

September 2009

Analytical Services Branch: Highlights of the 2009-10 Forward Work Program

The ABS Analytical Community was established in mid-2007, through the creation and collaboration of the three analysis branches in the Bureau: Analytical Services Branch, the Economic Analysis and Reporting Branch, and the Social Analysis and Reporting Branch. The aim of the Community is to undertake methodological and applied policy-relevant analysis in order to enhance the value-add of ABS data and products.

The analysis work program for 2009-10 has recently been finalised, following extensive consultation within and outside of the ABS. The Analytical Services Branch, which is based in the Methodology and Data Management Division, undertakes predominantly methodological analysis work and has staff with a strong skill set in statistics, mathematics and econometrics.

Highlights of the 2009-10 Analytical Services Branch forward work program include the following:

- a focus on maximising the use of data
 - data pooling methods and applications to improve stability of survey estimates
 - small area estimation methods development and applications
 - data linking of Census and deaths data to improve mortality estimates
 - cohort analysis (combining several waves of National Health Survey data)
- developing a better understanding of administrative data
 - undertaking an assessment of how the ABS uses taxation data and opportunities to enhance tax data usage
- exploring social issues
 - ways of estimating homelessness using Centre-link data and ABS Census data.
 - participating in a study to analyse how community level factors influence early childhood development outcomes.
 - preparing for SEIFA 2011.

The 2009-10 analysis forward work program was compiled through a process of internal and external user consultation, including seeking advice from an external analysis reference group comprised of senior representatives from a range of Government agencies, as well as the academic sector.

The ABS remains committed to undertaking relevant and high quality analysis to better inform Government and community decision-making.

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ABS Collaborates with UNSW to Tackle the Tough Problems of Productivity Measurement

Productivity is regarded as a key driver of economic growth, and indexes of productivity are used for a range of policy and government decision-making purposes. However, measurement problems persist in the area of productivity, and are likely to become exacerbated over time with the development of new goods and services.

The ABS has launched a research collaboration with the University of New South Wales (UNSW), through Professor Kevin Fox, and the Productivity Commission (PC) to explore complex problems in productivity measurement. Based on an Australian Research Council (ARC) Linkage Grant, the objectives of the project are to research some difficult areas of productivity measurement and interpretation, namely, the role of public sector infrastructure, service industry price and volume measurement, and the treatment of research and development expenditures. All three of these areas are of direct relevance and importance to the ABS in measuring GDP, CPI, the compilation of the National Accounts, as well as other key economic indicators.

The Methodology and Data Management Division, together with the National Accounts Branch, the Prices Branch and the Economic Analysis and Reporting Branch, form the core of ABS participation in the research project. The project will continue for five years, during which time the ABS will be an active contributor in terms of supporting the research, analysis and the development of methods that can be used to enhance key ABS economic outputs.

For more information about the project, contact Ruel Abello on (02) 6252 6307 or ruel.abello@abs.gov.au.

Development of Standards for Computer Assisted Self Interviewing

The Data Collection Methodology (DCM) section in MDMD has recently developed standards for Computer Assisted Self Interviewing (CASI) and Audio Computer Assisted Self Interviewing (ACASI). CASI is a mode of data collection that involves the respondent recording their responses to survey questions provided by a computer, on the computer. ACASI is a related mode of data collection that involves the respondent listening to questions through headphones, and recording answers via the computer interface.

These data collection modes have a number of benefits for gaining more accurate data from special populations, such as children and those with poor literacy. CASI enables children to engage with the survey through interactive graphics and audio facilities. For those with limited literacy, ACASI allows respondents to listen to the questions, and use a microphone to record answers without the assistance of the interviewer.

These modes can be beneficial for asking questions on sensitive topics, because they ensure a level of privacy that face-to-face interviewing does not have. CASI and ACASI have been used internationally for researching sensitive topics such as drug use, sexual behaviour and personal health issues. Due to their capacity to ensure a high level of privacy and minimise the effects of social desirability, the use of these modes can reduce the level of non-response or inaccurate information elicited. Consequently, this has the potential to reduce non-sampling error and improve data quality.

DCM's CASI/ACASI standards were developed as a result of reviewing international research and literature on innovative and best practice CASI/ACASI approaches. It is likely that the standards will continue to evolve based on future ABS experience in CASI/ACASI. Some of the key topics covered in the standards include design and layout, functionality, recorded voice guidelines, the interviewer's role in the process and guidelines for interviewing children through CASI/ACASI.

