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Efficient approaches for the census in a time of increasing financial constraints

Transformation of Australian People Statistics

Note by the Australian Bureau of Statistics¹

Summary

Australian Bureau of Statistics (ABS) has embarked on a major transformation of the social and people statistics system, including the Census. This transformation is centred around the application of a statistical solution or user-centric rather than a statistical collection view, in order to create greater alignment between the statistical program and information needs. This transformation will lead to a reconsideration of the design, frequency and role of the 2021 Census of Population and Housing.

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I. Introduction

1. In early 2014, the ABS established a project to design a cost-effective approach for the acquisition and subsequent use of data to underpin high quality population and social statistics to meet contemporary and future needs in Australia.
2. This project was established in response to increasing concerns around the sustainability of the ABS household survey program (both in terms of fiscal viability and relevance), the unrealised holistic potential of Census and administrative data, and the constrained ability to effectively meet user needs for agile and responsive statistical solutions.

II. Background

3. Since the 1960s, ABS population and social statistics have been essentially underpinned by a combination of a 5-yearly population Census, a program of varied, independently run population surveys, and various packages of administrative data acquired from government sources for specific applications.
4. The approach to producing population and social statistics has evolved in incremental steps over this time, however the broad paradigm has remained largely unchanged.
5. Distinct features of the current approach include:
 - A dominance of directly collected data underpinning the statistical outputs, with relatively small leverage of external data;
 - A general one-to-one relationship between data collections and their outputs, with relatively little interaction between collections to produce outputs;
 - A population Census and survey program which are largely independent from each other in their approach and role in providing statistical solutions for population and social statistics; and
 - An largely unintegrated population survey program, consisting of a suite of independent surveys run at various frequencies
6. Over time the statistical environment has continued to change rapidly, with a proliferation of externally available data and greatly enhanced data capture, storage and processing technologies.
7. The project's purpose was to provide important direction for the organisation within the context of a broader transformation initiative, the Statistical Business Transformation Program. In particular it supplies the organisational vision and approach to producing population and social statistics to ensure the ABS capitalises on investments in new statistical infrastructure.

III. Strategic Outcomes

8. Reengineering the population and social statistics program aims to deliver four strategic outcomes:

- Higher quality statistics (across the range of quality dimensions: relevance, timeliness, accuracy, coherence, interpretability, accessibility) for policy development, delivery and evaluation.
- Increased capability to be more responsive and flexible to information needs.
- Improved measurement of outcomes for populations of interest, and key lifecycle transitions and pathways (including through a greater capability for longitudinal analysis).
- Long-term sustainability of the ABS population and social statistics work program.

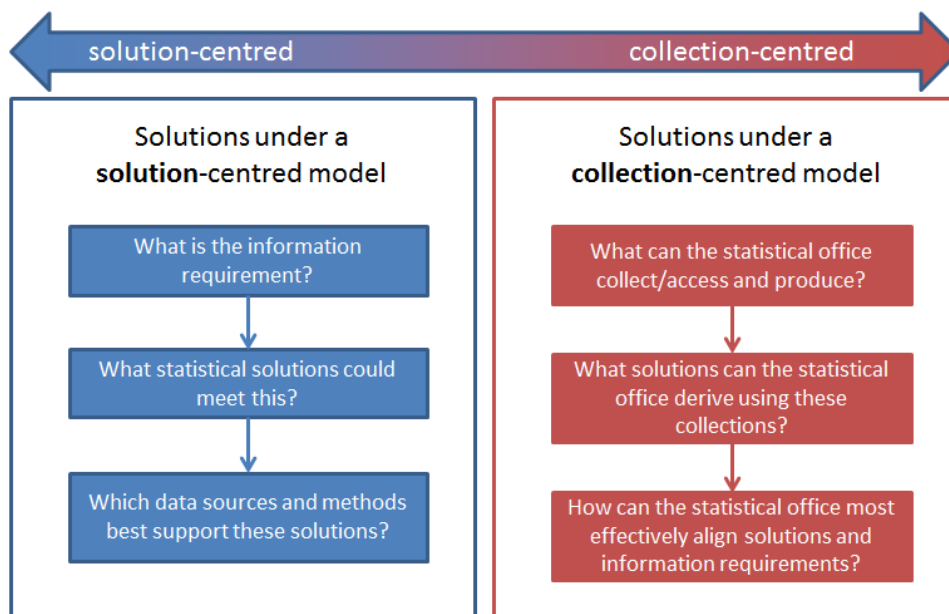
IV. A new paradigm

9. This project identified the need for a shift in paradigm for the ABS, a shift from taking a traditional collection focus to our statistical program towards a new solutions focus.

