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**ABS Business Statistics Reengineering
and the Impact on Australia's Balance of Payments
and International Investment Position Statistics**

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**ABS BUSINESS STATISTICS REENGINEERING
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The views expressed in this paper are those of the author and do not necessarily reflect those of the Australian Bureau of Statistics.

Introduction

In February 2002 the Australian Bureau of Statistics (ABS) took the strategic decision to proceed with a major re-engineering initiative known as the Business Statistics Innovation Program (BSIP).

2. The three-year implementation program commenced in July 2002 and is the largest re-engineering effort ever attempted by the Economic Statistics Group (ESG) of the ABS. Its implementation involves some 75 different projects across 8 ABS offices, all with key dependencies. Its size and complexity has required an elaborate set of governance arrangements that aim to ensure not only that ESG is well managed but that all other relevant stakeholders - Population Statistics Group (for Labour Statistics), Methodology Division, Technical Services Division, Corporate Services Division and the Regional Offices - are suitably involved and aware of the issues. Substantial progress has been made over the last 27 months in implementing the program.
3. The outcomes sought from BSIP are:
 - a. improved data quality, especially accuracy, coherence and timeliness;
 - b. improved provider relations, improved reporting mechanisms and reduced provider load;
 - c. increased capacity to respond to emerging statistical demands (including greater use of administrative data);
 - d. stronger statistical leadership to provide a better national statistical service;
 - e. significant operating efficiencies in order to expand the statistical service and sustain competitive pay and conditions for staff; and
 - f. enhanced career and development opportunities for staff.
4. This paper summarises: the reasons for the development of the BSIP strategy; the BSIP model; progress to date in implementing the model; work remaining to be done; and the impact on Australia's Balance of Payments and International Investment Position (BOP/IIP) statistics.

Background

5. The BSIP strategy took a number of years to develop and had its genesis in the May 1999 ABS Management Meeting discussion in relation to organisational soft spots and operational risks. In developing the BSIP strategy, it was recognised that the existing business and economic statistics processes and organisation had served ABS well for a number of years.
6. However, there were compelling reasons for change. The existing National Project Centre (NPC) model was increasingly expensive to maintain and ESG was facing significant budget reductions in future years as a result of the ongoing efficiency dividends and the need to fund pay rises for staff. In order to maintain business continuity under the NPC model, resources that would otherwise have been used for research and development activities were increasingly being diverted to meet operational needs.

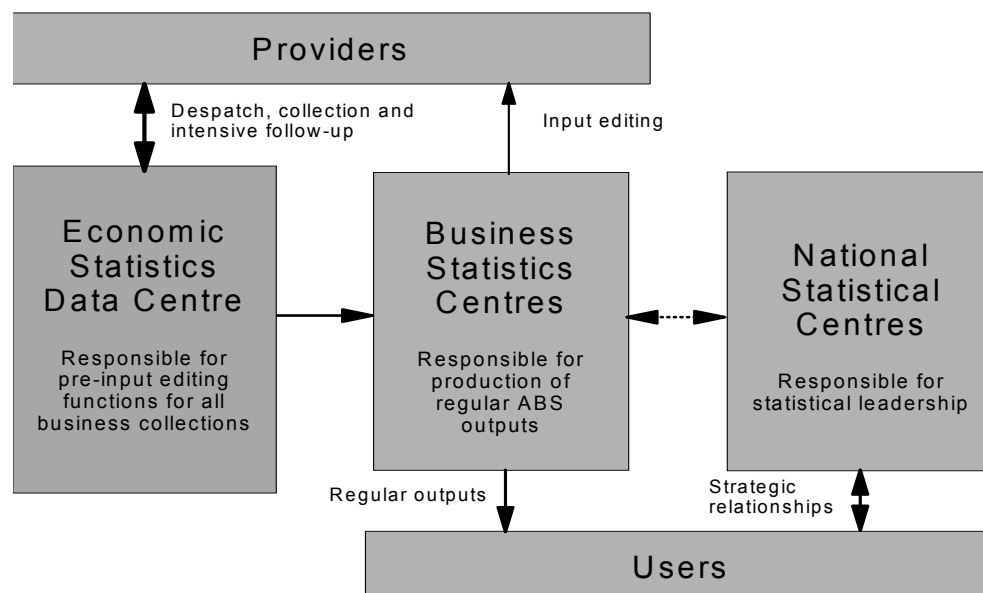
7. There was also some duplication of effort in Central Office with program management areas "shadowing" the NPCs, especially at the output production stage. Under the model each collection area or NPC had its own collection procedures and systems, which made the adoption of common applications, methods and standards more costly and difficult to implement. The need for greater integration and coherence between the national accounts statistics and the business statistics produced by the various NPCs was also a key driver for change.

