

Regional Training Course on Communication and Advocacy for Agriculture and Rural Statistics

27 June – 1 July 2016
Daejeon, Republic of Korea

Session 1.4 Generic Statistical Capability Framework



Objectives of the presentation

Introduce the Generic Statistical
Capability Framework (GSCF)

Understand how the
framework has been developed

Review the capabilities needed
to use statistics

Generic Statistical Capability Framework

Developed by the Australian Bureau of Statistics (ABS)

Why?

- Statistical capability vital to most professions, but what is statistical capability?



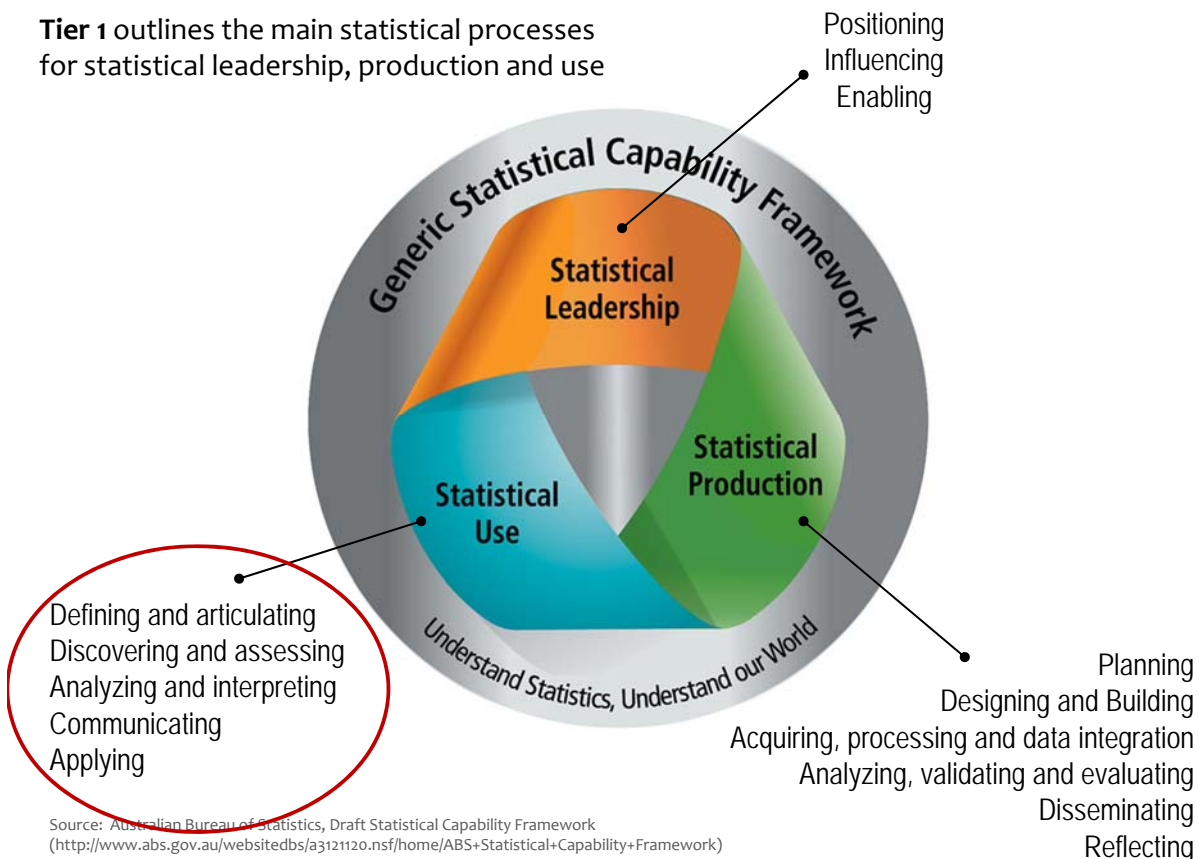
GSCF is a framework that provides:

- Consistent understanding of statistical capability
- Common language to describe statistical skills
- Enable discussions around capability needs and capacity development