10. Under the traditional collection-centred model, the ABS would commence by looking inwards at what the ABS can collect, access or produce, and then look at how this could be leveraged to meet the actual information requirements. This anchored the organisation in current and traditional approaches, and provided no guarantees that an information requirement would be met. Under the proposed solution-centred model we start with an outward focus of considering the information requirements, and then look at what solutions can meet this need.

11. The change to a solution-orientation will be characterised by an increased focus on information requirements rather than statistical collections. It will introduce a greater appetite for multi-source rather than single-source statistics, and will shift the organisation's value proposition more towards statistical leadership rather than information supply. The national statistical organisation will be more defined by its value add activities in analysing and interpreting data rather than by its infrastructure and collection management capabilities.

12. The diagram below provides a simple comparison between solution-centred and collection-centred models -



V. Key Changes

13. This change in paradigm and new approach to social and population statistics will be achieved through four parallel streams of work.

Transforming Statistical Leadership of People Statistics

14. The ABS will develop a holistic information requirements register to systematically identify current and emerging requirements, rather than taking a subject matter (e.g. Health, Disability or Education) by subject matter approach.

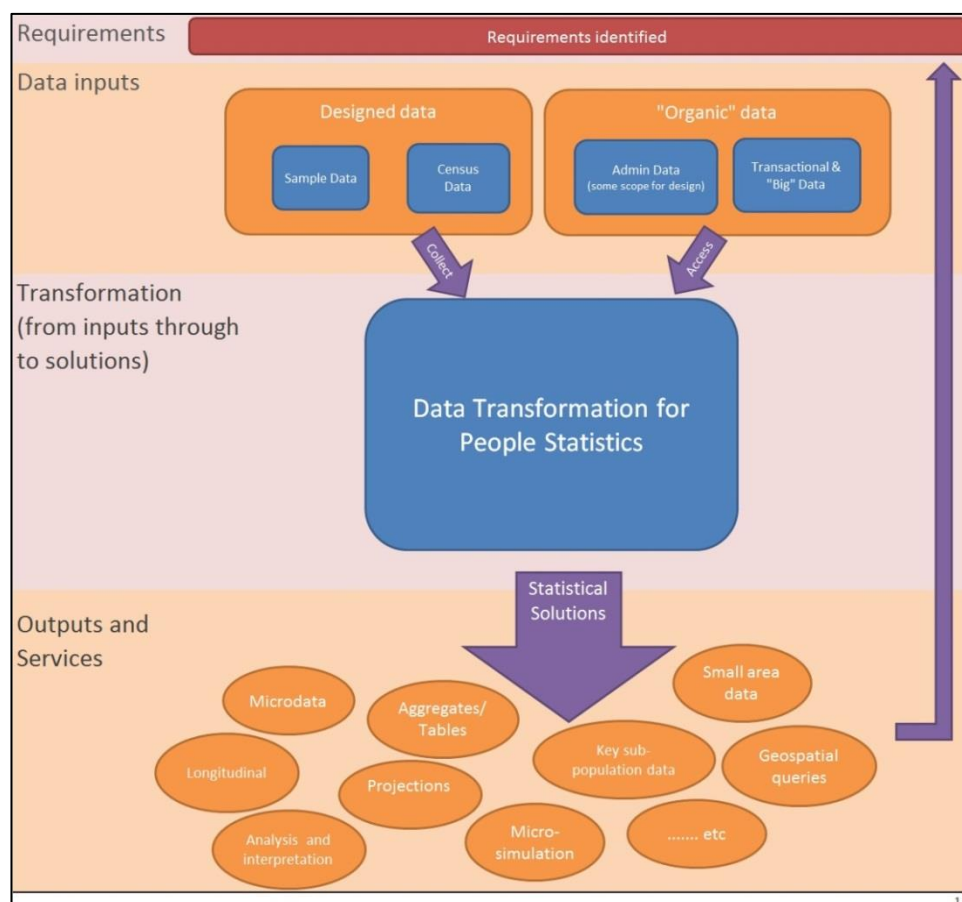
15. This register will be used as the basis for determining the design of the ABS statistical program, and ensuring the alignment of this program to maximise delivery against information requirements.

Transformed statistical solutions

16. The ABS will increase the prominence of a variety of different statistical methods, in addition to the default of tabular aggregate outputs produced through direct estimates, in order to produce a greater number and variety of statistical solutions. The use of new statistical methods is aimed at ensuring that the variety of solutions available can better meet other dimensions of quality, such as relevance and timeliness, rather than focussing only on accuracy.

17. New statistical methods will aim to maximise the effective use of all forms of data, and the value of using different forms together (i.e. multi-source solutions combining both 'designed data' and 'organic data'). These methods will utilise approaches such as two-phase continuous data collection, data pooling, data integration, small domain estimation, microsimulation, longitudinal analysis and model-based methods.