8. ABS management recognised that ESG needed to: strengthen its statistical leadership capacity; leverage methodological and technological advances more effectively; improve productivity; and make efficiency gains to generate capacity for future pay rises for staff and to undertake new statistical work. This meant a fundamental change in the way business and economic statistics were to be produced.

The BSIP Model

9. The primary purpose of BSIP has been, through reorganisation and the use of innovative technologies and methodologies, to re-engineer ABS business statistics processes in order to improve the quality and relevance of ABS business and economic statistics in a manner that is most efficient for both the organisation and its providers. BSIP represents an evolution, and not a revolution, in the way the ABS produces business and economic statistics. It follows on from a number of major initiatives that have been introduced over many years. BSIP is helping position the ABS, in regard to its economic statistics program, for the foreseeable future.

Figure 1. The BSIP Model



Organisational and operational

10. The key organisational elements of the BSIP model include:

- a. an Economic Statistics Data Centre (ESDC) which provides a common, nationally managed environment for pre-input editing functions for all business collections;
- b. Business Statistics Centres (BSCs) which are responsible for editing data and the

production of regular ABS outputs, including analysis, as well as responsible for survey development. Unlike the previous NPCs, BSCs report directly to a Branch Head in Central Office. Most BSCs are located in Regional Offices; and

- c. National Statistical Centres (NSCs) which provide statistical leadership in a designated field of statistics and have a more strategic focus (e.g. international standards, future opportunities). In contrast to their previous modus operandi, these program units do not have management and control of the day to day operation of statistical collection and regular output activity. NSCs are expected to provide expertise in matters of policy, issues and developments in their field; have close links with relevant clients; influence matters affecting the development of statistics both within and outside the ABS; undertake complex analytical work; and contribute to the development of statistics in the national and international contexts. Most NSCs are located in Central Office.

11. Full implementation of the new organisational structure will result in:

- a. a reduction in staffing to affordable levels (at least by 134 staff years over 3 years);
- b. the elimination of duplication of effort between Central and Regional Office statistical activities;
- c. reduction in layers of management; and
- d. economies of scale through functional specialisation/centralisation.

12. The new organisational structure will also increase opportunities for staff, including:

- a. new career structures and opportunities;
- b. improved job design; and
- c. opportunities for development and learning with a new focus.

13. From an operational perspective, a key initiative will be to make greater use of administrative data, especially tax data, which will contribute to a reduction in provider load, improvements in quality, the development of new products, and greater operational efficiencies.

Technological and methodological

14. The main technological and methodological outcomes being sought through BSIP implementation include:

- a. developing systems and processes that will allow the ABS to more easily use both survey data and administrative data;
- b. expanding centralised forms handling capabilities to include all business collections;
- c. expanding the ESDC functions to include more sophisticated data capture (including electronic data capture), imaging, automated repair and automated coding;
- d. adopting methodologies based on significance for prioritising editing and intensive follow-up (IFU);
- e. adopting new estimation systems (e.g. automated imputation for partial non-response);
- f. expanding our collection options to include electronic and telephone data reporting (including the use of CATI);

- g. rationalising administrative data acquisition processes and systems;
- h. developing systematic quality assessment and assurance strategies for administrative and survey data;
- i. establishing an input data warehouse (IDW) that enables analysis of business processes, as well as analysis of final micro-level datasets, and an on-line amendment facility; and
- j. introducing a provider management framework to support improved management of, and relations with, our data providers.

15. Underpinning these technological and methodological initiatives will be a greater standardisation of systems and processes, which will better enable the introduction of improved and standard methodologies and technologies across the business statistics environment.

Current Status

16. The new structure has been formalised and is now largely in place. A number of surveys have also been transferred to run under the new arrangements with more transfers scheduled for the second half of 2004-05. By that stage, all targeted business collections should be operating in the new environment. Progress has been made against each of the main outcomes and the business continuity and statistical quality objectives have largely been met. The main developments have been:

- a. The establishment of the NSCs from existing resources. These centres will provide a sound platform for the ongoing development of economic statistics and should ensure that economic statistics remain relevant to users. Data collection and statistical output parts of the operations are being completed with fewer resources (an estimated AUD 1.8 million has been saved).
- b. The establishment of a working ESDC. While the ESDC is not working perfectly, the fact that many collections have been transferred to the new environment while business continuity has been maintained is a significant achievement.
- c. Within the new model the BSCs have taken on greater ownership of their outputs which has been a distinct positive. Linked to this is the reduction in management "shadowing" that existed under the previous model. The streamlining of operations in this regard is a clear success.
- d. A re-engineering platform has been established. Although work has not progressed as far as planned, given the size of the re-engineering effort, ESG now stands well placed to move forward. The development of the Input Data Warehouse (IDW) in particular represents a significant foundation for future re-engineering work.

