to agreed standards. These were developed following research undertaken for us by a communications consultant on how our users use the material in statistical publications.
- The analysis section of our publications includes material that explains, among other things, large or unusual movements in our statistical series. Often this will be based on information that is only available to ABS staff through their contact with respondents or their intimate knowledge of the methods used in compiling statistics. Our User Groups have advised that this is one of the most valuable forms of analysis that we can undertake.

We believe that our key users have a reasonable understanding of the quality of the statistics they use. However the increased reliance on electronic dissemination poses new challenges. In one sense this move provides a wonderful opportunity to present a range of information on quality that is easily accessible through a few well-designed “clicks”. But because information about the quality of the statistics is “not in your face” like it can be in hard copy publications it is easier for users to avoid the key messages

that you are trying to convey. The real challenge for us is to develop methods for presenting quality in a way that is not easy for users to avoid the main messages we want to convey.

One means of doing this may be to provide separate messages that draw attention to particular information you want to transmit on quality. These could be automatically activated as particular statistical series are accessed or could be delivered by a separate email message. Research is required into the most effective means.

Lee and Allen (2001) have described some of our research work to date on this issue. The work is still at the exploratory stage. Things that are being investigated are:

- Usability testing of how users prefer to access information on quality.
- Showing leadership and developing user education programs on how to use information on quality. A trial version of the is now available.
- The development of four prototype tools to assist users understand the quality of particular statistics. The four prototype tools are “Quality Issue Summaries”, “Quality Measures”, “Data Accuracy” and “Integrated Access to Data and Metadata”.

More details are available in Allen (2001).

#### 4.6 Managing the Transfer of Knowledge and Skills

Like several other national statistical organizations, many of the ABS management team, and other senior staff, are aged in their 50’s. Some have retired in recent years. Others are expected to over the next few years. If managed correctly, this is a great opportunity to refresh the organization through providing new blood to management positions. These will normally be younger staff who will bring new ideas and energy into the management team.

On the other hand, experience and know-how will be lost. Both sides of this equation need to be managed carefully. Our strategy is as follows.

- We have developed special programs for those staff with potential. Specifically, they undertake a leadership and management development program which has been specially customized for the ABS. Staff are chosen for these programs by senior managers. You cannot select yourself to be a participant in the program. Furthermore, after staff have completed the program they can be expected to be chosen for a special assignment or rotated to a new position. The underlying philosophy is that the best way of learning is to obtain a variety of work experiences. A very high proportion of recent promotions to senior management positions have been participants in these programs. So far this has helped us to adequately cover the gaps created by a larger number of retirements than in the past.

- We retain links with retired ABS staff through a variety of informal and formal means (*e.g.*, social functions, including them on the distribution list for ABS News, *etc*). Their knowledge is accessible if required.
- We have placed a stronger emphasis on knowledge management, using the facilities of our groupware product (Lotus Notes), means that key parts of our work are well documented and easily accessible.
- We have made substantial moves to standardize methods and systems meaning there is less dependence on local knowledge.
- For some key positions (*e.g.*, Director of National Accounts) we ensure shadowing of work prior to the retirement of the incumbent.

To date we have managed this transition well. We have been able to adequately fill vacant senior positions and at the same time refresh the organization by promoting staff with fresh ideas. There is a need to remain adroit.

#### 4.7 Use of International Standards

Our starting position is that where international standards exist we should use them. This has not always been the case. For example, although our industrial classification has been loosely based on ISIC, and a concordance developed with ISIC, the classification is largely homegrown reflecting the specific interests of Australia and New Zealand. We have agreed to use the 2007 version of ISIC, at least for the upper two levels, with variations at lower levels only where there are specific circumstances that justify it.

There are often pressures on us to divert from international standards. Sometimes this is to make the Australian situation look better. In other cases, such as with the ILO unemployment definition, the pressure is because the international definition does not seem to reflect the real situation in Australian circumstances. We resist these pressures but it is important that we have a well documented international standard as a reference point to justify our position. Nevertheless, where diversions from the international standard are made on an exception basis, they need to be well documented with a clear explanation of the reason. In cases where there is a need to have information on a basis other than the international standard our position is that we should publish statistics on both bases. The headline figure would still reflect international standard as increasingly the Australian situation is being compared with that of other countries and it is important that it is done on a comparable basis. For example, this approach is being taken to satisfy the demand for underemployment data and to reduce criticisms of the ILO unemployment definition.

There is a tension that needs to be managed but if we are serious about the importance of international comparisons it is imperative that international standard is the main guiding

light in developing the concepts, sources and methods used in Australia. For these reasons we regard it as a priority to make a significant contribution to the development and revision of international standards.

## 5. Conclusion

We would all agree that attention to quality is a fundamental aspect of our operation. In this paper, we have attempted to show that there are many dimensions to quality. This same message is clear from the frameworks for quality that have been developed by other organizations, such as the IMF, Statistics Canada and Statistics Sweden. The consequence is that a quality organization depends on the actions of all its staff as all can have an impact on quality in one way or another. It cannot be left to a work group with designated responsibility for quality. Therefore, quality can only happen if there is a genuine quality culture within the organization. The paper attempts to describe how we achieve this within the ABS. Nevertheless, it is important to have someone who performs the role of the corporate conscience on quality. We have given this responsibility to the Methodology Division and made the Chief part of the ABS Executive team so that it is easier for key messages to be conveyed to the senior managers. Among other things they draw attention to the most important risks to quality or behaviours they see as contrary to our corporate objectives.

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