

Global virtual infrastructure: Rationale and lessons learnt

WHY

- Some **challenges are global in scale**; research must use meta-analysis of globally distributed databases from across disciplines
- Significant **efficiencies in sharing** IT infrastructures and solutions
- Global access requires **global standards** and **protocols** of infrastructure

Challenges

- **Global virtual infrastructure must grow/build on national infrastructure** – because the infrastructure is distributed and relies on strong national efforts
 - Within a nation - need for ‘whole of government’ approach to science infrastructure so that global infrastructure can bring layers of data together – inter-governmental agreements
 - Observed complex interplay of national imperatives; multiple funding points for part of solutions e.g. State versus national museums; different government agencies; different funding bodies
 - needs global or inter-governmental affiliation; and must have a national home

Lessons Learnt cont'd

- **Agreement on primary purpose of infrastructure by participants**- who is being served?
 - Participants bring different expectations (blue sky research versus impact driven); delivering to researchers or research to facilitate policy frameworks
 - Community outreach versus high end research
 - Differences driven by who is the primary contact or 'head of delegation' or can be dependent on the funding source within the country)
- **Patience** –infrastructure takes time to build to critical mass to be really useful – a decade or more
- **Funding needs to be sustainable**– the size of investment is often modest compared with physical infrastructure and so can be 'misplaced' in funding regimes of national governments
- Global agreements on **intellectual property** –sharing of disparate data sets with varying provenances; some research, some government, some private
- Distributed nature has led to **competition** among multiple allied initiatives all providing part of the solution yet leading to confusion at government level

Future Directions & Challenges

- **Digitally-born data** will be the currency of research but is yet to penetrate beyond fundamental sciences; data volumes are exploding
- **Training** – distributed nature of infrastructure means that training can be difficult to provide and researchers fail to utilise investments; focus on post-graduate training to ensure key part of it
- **Tools are mission critical**
- **Look to private sector** for underpinning solutions wherever possible (Wiki, Google, Microsoft, Flickr etc)
- **Partner or Perish** – mergers of initiatives important to avoid duplication
- **Developing Countries**: have special needs to participate

The Future belongs to those who harness the power of e-Research infrastructure