17. People management issues are recognised as a significant area of risk, as would be expected given the extent of organisational change. To date, the management of staff changes has worked well but it is clear that some challenges remain ahead, with another 70 staff likely to be displaced in 2005. The establishment of the BSIP Human Resource Management Principles has been an important underpinning of work to date.

18. The most important success has been the ongoing commitment and support of staff through the change process. While some staff have been heavily affected by the changes, in general, there is continuing support for the move to BSIP despite the range of lower level operational issues that have arisen. However, in many cases the results that have been achieved have required significant efforts on the part of many staff. This is not sustainable on an ongoing basis. A concerted effort is being made by ESG management to improve staff opportunities over 2004-05 and a close watch is being kept on staff morale to ensure that BSIP objectives can still be achieved.

19. Despite progress on many fronts there are two areas which have emerged as critical aspects of the program. The first of these is the Provider Contact Unit (PCU) within the ESDC. This unit is at the centre of collection activity and successful completion of work in the PCU is critical to the completion of a successful survey. It is the PCU which has the closest links with providers and has very important links to the BSCs which compile the statistical outputs. Severing the close link that has existed between the BSCs and data providers has proved difficult. Although the PCU is notionally undertaking a standardised role this has not been easy to define at times. The staffing and location of the PCU has also been somewhat problematic. The workloads vary during the year and thus retaining knowledge of processes and the vagaries of particular collections is difficult. While progress continues to be made it is now very well understood that the success of BSIP will in large part be linked to the successful implementation of the PCU.

20. The other issue is the extent to which business processes need to be re-engineered. A key BSIP objective is to find operational efficiencies by streamlining the range of different technologies and practices that have developed over the years. Making progress in this area has been challenging. At present the development of standardised technical solutions to replace existing technologies are somewhat behind schedule. Finding the right balance of subject matter resources to target the development of critical systems will be important and it is recognised that many of these technical reengineering elements will take longer to implement than initially planned.

Work Remaining

21. Aside from continuing the process of implementing the organisational changes and associated human resource challenges, there are two main areas of work to be considered in the coming months. The first concerns dealing with the business process and methodological challenges that are central to the overall effectiveness of the program. We are developing an end-to-end (e2e) framework that requires substantial effort from all stakeholders within ESG and support areas. The e2e framework is aimed at ensuring all ESG processes follow basic principles which: encourage and facilitate innovation; streamline business processes; adopt leading practices; and generate ongoing operating efficiencies. Some of the main systems which will be part of the ESG e2e framework include the IDW, ABSEst (estimation) and telephone interview facilities. It is unlikely that this work will be completed in the remaining nine months of BSIP implementation. However, the e2e framework should be fully implemented during the 2005-06 financial year.

22. The second area concerns the development of Information Development Plans (IDPs). These plans are designed to collect and record information about particular areas of statistics in terms of what information is available, what users require, and how data gaps can be met through the work of the ABS or others. A full set of IDPs across ESG would provide a sound basis for making decisions about where resources are best targeted in satisfying user needs.

Key Challenges and Lessons

23. A key challenge for ESG during the implementation phase has been to ensure that staff commitment is maintained and that they have the skills to work effectively within the new environment. Implementing BSIP has put significant pressure on the staff involved. The types of skills sought in a change environment are quite different from those sought in a more stable environment. While some staff have skills suited to both, there are other staff that are unsuited to an environment involving large scale change or who are unable to operate at their best in more stable environments. Matching skills to the work required has been a significant challenge and has led to skill bottlenecks at both the beginning and towards the end of BSIP implementation.

24. The nature of such a large change requires project management on a scale we have not previously attempted. It is evident that there are too many projects within BSIP for the number of managers with relevant skills. Consequently, some projects which should have full time project managers have only part time managers. This is particularly an issue for those areas which are undergoing substantial organisational change but which are also required to produce regular statistical outputs. The size and nature of the program also means that there are many cross-cutting issues that require extensive stakeholder consultation. There is both an absolute and opportunity cost in trying to plan and manage too many of these issues at once. Yet failure to address the key ones raises major risks. Getting the right balance is not always evident at the time.

