The Australian perspective: The good, the bad and the ugly of the modernisation journey

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Introduction

In July 2015 the ABS was successful in receiving $257m over 5 years from Government to transform its statistical business. This journey started some three years earlier with the creation of a separate group charged with prosecuting the business case for transformation with government and reinvesting some of the organisations scare resources into priority statistical services, including e-forms for business surveys and better access to micro data.

The Statistical Business Transformation Program is part of a wider ABS transformation to help shift the organisation to a more professional services organisation, with greater emphasis on stakeholder engagement and partnerships, analysis and statistical solutions and communication.

There are a number of important features of the Program that has help it delivery in the short -term and will be critical to its longer-term success. Some of these include:
- the separation of the Program from the day to day delivery of the statistical business;
- a Board chaired by the Australian Statistician with independent external members;
- an enterprise architecture that drives enterprise wide solutions;
- clear measurable and prioritised objectives;
- commitment by business owners to the realisation of the benefits;
- early engagement of the statistical business in terms of solution design;
- designing for fit for purpose or minimum viable product not perfection;
- acquiring external expertise with respect to the discipline of Program Management;
- gaining commitment from the Statistical areas to provide some of the best people to work on the program;
- regular external reviews and an independent assurer reporting to the Board; and
- adopting an agile approach to increase the pace and help keep a focus on business and customer value.

An examination of what has been and is planned to be delivered will be presented, including those areas that have proven to be difficult and an ongoing challenge.

Confidence in statistics

It is critical that the ABS can provide governments, business and the community with statistics and data in which they can have confidence. It is important to ensure continued delivery of trusted, world-class statistics, and provide information required to drive innovation and to meet the information needs of today's dynamic economy and changing society.

The ABS currently maintains more than 500 systems through our many business areas. Some of our most critical IT infrastructure components are over 30 years old. One in three ICT applications have

been classed as unreliable, with issues occurring daily or weekly, putting critical statistical data at risk. Further, one in six applications are no longer supported by the vendor due to it being outdated technology.

A 2014 ABS assessment found that the current ICT infrastructure is highly vulnerable to failure and error, and the ability of ICT staff to maintain the existing systems is becoming increasingly compromised.

The Government investing AUD $250 million to transform the ABS' infrastructure, systems and processes to ensure that the ABS continues to provide statistics and data in which the community can have confidence.

Transforming Australia's statistical infrastructure

The ABS is transforming Australia's statistical infrastructure progressively over five years. The investment will deliver a modern infrastructure model that integrates and simplifies processes to improve our capability and responsiveness and drive innovation. The benefits include:

- more timely, high quality, secure data;
- new facilities, such as enhanced online portals and mobile applications, to give users of ABS statistics easier access to statistical information including richer web-based analytics and better micro-data access;
- user-friendly online forms for all surveys to significantly reduce red tape – the ABS will be able to ask fewer questions on its survey forms by designing forms that skip past questions that are not relevant to users (such as questions relating to childcare for people who have previously indicated they do not have children);
- greater use of big data and government administrative data in statistical production to provide new insights and reduce red tape; and
- introduction of a trusted whole of Government data integration capability for policy research, analysis and program evaluation to drive productivity in the public and private sectors.

Delivering new statistical infrastructure through industry partnerships

The Australian Government's investment will allow the ABS to transform its ageing infrastructure. The new infrastructure will make the best use of modern technologies to provide the statistical capabilities required for a 21st century national statistical office including:

- secure multi-modal collection of data from Australian business and the public - including via the web and mobile technology – as well as using government administrative data, and big data sources;
- better compilation methods, including improved automatic, machine learning and geospatial coding;
- enhanced visualisation and estimation modules, including an improved capability to measure the accuracy of data, conduct time-series and seasonal adjustment, and confidentialise private and sensitive data;
- the ability to create robust new statistics by modelling data, linking administrative and survey datasets, and extracting value from big data sources;
- improved customer relationship management to support our providers and users, including client and workforce management systems; and

- enhanced web content management capability to enable us to release dynamic statistical information to better meet user needs.

The ABS is working closely with the ICT industry to deliver this major transformation program. While some of the requirements can be met through existing off-the-shelf ICT products and services, the ABS will need to partner with ICT professionals to deliver new capabilities in niche areas.

STATISTICAL BUSINESS TRANSFORMATION

OBJECTIVES

The Statistical Business Transformation program is responsible for designing and developing the next generation of statistical business processes and supporting information infrastructure to provide a platform to reduce costs and burden on providers, bring together various datasets to develop new statistical products more rapidly, and make data available in a form which can be more easily used.