DCM's research into CASI/ACASI also has implications for other areas of our work. Through our research we have become more cognisant of the issues surrounding electronic modes of data collection in general, thus giving us greater insight into the design of best practice web forms for household surveys.

For more information, please contact Chloe Groves on 03 9615 7477 or chloe.groves@abs.gov.au.

Modelling Probability of Response in ABS Household Surveys

The Operations Research Unit (ORU) has conducted a study to look at the effects of area characteristics, household characteristics, interviewer characteristics and survey design features on response rates, by modelling the probability of response using paradata

from the ABS Monthly Population Survey (MPS). This study is part of the work on developing a non-response framework for ABS household surveys (an article on this framework was published in the December 2008 edition of Methodological News).

The recent availability of paradata (i.e. data about the process) from ABS surveys allows the analysis of a richer set of information about statistical data collection activities, which can then be used to help make informed decisions about operational efficiencies. The ORU developed a logistic regression model based on interviewer call record data to predict the likelihood of response at each call. The model can be used to identify improvements to follow-up strategies of non-respondents. For example, results from the model can be used to design effective and efficient interviewer calling strategies.

Our research included households selected in the MPS during September to December 2007 (our model was tested on January and February 2008 MPS data). The MPS is conducted by face-to-face and telephone interviewing and the available paradata included records of calls (such as, day and time of call and the outcome of the call) and information about the interviewers making those calls.

A household was considered to have responded if it was a fully responding household. Probabilities of response were modelled separately for face-to-face households, telephone interview households and combined face-to-face and telephone interview households and for initial and follow-up workloads. The factors found to have a significant effect on the probability of response were state/territory, region (met/ex-met), whether the household was first month in sample, nth call attempt, workload size, age of interviewer, interviewer experience, interviewer performance (previous individual response rate), day of call and time of call.

Findings from our response model indicate that:

- in initial face-to-face workloads, households in all states/territories (except for ACT) are more likely to respond than households in NSW;
- higher performing interviewers (i.e. higher individual response rates) are more likely to obtain a response than lower performing interviewers;
- Monday is the most successful day in obtaining a response;
- the best time for the second call is a weekday morning, regardless of the time of the first call; and
- while interviewers seem to make the majority of their calls in the afternoon, the highest response probabilities can be found for morning calls during weekdays and for afternoon calls during weekends.

Our research has given us a better understanding of the relationship between operational procedures and response rates. Our aim now is to understand how changes in operational procedures will impact on costs, response rates and the quality of survey outputs, so as to lead to making informed decisions about operational efficiencies.

For further information, please contact Rosslyn Starick on (03) 9615 705 or rosslyn.starick@abs.gov.au.

Attendance at the 2009 Small Area Estimation Conference in Elche, Spain

The 2009 Conference on Small Area Estimation (SAE2009) was held in the historic Spanish town of Elche on 29 June - 1 July 2009. The small area estimation conferences are run biannually with SAE2009 being the third. Janice Scealy (ABS/ANU) and Daniel Elazar (ABS) attended the conference. The goals of these conferences are to provide an international forum for discussing the latest theoretical and methodological developments in SAE as well as applications of SAE methods in research and official statistics. There were 105 delegates to SAE2009 representing a good blend of academic and official statisticians.

The conference programme included sessions on SAE in Official Statistics, Small Area Estimation for Business Surveys, Poverty Mapping, Spatial and Temporal Methods, and Robust and Non Parametric Methods in SAE. Daniel Elazar presented a paper on Small Area Estimates of Labour Force Status in Australia, while Janice Scealy gave a paper on the use of multinomial logit mixed model with category specific random effects.

There were several interesting talks, including the plenary session given by Prof Malay Ghosh, on benchmarking small area estimates to available totals, whether they be survey estimates at a state or broader regional level (internal) or relevant administrative data counts not used in the small area model (external). Dr Pedro Silva, who is on sabbatical to the University of Southampton, gave an illuminating talk on an assessment of poverty mapping procedures used by the World Bank with application to household income in Brazil. Dr Li Chun Zhang, from Statistics Norway, gave a talk on statistical issues in accounting for stochastic error in administrative data sources when compiling small area estimates directly from administrative sources.