25. The second important challenge has been to try to contain the costs of integration. Over the past ten years ESG has become increasingly integrated. This is most evident from a statistical perspective in terms of the increased discussion between national accounts and source data areas about the nature and definition of data items and the general survey requirements. While of undoubted benefit, there is a cost in terms of effort required to ensure the integration is maintained. In an environment of decreasing staff numbers, meeting higher expectations in terms of integration is not straightforward. BSIP extends this sense of integration by bringing all collection areas within a single processing umbrella. While this should generate significant processing efficiencies, the cost of maintaining such an integrated collection structure should not be underestimated. This is particularly the case when one considers that the single umbrella is actually located in a number of different places under a range of cost centres. The move to functional specialisation has also increased certain risks. For example, now that all dispatch of forms occurs from one unit, failure of this unit to perform will impact on all collection areas. Technically, failure of the IDW under the new scenario would represent a similar critical problem. This is not to say that such risks were not present in the pre-BSIP environment, simply that much more hinges on particular organisational units now than in the past.

26. Another challenge has been the need to implement BSIP within geographical constraints. The geographical constraint has two dimensions: first, the ability to effectively organise processes when the staff involved are physically removed from each other; and second, the fact that the structure of the ABS means that the new structure is split across cost centres. While both constraints have existed for a long time, the push to find the most efficient systems and to implement the change in a short time frame means that geography places a significant degree of overhead on BSIP implementation and ongoing production of statistics.

27. Based on the work to date there are some important lessons that have been learnt:

- a. No external funding was sought for BSIP. The additional ABS funds allocated for BSIP

implementation has delayed implementation of other initiatives elsewhere in the ABS.

- b. ESG has been required to fund a significant proportion of the implementation costs. Many aspects of developing BSIP have been 'opportunity costed' within ESG. This has placed significant strain on the ESG budget.
- c. It is clear that system developments are essential to support the new business model especially in the ESDC, and it would have been better to have commenced systems re-engineering work before structural changes were introduced.
- d. Balancing the developmental aspects of BSIP against the need for business continuity has been challenging.
- e. Due to other non-BSIP organisational changes, managing gross staff dislocation has been more difficult than anticipated.

Impact on Balance of Payments and International Investment Position Statistics

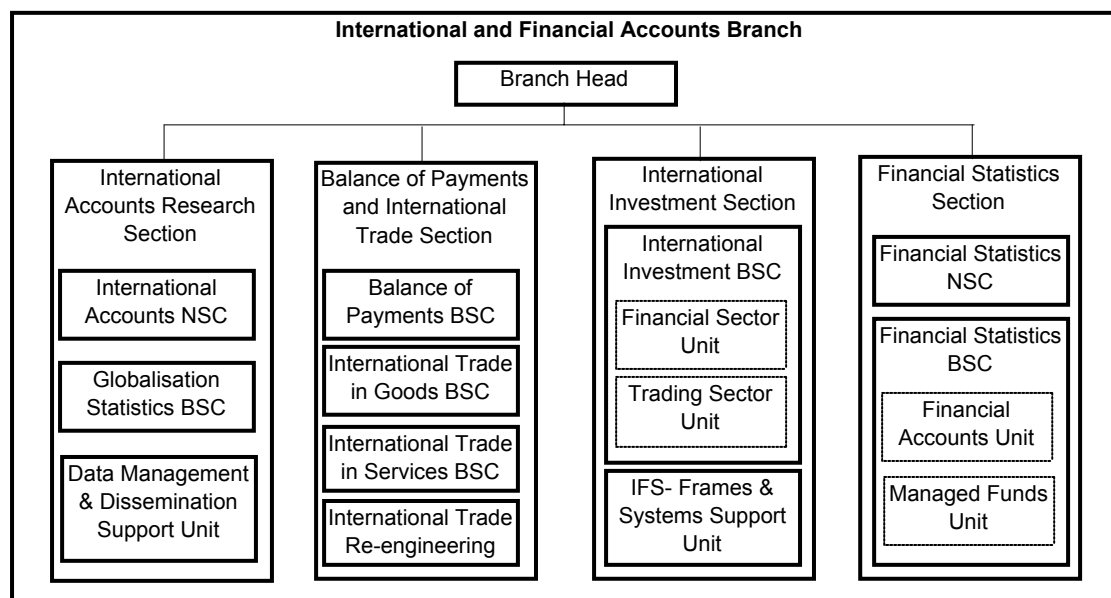
BSIP implementation

28. The International and Financial Accounts Branch (IFAB) collections were amongst the first to be moved to the BSIP model. The implementation of scheduled BSIP related changes over the past 18 months has been very challenging for the Branch and the ESDC, with significant impacts on staff and budgets. Importantly, business continuity has been maintained with all regular publications being released on time and within quality standards.

