



## The Roadmap – what can we say?

AeRO

ADVOCATE

COLLABORATE

COMMUNICATE

# The context

- Draft is with the Minister
- Final version to be released with The Response
- Currently no further work in Dept/Chief Scientist Office
- Only known budget commitment – NISA forward estimates
  
- But most of the submissions to the draft are public...

# The submissions

- **Around 180 submissions on the draft**
  - 10 vanished?
  - 20 private
  - 151 public
  
- **Like good students**
  - 16 handed in late
  - 95 at the last minute
  - Quite a bit of sharing going on.

# The submitters

Type	Count
Research(ers)	41
NCRIS, Facilities	30
Universities	21
Associations, Unions	17
eResearch	6
GLAM	8
PFRA	6
Govt, Fed/State	6
CRC, Industry	7
Academies	7

# For noting

- **Self selecting, self interest:**
  - So don't look for statistics
- **Strong support wherever money is flowing**
- **Lots of people 'pleased', 'commending' and even 'congratulating' – and nearly everyone 'endorsing'**
  - Mostly...
    - *“This is not a roadmap. It does not have outcomes. Too research-led. Not enough industry engagement. Better example in the alumina industry”*
    - *“We should flood Lake Eyre, and ... Just give me some money and stand back”*

# Focus Areas

- **Most common comments:**
  - “Focus Areas overlap, infrastructure/facilities overlap”
    - Especially HASS
  - “Make sure we don’t create more siloes”
  - “Infrastructure should be discoverable, and seamless,”
  
  - “Let us clarify...”
  - “Let us highlight...”
  
  - “We are part of the DD/eR community – not a client”

# Focus Areas – 2

- **Environmental Systems**

- Earth Sciences not happy under Environmental Systems
- Energy and Resources understated
- Surprising mistrust of remote sensing data, want more field collection

- **Missing Focus**

- (Civil) Infrastructure – RI for research on infrastructure
- Cybersecurity

- **Trajectories**

- A number of disciplines/communities have 5-10 year plans now

# Governance

- **Blend of “overall” and “program”**
  - All want more clarity, at all layers
- **Don’t like incorporated entities**
- **Really like incorporated entities.**
- ***“Our group is an example of a good model...”***



# Advisory Group ...

- **(State Govt)** Should have **State Govt** people
- **(GLAM)** Should have **GLAM** people
- **(Libraries)** Should have **Librarians**
- **(Archives)** Should have **Archivists**
- **(Unis)** Should have **University executives**
- **(Maths)** Should have **Mathematicians**
- **(Business)** Should have **Business researchers**
- **(Humanities)** Should have **HASS researchers**
- **(Facilities)** Should have **Facility directors**
- **(Earth Sciences)** ...

# Advisory Group...

- **Earth Sciences:**
  - *“AG should be completely independent, with no institutions potentially hosting infrastructure there. “*
- **PFRA: Should have Subject Matter Experts**
- **Academy:**
  - *“AG should be supported by a research capable Secretariat, to marshal evidence and models”*

# National Interest

- **Many comments:**
  - Should be more than security, sovereignty, economy, productivity
  - Also Global needs, Social interests, Wellbeing, 'Blue-sky'
  - Also National/Strategic Research Priorities

# Workforce

- **By far the most endorsed – fundamental to value of RI**
  - Make it part of the plans. Make it a Principle.
  - Who trains, who is trained by them
    - *Institutions to train researchers, Facilities to train operators*
    - *Facilities to train researchers (u/grad, p/grad)*
    - *National approach to training operators (standardised, create a pool)*
    - *Support for secondments and scholarships*
  - Career progression for operators is a major problem
  - Many skill shortages (maths, data sciences, domain specifics, HPC, ...)
- **Career prospects depend on sustained infrastructure**

# Maturity

- **Accreditation, Certification – strong support**
- **Important for community trust and standing**
  - Locally, internationally; research and industry
- **Important for workforce**
  - Recognise quality, effort, progression

# Institutional research infrastructure (IRI)

- Despite what it says on the tin...
- Many see IRI as interwoven with the NRI, in complex ways.
- Based on principles – a lot of IRI is actually NRI
- IRI is a component of NRI – needs integration
- IRI is a pathway to NRI – needs alignment
  - Key element of skills for operators and researchers

# eR/DD

- **It's foundational...**
- **Make it**
  - visible, discoverable
  - seamless, integrated, tuned to domains
  - researcher-led/focussed/oriented/prioritised
  - internationally-aligned/integrated
- **Leverage/pool institutional investments to augment NRI**

# Compute

- **Strong support for a national Tier-1 HPC**
  - But more: capacity, access, sites, distributed expertise, external use
- **Good support for Tier-2 HPC coordination**
  - Blurred boundaries for specialised Tier-2 => Tier-1?
- **Grow international access**
  - We can't build it as big as them anyway
- **Leverage commercial (cloud) providers more**



# Data, data, data

- **Open access agendas come through strongly**
- **Productivity Commission report on Data referenced a lot**
  - Plus many NHMRC, ARC, GLAM, UK, ... reports
- **Role (expertise, legislated) of GLAM highlighted**
  
- **(HASS) Need for a national real-time online data service**
  - Social media streams, IoT, “live” data
  - One for the country, common access agreement

# ARDC

- **Highly supported, and keenly looking for “clarity”**
- **Don’t tie it down**
  - To single provider/platform/approach
  - To ANDS/Nectar/RDS, or just the ‘eResearch’ providers
    - Providers in NCRIS, Institutions, Facilities, GLAMs, PFRAs, ...
- **Integrate with computing – at all scales**
- **Leverage commercial providers**

# ARDC

- **Harmonise with Domain/Focus layers**
- **Harmonise across Domain/Focus Areas**
  - e.g. different spatial interfaces in ACCESS/BCCVL/ALA/...
- **Who is it for:**
  - Prioritise NCRIS,
  - Support every researcher, everywhere
  - Extend beyond research, no limits
- **Seamless, managed, secure, compliant, trustworthy, ...**

# Networks

- **Increasing mobility of researchers noted**
- **Commodity Internet and NBN limitations noted**
- **Off-net access a constraint for some**
- **More regional network coverage needed**
- **Specialised systematic networks desirable**
  - Remote area, ad hoc networking, support for UAV, IoT

# Other notes

- **Want more support**
  - For Visualisation
  - For Machine Learning
  - For Data Management and Analytics
  - For M2M services – issue for Authentication/Authorisation
- **No reference to consolidation, single providers**
  - Federations etc. a given

## We also surveyed (some of) the audience

- Sent a short survey to all DVCs-R
- 3 broad questions
- 12 responses (4 Go8)

# Investment

- Do you see investment in eResearch to support your institution's research over the next decade:

Direction		
Increasing rapidly	10	83%
Staying the same	2	17%
Decreasing	0	0

# Primary Responsibility for ... sits where?

...	Individual	Research Group	Institution	Discipline	Regional	National
HPC		1	6	5	2	7
Networks			6		2	9
Data Mgmt	3	3	9	2	1	2
Storage	1	1	10	4	2	3
Other compute	1	3	8	2		2
Software	3	5	7	5	1	4
Skills	3	4	10	2		1



# What could the eResearch community collectively do better?

- ... multiple things – see report.



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