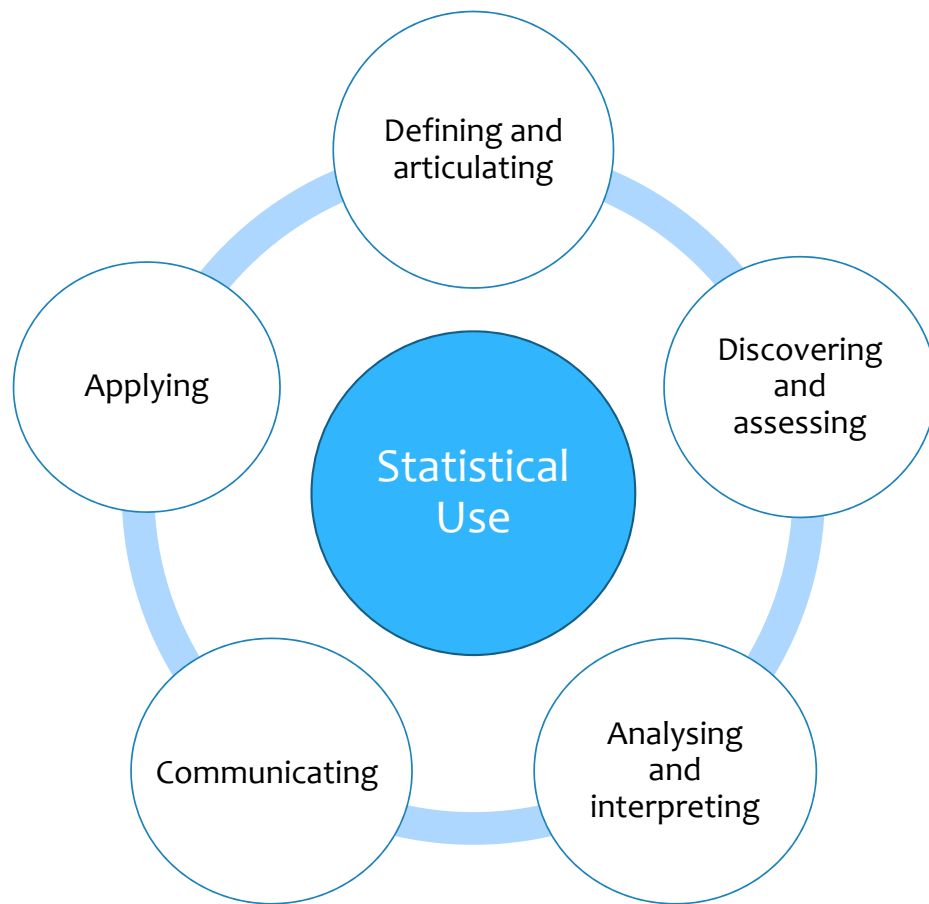
Source: Australian Bureau of Statistics, Draft Statistical Capability Framework
(<http://www.abs.gov.au/websitedbs/a3121120.nsf/home/ABS+Statistical+Capability+Framework>)



Tier 1 outlines the main statistical processes for statistical leadership, production and use

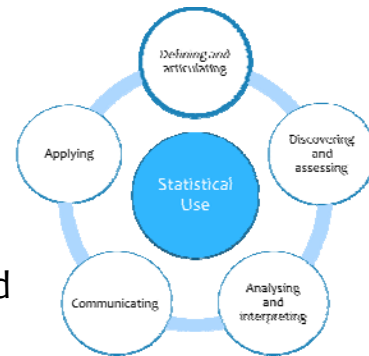


Source: Australian Bureau of Statistics, Draft Statistical Capability Framework
(<http://www.abs.gov.au/websitedbs/a3121120.nsf/home/ABS+Statistical+Capability+Framework>)



Criteria 1: Defining and articulating

- Clearly articulate the aim and purpose of the policy need
- Clearly articulate the scope of data needed (population, geography and time period)
- Formulate research questions as a basis for data analysis

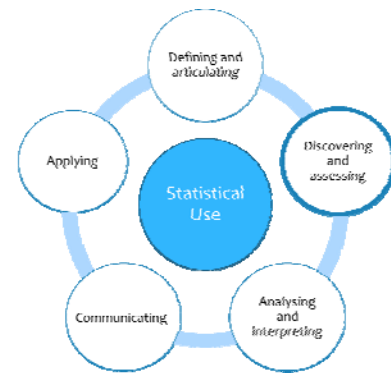


For example:

- a) The consumption of meat is increasing in Country X. The National Planning unit needs to know whether enough fish and meat is being produced locally versus imports so it can measure exposure to risk of food insecurity...