29. The BSIP changes included the transfer of: Survey of International Investment (SII) data capture and follow up for the March 2003 reference quarter and forms despatch for the June 2003 reference quarter; forms despatch, data entry and follow up for IFAB exploratory and benchmark collections, and the Survey of International Trade in Services (SITS) for the September 2003 reference quarter; data entry and follow up for the Survey of Financial Information for the December 2003 reference quarter and forms despatch for the March 2004 reference quarter; and IFAB forms design activities in December 2003. Forms design responsibility has been moved to the Collection Management Unit as have some of the frames maintenance functions. The only outstanding change is the move to using the Integrated Business Register directly, which will be implemented in early 2005 once a number of units issues are resolved.

30. Figure 2 shows the new structure of the Branch. With the transfer of ESDC functions, the Branch has been reorganised from five to four sections. Two NSCs have been created to provide statistical leadership for the Branch, as well as six BSCs. There are also two units that provide data management and dissemination, and frames management and systems support services for the rest of the Branch. The International Trade Re-engineering Unit is a special project unit that is responsible for the redevelopment of the international merchandise trade system, and will close down once the project is completed in early 2006.

Figure 2. New structure of IFAB under BSIP



Impact of BSIP

31. BSIP implementation is having a positive impact on the quality of BOP/IIP statistics. There were some reductions in survey response rates during the transition period which required higher levels of imputation than pre-BSIP. However, response rates have recovered to pre-BSIP levels and have actually exceeded these levels in the most recent quarters. The move to greater functional specialisation has also impacted positively on data quality, with more effort going into output editing and quality assurance.

32. A number of methodological changes have been or are being introduced. Redesign of the SII has been completed and work has commenced on redesigning SITS. Automated imputation for partial non-response has been implemented. Significance editing is in the process of being implemented. Work has commenced on developing systematic quality assessment and assurance strategies for administrative and survey data (including the use of the IMF DQAF).

33. There has been some improvement in provider relations, resulting in higher response rates. A small number of respondents that had not responded for several quarters are now responding on a reasonably regular basis. The introduction of significance IFU has reduced provider load and work is progressing (albeit slowly) on improving reporting mechanisms.

34. The establishment of the NSCs and BSCs has increased the capacity to respond to emerging statistical demand and provide stronger statistical leadership. Recent achievements have included:

- a. increasing analytical outputs, including the release of 11 feature articles and 3 technical notes;
- b. improving the content and presentation of international accounts publications and an expansion of information available electronically;
- c. improving the timeliness of international investment position statistics;
- d. increased availability of globalisation statistics; and

e. increased participation in the review of international BOP/IIP and national accounts standards.

35. As a result of dedicated NSC resources, work has resumed on the IFAB Information Development Plans, and the review of compilation methods and data sources for a number of current account components.

36. One of the main benefits of BSIP for IFAB has been systems re-engineering, with the move to standard corporate tools and applications. All regular publications are now produced using the corporate publishing software PPW. Substantial progress has been made on re-engineering business processes and developing the new system to support the collection and processing of international merchandise trade data, including the use of IDW. The system is expected to be fully operational in early 2006.

37. There has been a significant reduction (-15 percent) in staff numbers for the Branch over the past 18 months. Transfer of functions accounted for 8 staff, with a further 7 staff years in BSIP savings. The Branch has been able to maintain business continuity and the overall quality and timeliness of its outputs, despite the staff savings.

38. However, ESDC resource usage in undertaking IFAB collection functions in 2003-04 was around 20 percent higher than the costs incurred by the Branch pre-BSIP. Resource usage is expected to fall as ESDC staff become more familiar with IFAB collections and appropriate electronic data capture tools are implemented over 2004-05. However, a part of the increased costs reflects the fact that IFAB collections were not as integrated as other business collections pre-BSIP.

39. BSIP implementation did have an impact on job satisfaction and staff morale over 2003. While BSIP provides opportunities to improve job design and to focus more on analytical and conceptual developments, it was not possible to make as much progress on this front until recently as the priority has been on meeting release deadlines and implementing BSIP collection and function changes. Improving job design and job satisfaction is a high priority in 2004-05, and significant progress has been made in redesigning jobs and developing new training programs over the last nine months.

40. Overall, it is reasonable to conclude that BSIP implementation is having a positive impact on the quality of Australia's Balance of Payments and International Investment Position statistics.

International and Financial Accounts Branch
Australian Bureau of Statistics
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