One of the last sessions was a panel discussion on future directions in research and applications of small area estimation. Two major small area projects have recently commenced in the European Union. The first is the Small Area Methods Poverty and Living Conditions Estimates (SAMPLE) which is a collaboration of universities in Italy, Spain and the UK. The second project is called Advanced Methodology for Methods for European Laeken Indicators (AMELI) and is a collaboration between universities in Germany, Switzerland, Austria, Finland, Slovenia and Estonia. One of the main objectives of AMELI is to produce standard regional indicators on poverty and social exclusion.

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How to Contact Us and Subscriber Emailing List

The Methodological Newsletter features articles and developments in relation to work done within the ABS Methodology and Data Management Division. By its nature, the work of the Division brings it into contact with virtually every other area of the ABS. Because of this, the newsletter is a way of letting all areas of the ABS know of some of the issues we are working on and help information flow. We hope the Methodological Newsletter is useful and we welcome comments.

If you would like to be placed on our electronic mailing list, please contact:

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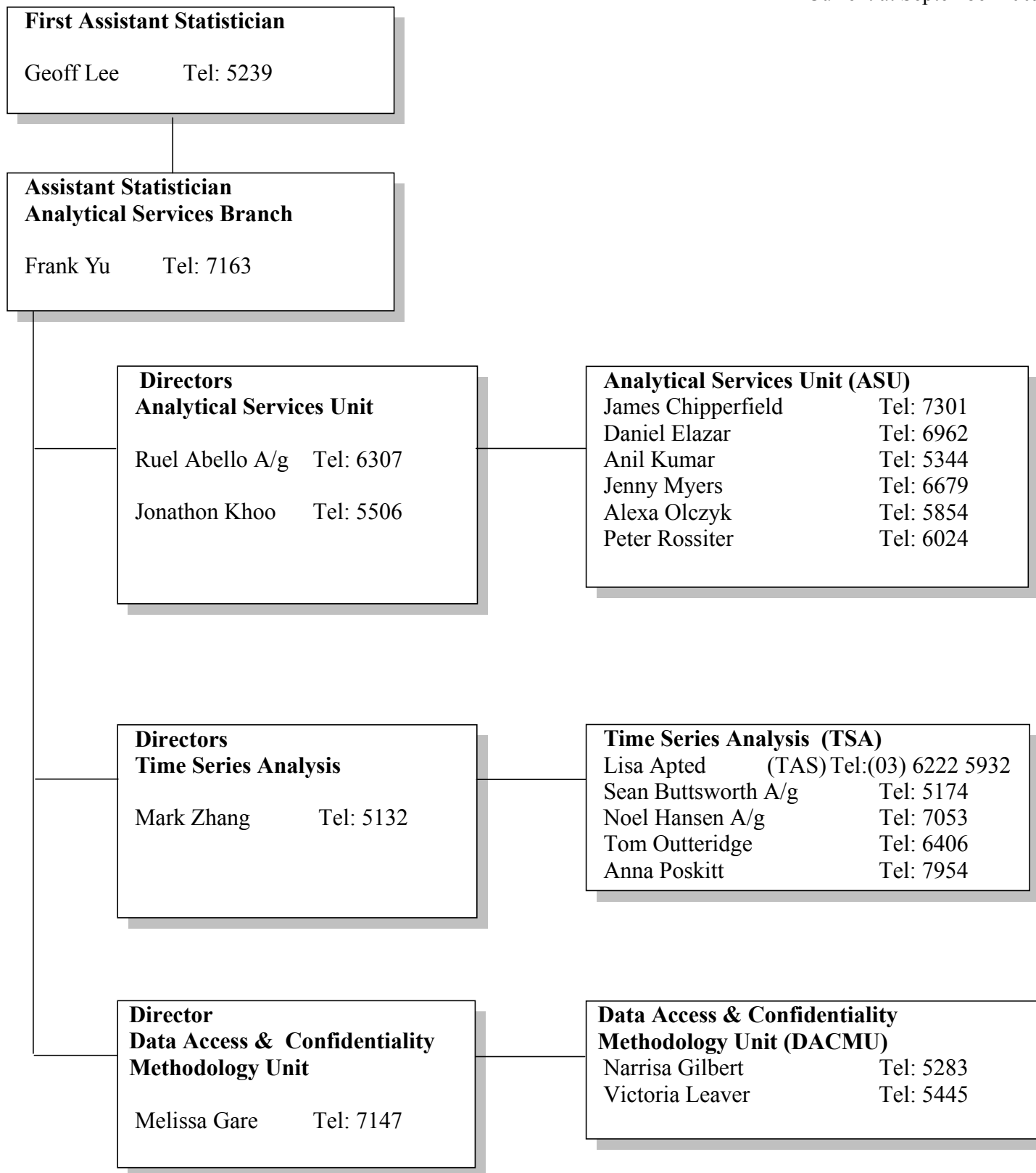
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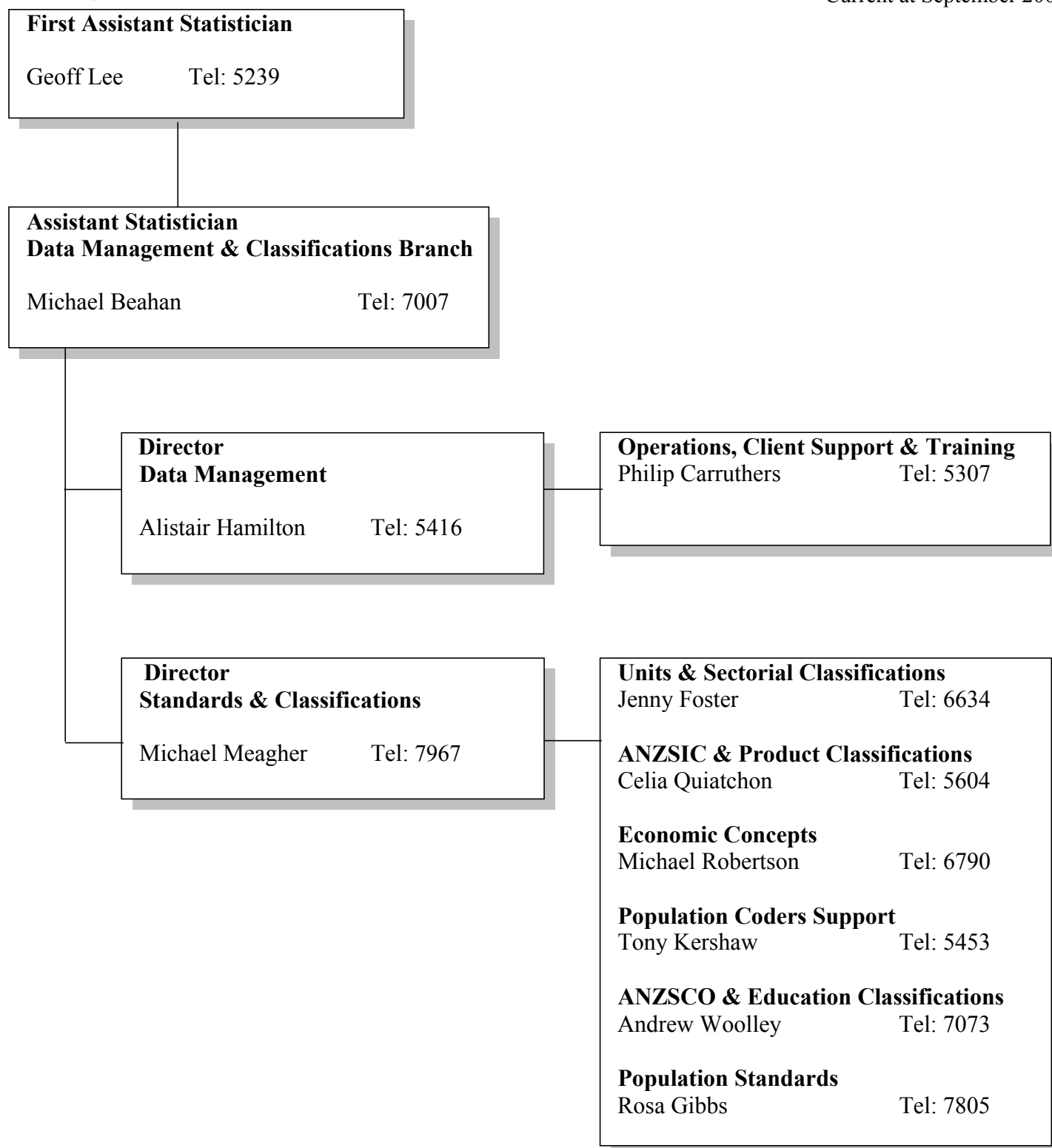
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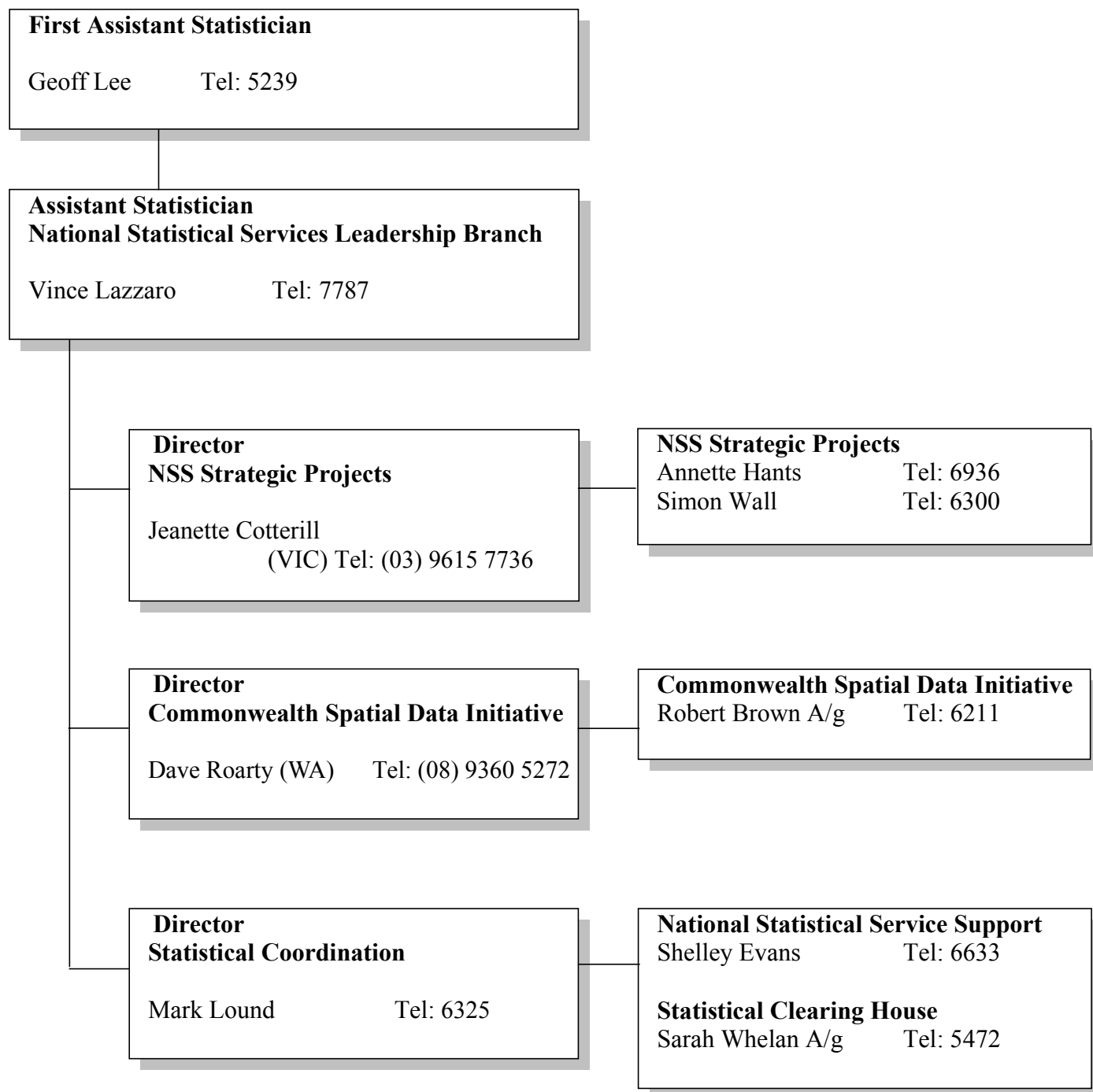
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