Criteria 2: Discovering and Assessing

- Able to locate relevant information and:
 - Understand how sources differ
 - Assess ability for data to be linked
 - Assess the quality of data to determine it is ‘fit-for-purpose’



Data needs have been identified

Find suitable data and information to address data needs

“Fitness for purpose”

Criteria 2: Discovering and Assessing

Criteria that determine “fitness for purpose”

Criteria	Remarks
Institutional environment	Institutional environment within which the data are collected and processed
Relevance	Degree to which the data meet real needs
Accuracy	How correctly the data describe the phenomena they were designed to measure
Timeliness	Delay between the reference point and when the data become available

Australian Bureau of Statistics (2008). Data Fitness: A Guide to Keeping your data in good shape, National Statistical Service, Canberra

Criteria 2: Discovering and Assessing

Criteria that determine “fitness for purpose”

Criteria	Remarks
Accessibility	Ease with which the data can be accessed, including suitability of the form information is in
Interpretability	Availability of supplementary information and metadata and the way data are presented to facilitate correct interpretation
Coherence	Degree to which data can be successfully brought together with other statistical information and are comparable over time

Australian Bureau of Statistics (2008). Data Fitness: A Guide to Keeping your data in good shape, National Statistical Service, Canberra

Make it easy to discover and assess
agriculture and rural statistics

What can data producers do?

1. Promote statistics through **many channels**
2. Publish a **work program** and **release calendar**
3. Provide a **well-organised** and **useable web site**
4. Participate and represent statistics at **events**
5. Have a **quality framework** and assessment tool
6. Provide **explanatory notes** and information
7. Understand their users
8. Work together

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Home » 2013 Agriculture and Fisheries primer

Primer on 2012 Census of Agriculture and Fisheries

Release Date: Saturday, January 12, 2013

What is the Census of Agriculture and Fisheries?

of basic information on the agriculture and fishery sector in the country. The collected data will constitute the bases from which our policy makers and planners will evolve plans for the country's development.

What agency is responsible?
What is the legal basis?

for Other Purposes), as the sole agency to undertake the Census of Agriculture and Fisheries. Furthermore, EO No. 352 (Designation of Statistical Activities that will Generate Critical Data for Decision-making of the Government and the Private Sector) provides for the conduct of CAF every 10 years.

How many have been undertaken so far?

The collection of data on agriculture and fisheries establishments was included in the Census of Establishments (CE) in 1903, 1918, 1939, and 1948. However, in 1960, the Census of Agriculture was undertaken separately from CE. Since 1970, and every ten years thereafter, the Census of Agriculture has been conducted together with the Census of Fisheries. These two census activities are collectively known as Census of Agriculture and Fisheries (CAF). The 2012 CAF will be the sixth of a series of decennial census on agriculture and the fifth on fisheries in the country.

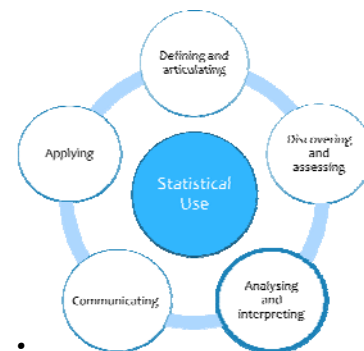
How essential is the census to our national development?

Agriculture remains as an important sector of the Philippine economy as it provided 33 percent of the total employment (NSO, April 2012 Labor Force Survey). The total agro-based products accounted for 7.1% of the total exports of the Philippines in April 2012 (NSO, Foreign Trade Statistics). About 12.5% of the gross domestic product in the first quarter of 2012 came from the agriculture, hunting, fishery and forestry industries (NSCB, 1st Quarter 2012 National Accounts).