18. The following diagram shows a simple representation of the new model:



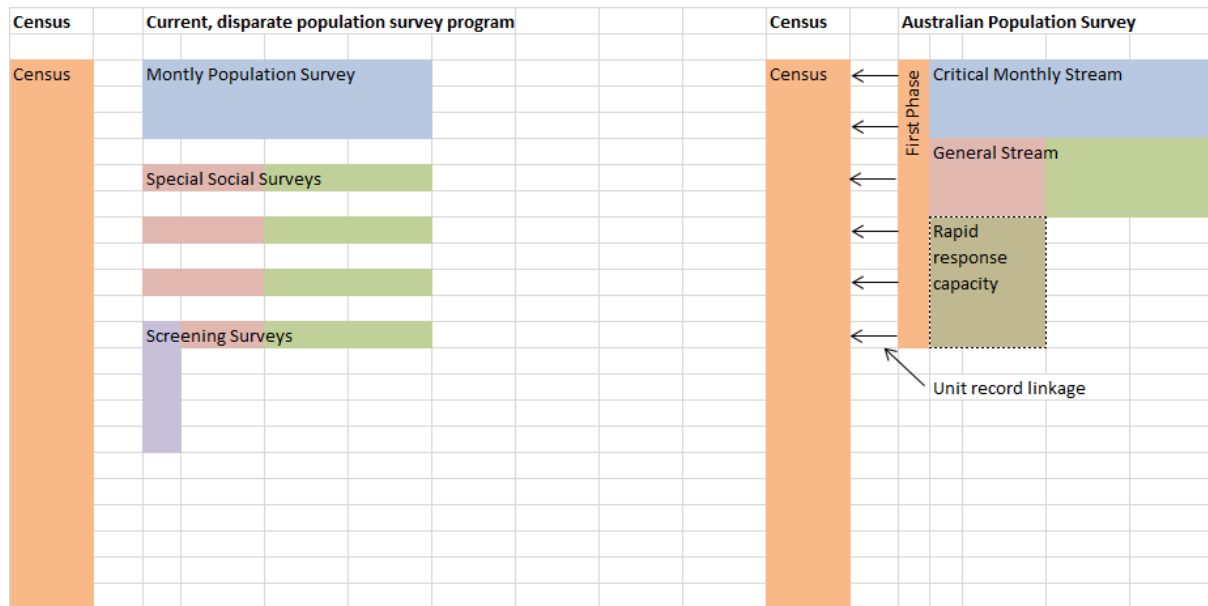
Implement an integrated household survey

19. The ABS will design and implement an efficient end-to-end statistical business process for a single integrated, continuous household survey, rather than the current disparate program of individual surveys.

20. The integrated household survey would favour continuous over “point in time” measurements, and support the use of data pooling to provide greater detail on populations of interest using rolling averages. The integrated survey would have a two-phase design to support sample sequencing efficiency and effectiveness, together with delivering major estimation gains.

21. The integrated household survey would look to maximise the effective use of self-enumeration collection, delivering increasing efficiencies over time (and supporting the goal of multi-modal flexibility). The data collected from the survey would be integrated with both the Census and population-based administrative data to provide longitudinal insights, as well as supporting new statistical solutions.

22. A large number of households will be approached for the first phase survey every month, with a sample of the first phase then channelled into more detailed second phase surveys on both a random basis and based on first phase responses. First phase respondents that are not utilised in the second phase will be made available to support rapid response to new data requirements, with the intention of being able to deliver a 13 week turnaround from request to data delivery.



Focus on administrative data and big data opportunities

23. ABS will develop statistical frameworks and identify key opportunities for maximising use of administrative and big data. This will involve partnering with stakeholders to share government data and maximise whole-of-government benefit for policy research.

24. The intention is to elevate the role of administrative data and prominence of administrative data based official statistics.

VI. What does this mean for the Australian Census?

25. The ABS is embarking on a significant and ambitious transformation of its organisation and its statistical program. Whilst the desired outcomes of the transformation are clear, and the process that the ABS will follow mapped out, the destination is not yet defined.

26. In relation to the Census in Australia, the collection-centred model has meant that we traditionally started with the assumption that a five yearly, full long-form Census will be conducted – and then consideration is given to how this collection can be best leveraged to meet information requirements and provide public value.

27. Major innovation in the 2016 cycle has significantly transformed how *we conduct a Census in Australia*, with the Census more efficient and more effective than ever before, but has done little to answer the *why we conduct a Census in Australia* or to introduce a whole of system view of the Census.

28. For Census 2021 and beyond, the ABS will take a holistic national view of the social and population statistics needs in terms of the range, detail, accuracy and timeliness of information requirements and then weigh up the relative merits of different methods and sources that could meet these needs. Through this exercise a design for a Census, if required, will be formed to be part of the answer and not just retro-fitted to a range of problems.