Topographic Mapping in Australia: The Future State

Greg Scott
Group Leader
National Mapping & Information Group
Geoscience Australia

Chair
Permanent Committee for Topographic Information
Intergovernmental Committee on Surveying & Mapping

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Presentation outline

• Context
  - Australia’s geography - size does challenge us!!
  - Geoscience Australia and ICSM
• Where have we come from?
  - The past 50 years - post war reconstruction
  - Delivering the maps and data
• Where are we now?
  - Maintaining and sustaining maps and data
  - NTIC!
• Where to from here?
  - The future state - technology, drivers & collaboration

Context...

Australia’s geography and demography
Mapping Australia is an enormous challenge!!

Context...

Geoscience Australia National Mapping & Information Group (NMIG)
- Required to provide fundamental geographic information at a national scale in a form that facilitates Australian Government and community decision-making and industry development
- Strategic objective: Authoritative source of fundamental geographic information for Australian Government...to provide improved evidence based policy and decision making

ICSM Permanent Committee for Topographic Information (PCTI)
- Provide leadership in the collection, maintenance and delivery of topographic information through the participation of all of the jurisdictions in collaborative arrangements involving other key government and industry stakeholder groups
- Membership consists of representatives from the lead topographic mapping agency in each jurisdiction

Context...

GA and ICSM: My motivation!!

Where have we come from...

Evolution of the national topographic map:
The past 50 years
Post-war reconstruction

The NTMS and GEODATA

**1968**
- R 502 series completed
- 544 map sheets (later reduced to 513 with specials)
- NTMS defined as "medium scale" 3,600 maps at a cost of $600 million

**1988**
- 3,062 map sheets completed (1,460 line compilations)
- Feed into a new 1:250K map series
- These maps provided national base topographic information for 40 years!

**2003**
- GEODATA 250K Series 2 completed
- High-quality data for GIS and mapping on one paper-based GIS-compatible mapping specification
- Data held as "themes" in a spatial database environment, not constrained by map sheet boundaries, and web enabled

**2005**
- GEODATA 250K Series 3 completed
- A GIS representation of selected topographic features

**1995**
- GEODATA 250K Series 1 completed
- Digitising from existing repromat

**1990**
- GEODATA 250K Series 1 commenced
- Scanned and vectorised

**1956**
- Division of National Mapping
- Royal Australian Survey Corp

**1965**
- NTMS 1:100K

**1968**
- R 502 series completed

**1988**
- NTMS defined as "medium scale" 3,600 maps at a cost of $600 million

Post-war reconstruction

Royal Australian Survey Corps 1956
- Mapping entire continent @1:250K
- 544 map sheets (later reduced to 513 with specials)

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Facing the Challenges – Building the Capacity
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The status in 2005

Facing the Challenges: Building the Capacity

Where are we now...

Facing the Challenges: Building the Capacity
The status in 2005

- GEODATA TOPO 250K Series 3 complete - but no maintenance or Series 4 regime initiated
- The national mapping program resides within a national geo-scientific research agency - Geoscience Australia (GA)
- GA mandate to map nationally at small-medium scale
- State and Territory mapping agencies map large scale and cadastre
- PSMA had been created to manage and broker data for industry under a VAR arrangement
- Little coordination and collaboration across central mapping agencies
- Duplication and inconsistencies in the extent, availability and quality of topographic information
How do we deliver and sustain national topographic data and maps with appropriate investment and resources?

NTICI
Sustaining national topographic mapping

- PCTI established the National Topographic Information Coordination Initiative (NTICI)
- A framework under which a collegiate approach to the topographic mapping of Australia is undertaken
- A whole of government approach to the collection, integration, dissemination and maintenance of topographic and related information to meet the needs of governments and the public
- A mechanism to add value to the topographic layers of the ASDI, whilst recognising the different but complementary roles and responsibilities of the spatial data agencies in the jurisdictions
NTICI benefits

- Improved availability of accurate, up to date, reliable and accessible large-scale topographic information
- Maximisation of the efficiency and effectiveness of government expenditure on topographic mapping and related activities
- Development and promulgation of standards and strategies to alleviate inconsistencies in the national topographic framework and promote on-demand access (interoperability)
- Strengthened jurisdictional relationships and capacity through sharing and exchange of ideas
- Resilient whole of government approach to topographic data collection, integration, dissemination and delivery

NTICI limitations

- Relationships are excellent, but informal. No MoU or Heads of Agreement in place
- No vision of how NTICI relates to other mapping programs that jurisdictions may be involved in
- No strategy that defines the custodian of the data and how future data maintenance will be carried out or fed back
- Mapping proposals do not consider more broader Australian Government priorities
- Forward program needs to be more strategic in its approach to a sustainable mapping program
- Inconsistencies with data schemas and specifications presently limits true seamless integration

Where to from here...

The future state

- A cultural shift from a data/product owner/provider to a geographic information content integrator, provider, and enduring data custodian
- Improvements in and leveraging of available technology
- Changes in the federal government’s business ethos
- Collaboration - a program of partnerships
- Integration of NTICI data into jurisdictional and GA databases as ‘single point of truth’

The future state

Maintaining a sustainable topographic mapping program in Australia requires:

Relying on three factors:
- Improvements in and leveraging of available technology;
- Changes in the federal government’s business ethos; and
- Collaboration - a program of partnerships

The future collaborative approach to topographic mapping will need to:
- Resemble a distributed data sharing arrangement;
- Leverage smart enabling technologies improving turnaround times;
- Consistent specifications and schemas;
- A focus on maintenance of priority themes and areas; and
- Integration of NTICI data into jurisdictional and GA databases as ‘single point of truth’
Priority drivers from government

- Social Inclusion
- Water Resources
- Climate Change
- Emergency Management
- National Elevation Data
- Environment
- Tourism

Government and business partnerships:

PSMA data products:
- Admin. Bdy
- CadLite
- G-MF
- Points of Interest
- Post Code Bdy
- Transport & Topo

The peak spatial bodies

- Australia New Zealand Land Information Council (ANZLIC)
- Cooperative Research Centre for Spatial Information (CRCSI-2)
- Office of Spatial Data Management (OSDM)
- PSMA Australia

The peak spatial bodies

- National Spatial & Information Management (NSIM)
- Intergovernmental Committee on Surveying & Mapping (ICSM)
- PSMA Australia

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Yesterday

- Geoscience Australia
- Consumers

States & Territories

- Map Product
- Data Product

Office of Spatial Data Management (OSDM)

- Acquire
- Integrate
- Maintain
- Publish & Deliver

Geoscience Australia

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Australia New Zealand Land Information Council (ANZLIC)

- Acquire
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Thank you - Questions??
Greg.scott@ga.gov.au