Source: <http://webo.psa.gov.ph/content/primer-2012-census-agriculture-and-fisheries>

Criteria 3: Analysing and interpreting

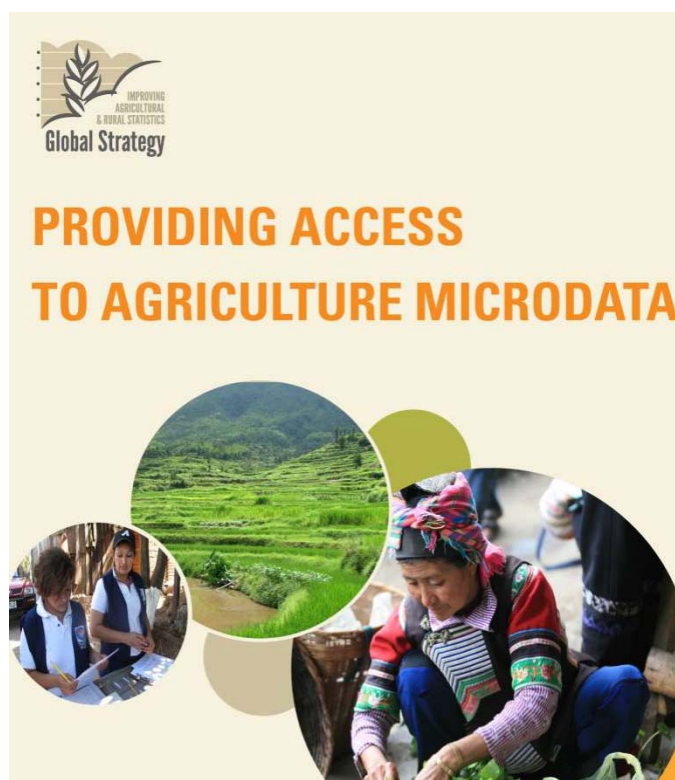
- **Understand statistical models and classifications**
- **Understand and apply data analysis techniques**
 - Link or integrate sources
 - Visualize data in tables, graphs, maps
 - Identify features and patterns
 - Measure variables over time and between sub-groups
- **Form conclusions, findings and recommendations**
- **Find and use metadata to ensure interpretation is appropriate**
- **Use data quality measures to explain risk of errors**



Helping users analyse and interpret data correctly

What can data producers do?

1. Disseminate microdata and data in electronic format
2. Provide detailed metadata
3. Have a permissible copyright license (e.g. Creative Commons)
4. Provide analysis tools and training
5. Develop partnerships with research institutions and academia



Australian Bureau of Statistics

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Understanding statistics

Statistical Language

Statistical Language helps you to understand a range of statistical concepts and terms with simple explanations.

Find concept definitions:

Statistical Language Glossary

Explore a concept:

- What are Data?**
 - Data unit
 - Data item (variable)
 - Observation
 - Dataset
- Quantitative and Qualitative Data**
 - Quantitative data
 - Qualitative data
- What are Variables?**
 - Variable (data item)
 - Numeric
 - Continuous
 - Discrete
 - Categorical
 - Ordinal
 - Nominal
- What is a Population?**
 - Population
- Census and Sample**
 - Census
 - Sample
 - Random (probability) sample
 - Non-random (non-probability) sample
- Data Sources**
 - Direct/Primary data
 - Survey
 - Indirect/Secondary data
 - Administrative data
- Describing Frequencies**
 - Absolute frequency
 - Relative frequency
 - Ratio
 - Rate
 - Proportion
- Frequency Distribution**
 - Frequency distribution
 - Histogram
 - Bar chart
- Measures of Shape**
 - Measures of shape
 - Normal distribution
 - Skewness
- Measures of Central Tendency**
 - Mode
 - Median
 - Mean
 - Outlier
- Measures of Spread**
 - Range
 - Quartiles
 - Interquartile range
 - Variance
 - Standard deviation
- Types of Error**
 - Sampling error
 - Non-sampling error

Source: www.abs.gov.au/websitedbs/a3121120.nsf/home/statistical+language

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Criteria 4: Communicating

- Describe key information in a way that is easy to understand
- Describe any data linking and integration
- Relate key findings to the policy issue under consideration
- Apply statistical reasoning and take into account quality of the data when reaching decisions
- Clearly articulate the limits of the data due to quality implications



Facilitating good communication of agriculture and rural statistics

What can data producers do?