Program delivery design evolved from the application of an industry standard approach to re-engineering end-to-end business processes. This has produced five high level program components/streams supported by a dedicated program management function. The imperative to complete the program within five years requires some components to be delivered in parallel, which will require significant effort to prioritise activities effectively based on the sequencing of dependent projects.

OUTPUTS

The main components of the program are set out below.

Foundational Infrastructure

This will lay the platform for ABS business processes to be metadata driven from end-to-end, within a common data management framework. The application of standards based statistical information, in conjunction with the re-engineering of business processes, will greatly increase re-use and automation of end-to-end statistical processes to reduce the number of labour intensive manual tasks resulting from incompatibilities between systems and processes.

Re-engineering Design Phase

This phase focuses on gathering requirements and designing updated systems to: accommodate collection input from multiple sources, unit and aggregate capture, simple through to complex processing and analysis, flexible dissemination formats and tools; and enable end-to-end information management, standardised processes, corporate systems and applications.

Configuration and On-boarding

Two phases will be undertaken for this component of the program. The first phase is implementation planning, which is essential to ensure there is thorough and detailed planning of the roll out of Statistical Business Transformation program outputs with minimal disruption to business as usual activities and a successful transition to the new platform.

The second phase will transition people, processes, systems and data to the new information managed environment, supported by rigorous risk management strategies.

Program Management

This component will be supported by the Program Delivery Office which will provide centralised and coordinated program and project management support to ensure the successful delivery of the program.

DEVELOPMENTS

There are various development activities with overlapping timeframes, to be delivered up to 30 June 2020, including to:

- achieve benefits from transformation of household and business collection through improvements to the usability, functionality and editing capabilities of online forms
- further expand online reporting capability for business collections
- optimise the Monthly Population Survey online form and implement online reporting capability for other household surveys
- implement a new ABS data acquisition business model to harmonise business and household data collection and respondent interactions
- establish requirements for enterprise capabilities to meet data acquisition functions
- update dissemination infrastructure and systems to meet the needs of users in a rapidly changing digital environment, including facilitating re-use of ABS data by external clients and third party portals, while ensuring visibility of the ABS brand
- progressively implement Web Content Accessibility Guidelines 2.0 compliance and engage in APS networks on accessibility
- expand the range of ABS data available for customers to use through Application Programming Interfaces (APIs) - an open data approach for sharing content and data between communities and applications
- develop and implement a Metadata Registry and Repository to provide end-to-end management, registration, storage and re-use of ABS metadata
- develop and implement an Enterprise Data Management Environment to provide life cycle management of statistical data
- develop and implement a statistical workflow management system to facilitate the design, creation and orchestration of statistical processes
- develop and implement a Statistician's Workbench, which will allow staff to access the core infrastructure for the management of data and metadata.

LESSONS LEARNT

The importance of Architecture

The new approach relies on a number of architecture components which are largely new to the ABS and which require a discipline not historically enforced:

- Metadata driven architecture requires a shift in approach from hard-coded logic and manual intervention to a dynamic execution of business rules and work flows
- Service orientated architecture requires applications to be composed via the integration of separately maintained and deployed software components
- Generalised business processes which enable a standardised approach assembled through a workflow manager

The discipline of building enterprise wide solutions within this architecture is a cultural shift for the organisation. It requires a new approach and a new vision that statistical processes do not need to be bespoke, rather they can be created from a generalised set of processes and services.

The need for program management expertise

This transformation is a once in a generation exercise for the ABS, so it is not surprising that the organisation does not have all of the specialist skills required to support a successful program. This expertise is expensive but it is worth the cost. Experienced and talented people who have seen transformation programs through in other organisations are worth buying in.

An agile approach and swift decision making

The Agile approach helps teams respond to uncertainty through incremental, iterative work cadences and user feedback. By time-boxing development work it aims to prevent an overinvestment in the 'discovery' and 'development' phases. Accompanied by clear decision making practices – including delegating decision making to the right level – a more rapid pace of delivery can be achieved. And this pace of delivery is absolutely required.

The 'business' must be involved

The transformation work has been separated from business as usual in order to achieve the necessary focus and prevent the risk of always being pulled away to the urgent BAU work. This has been successful, however an effort does need to be made to continue to engage with the business through the development process. The most effective way this has occurred in the ABS is through assigning owners who work in the business and who will be responsible for the system/process/capability post transformation. This role comes along with an accountability for the acceptance into production for the longer term care of the piece of infrastructure.

CONCLUSION

The ABS is two years into a five year modernization program. While the program is currently on track, the program is extremely challenging and requires new ways of operating with a level of complexity and uncertainty beyond which the organization typically operates. It will only be successful if the deep knowledge of the statistical business which exists within the NSO can be effectively combined with the skills of external experts who are experienced in this type of transformation, and if the new ways of operating can be adopted by the organization.