



## **A Decade of Strategic Investment -1**

- **1997: High Performance Computing Committee Report**
  - the establishment of the Australian Partnership for Advanced Computing to provide access to high performance computing capability
- **2000: Establishment of Advanced Networks Programme**
  - Establish demonstrator advanced networks
- **2002: Higher Education Bandwidth Advisory Committee Report**
  - the establishment of Australian Research and Education Network Advisory Committee, and investment in the Australian research and education network
- **2003: Higher Education Information Infrastructure Advisory Committee Report**
  - the establishment of ARIC and funding of projects to improve the access of Australian researchers to information

## A Decade of Strategic Investment -2

- **2004: Research Infrastructure Taskforce Report**
  - the establishment of the National Collaborative Research Infrastructure Strategy Committee to implement a program of strategic investment in research infrastructure
- **2006: eResearch Coordinating Committee Report**
  - outlines an integrated program of skills development and of middleware and computer science research

[http://www.dest.gov.au/sectors/research\\_sector/default.htm](http://www.dest.gov.au/sectors/research_sector/default.htm)

## The National Collaborative Research Infrastructure Strategy Principles

- **Investments must result in excellent research infrastructure that addresses the national requirements of the relevant capability area described in the NCRIS Roadmap.**
- **Investments must result in research infrastructure that is accessible by researchers on the basis of merit, at reasonable prices.**
- **Investments must include a facility ownership and management structure that will result in the efficient and effective operation of the infrastructure.**
- **Investments must include a business plan that will result in the efficient implementation and effective ongoing financial management of the infrastructure.**

**A single integrated proposal from the research sector**

## National Collaborative Research Infrastructure Strategy

Australian Government spend of about \$540M over the five years:  
2007-2011

- Evolving bio-molecular platforms and informatics
- Integrated biological systems
- Characterisation
- Fabrication
- Biotechnology products
- Networked biosecurity framework
- Optical and radio astronomy
- Integrated marine capability
- Structure and evolution of the Australian continent
- Population health and clinical data linkage
- Terrestrial ecosystem research network
- *Platforms for Collaboration (allocated \$75M)*

## Key Outcomes

- **Distributed capabilities**
- **Collaborative governance regimes**
- **Data focus- create, store, use**
- **Data intensity**
- **Linking of physical facilities, operational frameworks and data**
- **Modelling opportunities**

**....The eResearch agenda seen from the user end**

## Platforms for Collaboration

## Towards the Future - It ain't what it used to be

- **National Collaborative Research Infrastructure Strategy, Platforms for Collaboration :**
  - ↳ **access to leading edge research infrastructure nationally and internationally**
  - ↳ **access to distributed and large datasets**
  - ↳ **advanced modelling & analysis opportunities**
    - ↳ integration of datasets and computational resources
    - ↳ transdisciplinary and interdisciplinary research
  - ↳ **innovation from data rather than data from innovation**
    - ↳ shorter innovation cycles
    - ↳ new forms of 'publication'
    - ↳ new forms of peer review
  - ↳ **new forms of collaboration**
    - ↳ data rather than models or discipline

## The Future - eResearch Strategic Directions

- **Continuing Need for a Focus**
  - through a nationally coordinated approach
- **Human Capabilities**
  - people with skills and understanding
- **Linkage of eResearch Resources**
  - seamless access to resources
- **Access to Data**
  - adopt best practice data management and curation
- **Structural and Cultural Change**
  - evolution of organisational structures and cultures
- **Awareness and Support**
  - develop researchers' ability to adopt eResearch methods

## The Future - Physical Platforms

- **Networks:**
  - AREN + Institutional + Commercial + Wide-area wireless
- **Computation:**
  - National facilities + Institutional + grid services
- **Data stores:**
  - 'Central' + Institutional
- **'Instruments'**
  - International, national, institutional

## **The Future - eResearch R&DD Issues**

- **Resource scheduling, marshalling, management, monitoring**
- **Intelligent and flexible search for resources**
- **Data management, access, integration**
- **Security and integrity**
- **Collaborative tools**
- **Simulation, modelling, visualisation**
- **Management of complex and intelligent systems**
- **Remote operation**

## **The Future - The Hard Issues**

- **Cultural re-engineering - the institutional factor**
- **Capability development - the human factor**

## The Future - Cultural Re-engineering

- **Competition vs collaboration vs sharing**
  - individual
  - institutional
  - sectoral
  - funding processes
- **Discipline traditions vs trans discipline future**
- **Universities of government and industry research performers**
- **University IT as an enabler of administrative service**

## The Future - Role of the Research Institution

- **Host and/or Owner of intellectual capital**
  - critical mass created in a trans-institution manner
- **Repository of *knowledge* (eg publications) or *data***
  - platforms of the past or for the future
- **Competitor, ally or promiscuous collaborator**
  - control of personal and virtual collaboration?
  - individual pre-eminence vs collaborative pre-eminence
- **Provision of resources**
  - physical, access, human support
- **Integrity management**
  - ethics, identity

## The Future - Capability Development

- **Researcher confidence & proficiency**
  - underlying assumptions and work arounds
- **Researcher support**
  - domain-ICT linking professionals
  - career structures and positioning
- **Platform evolution**
  - ICT expertise
  - international linkage