1. Lead by example
2. Provide templates and visualization tools
3. Publish a 'how to present statistics' guide
4. Provide training
5. Collate and promote best practices

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Data visualisation

Creating valuable and meaningful graphics to help analyse data

Contents

- [Introduction](#)
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- [Choosing your visualisation and templates](#)
- [Column chart](#)
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- [Checklist](#)
- [Worked example](#)
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As we surface more data about government services, we need to make sure that the visualisations of it are easy to understand, visually compelling and prompt action. To do that, we need to have a consistent visual grammar, for use both within GDS and across government.

Introduction

This guide sets out 4 principles of good data presentation, with easy to follow checklists to help you achieve this. For context, we've added examples of how the principles have been employed at GDS. The principles and examples found in this guide are likely to evolve as we find new challenges and applications for them.

Best practice

There are many examples of best practice style guides already in place. For example, [The Economist](#) has a clearly defined house style that allows its readers to readily identify and understand their visualisations. They publish a new visualisation every day in their [Graphic Detail](#). This guide attempts to build on the best practice from a range of organisations.

Source: www.gov.uk/service-manual/user-centred-design/data-visualisation.html



Column labels in the first row should identify the data being presented in each column and any relevant metadata, such as unit of measurement (in this case %)

Row labels in the first column should identify the data presented in each row. **Indent** to show sub-groups, **avoid jargon or abbreviations**, and be sure to sort rows in a standard or logical way (this example uses the standard for listing administrative divisions in Nauru; an alternative would be to sort from highest to lowest based on total, male or female, depending on your message)

Girls m
Net atten
by sex ar

Districts

Nauru (t

Recommended colour palettes¹³

The palettes below are examples of useful palettes for selecting suitable colours. The light colours are useful for large objects, such as bar graphs; medium colours are good for smaller objects, such as lines and data markers; the dark and bright colours are useful for highlighting a particular item. Selecting the varying shades of the same colour from each palette can make a good combination. The RGB codes¹⁴ are also provided for ease of reference.

	Light			Medium			Dark & bright		
	R	G	B	R	G	B	R	G	B
140	140	140	77	77	77	0	0	0	
136	189	230	93	165	218	38	93	171	
251	178	88	250	164	58	223	92	36	
144	205	151	96	189	104	5	151	72	
246	170	201	241	124	176	229	18	111	
191	165	84	178	145	47	157	114	42	
188	153	199	178	118	178	123	58	150	
237	221	70	222	207	63	199	180	46	
240	126	110	241	88	84	203	32	39	

Source: Few, S. 2012.

Boe 51.7 58.5 56.1
Aiwu 61.9 68.3 64.6
Buada 70.9 86.4 77.8
Denigomodu 52.9 41.7 48.1
Nibc
Uabi
Baiti
Ewa
Anet
Anal
...

Dos:

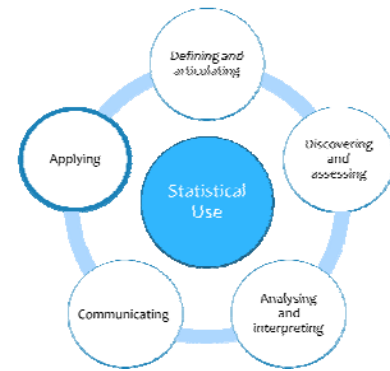
- ✓ Keep it simple and make sure the message is clear from the chart.
- ✓ Choose a graph that is appropriate to the variables on display (see next page for tips).
- ✓ Make sure all essential elements are included (overarching title, axis titles, footnotes source, legend and/or appropriate data labels).
- ✓ Use language that is easy to understand instead of technical terms.
- ✓ Use standard conventions where they exist (e.g. males on left side of population pyramid and females on right).

Don'ts:

- ✗ Mislead by inappropriately adjusting the axis scale or by using inconsistent intervals.
- ✗ Use 3D versions of graphs. They typically make it more difficult to see the patterns in the data and are general considered bad practice.
- ✗ Include gridlines, shading or colouring that distract from the data and look unprofessional.
- ✗ Include unnecessary labels or text, like 'sex', which is self-explanatory when male and female labels or legends are used.

Criteria 5: Applying

- **Develop risk mitigation strategies based on data gaps or quality issues identified in the analysis**

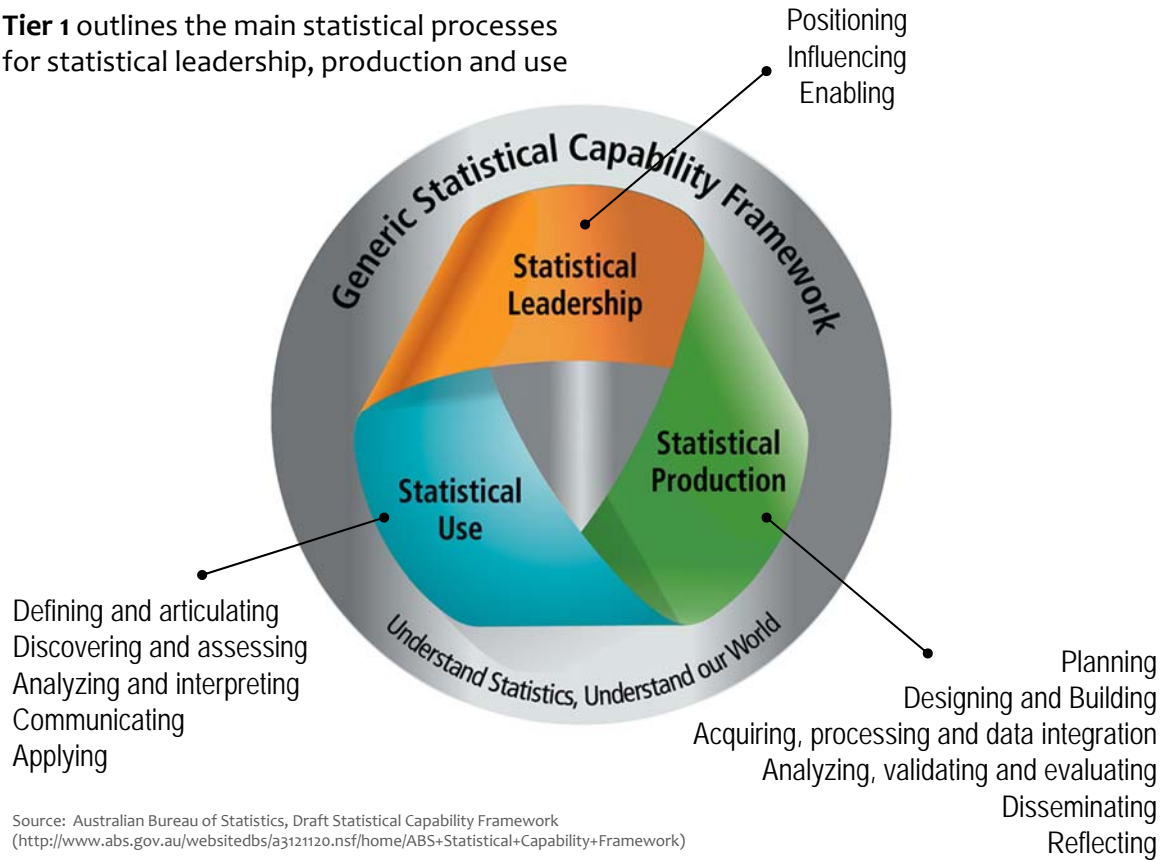


- **Share findings and provide feedback to the producers of the data**

Developing the GSCF

- * ABS drafted this initial framework
- * Working through the global statistical system to develop an international standard
- * National consultation on second version
- * Feedback welcome

Tier 1 outlines the main statistical processes for statistical leadership, production and use



Discussion

* How could you use this capability framework in **your country?**

