Supporting Inter-organisational, Inter-disciplinary Security-Oriented Collaborations

Professor Richard O. Sinnott
eResearch Director, University of Melbourne
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rsinnott@unimelb.edu.au
**Completed**

- National e-Science Centre (I, II, III)
- Dynamic Virtual Organisations for e-Science Education
- Biomedical Research Informatics Delivered by Grid Enabled Services
- GridNet, GridNet-2
- Grid Enabled Microarray Expression Profile Search
- Glasgow early adoption of Shibboleth
- Joint Data Standards Survey
- ESP-Grid
- HPC Compute cluster award
- Sun industrial sponsorship
- OGC Collision
- OMII-Security Portlets
- OMII-RAVE
- Integrating VOMS and PERMIS for Superior Grid Authorization
- NCeSS Technical Management
- CESSDA PPP
- Pharming of Therapeutic RNA
- Grid Enabled Occupational Data Environment
- Towards an e-Infrastructure for e-Science Digital Repositories
- Grid enabled Biochemical Pathway Simulator
- Virtual Organisations for Trials and Epidemiological Studies
- A European e-Infrastructure for e-Science Repositories
- Modelling, Inference and Analysis for Biological Systems up to the Cellular Level
- Drug Discovery Portal
- Advanced Grid Authorisation through Semantic Technologies ShinTau
- Grid-enabled Virtual Safe Settings
- Scottish Bioinformatics Research Network (SBRN)
- Generation Scotland Scottish Family Health Study

**On-Going**

- Meeting the Design Challenges of nanoCMOS Electronics (nanoCMOS)
- EU FW7 EuroDSD
- EU FW7 AvertIT
- Breast Cancer Tissue Biobank
- Data Management through e-Social Science (DAMES)
- NeSC Research Platform (NRP)
- NeSC Information Network (NIN)
- ESF Network for Study of Adrenal Tumors
- Scottish Health Informatics Platform for Research (SHIP)
- National E-Infrastructure for Social Simulation (NeISS)
- Enhancing Repositories for Language and Literature Researchers (ENROLLER)
- Proxy Credential Auditing Infrastructure for the NGS
- EU FW7 European Network for Study of Adrenal Tumors Cancer Research Platform
- EU R4SME Diagnosis of Parkinsons Disease (DiPAR)
- EU European Platform for Study of Wolfram, Alstrom, Bardet Biedl
- Clinical Streaming Transcription Software
- Parathyroid Cancer VRE
- Multicenter prospective study of biochemical profiles of monoamine-producing tumors (PMT Study)
- Parliamentary Discourse
- Scots Words and Placenames
- AlstromUK VRE
- Australian Urban Research Infrastructure Network (AURIN)
AURIN Background

• $1.1 billion Super Science Initiative announced in Australian Government’s 2009-10 Budget
  – Of this, $901 million allocated for research infrastructure that will make a lasting contribution to Australian science
  – Infrastructure investments funded through the Education Investment Fund (EIF)

• Australian Urban Research Infrastructure Network (AURIN) received $20 million
  – for the ‘establishment of facilities to enhance the understanding of urban resource use and management’
    • University of Melbourne are lead agents of AURIN
      – $3m (09/10) $5m (10/11) $6m (11/12) $6m (12/13)
      – co-investment key
    • Final project plan submitted to government for approval
      – Expected (real work!) start date April 2011
AURIN e-Infrastructure and Lenses

Data Cloud

Public
Ephemeral
Archived
Academic
Current
Private
Multi-
Simulated future

Energy and water consumption
Metropolitan and regional housing market data
City Logistics: Data on freight flows and dynamics
Urban transport
Social data and indicators
Public
Private
Academic
Archived
Ephemeral
Multi-
Simulated future

Ephemeral = VO factory for lenses
AURIN Work Streams = VOs

![Diagram showing the relationship between AURIN work streams and VOs]
Previous Exemplar

• Inter-disciplinary research infrastructures
  – Data Management through e-Social Science (DAMES
    – www.dames.org.uk)
    • 3 year ESRC funded project
    • Ended January 2011
      – University of Stirling (social science)
      – NeSC Glasgow (e-Support)

• Leveraged a range of projects with key data providers
  – Virtual Organisations for Trials and Epidemiological Studies (VOTES)
  – OGC Collision Course
  – Grid-based Occupational Data Environments (GEODE)
  – Scottish Health Informatics Platform (SHIP)

TRUST!!! PROCESS!!!
DAMES

- Data research environments for social scientists
  - Occupational research environment (GEODE)
  - Educational research environment (GEEDE)
  - Ethnicity/minority research environment (GEMDE)
  - E-Health research environments (GEHDE)

- Research into depression, self harm and suicide across Scotland
  - Does the number of people in a household have any effect on suicide rates?
  - Is there a correlation between age, sex, marital status, history of drug use (including prescribing drugs / anti-depressants) on suicide?
  - What is relation with access to parkland/green fields on depression?
  - What is optimal way to treat different forms of depression, e.g. drug treatments, therapists, ...?
  - Does intervention-based cognitive behaviour therapy work?
GEHDE Data Space

• Clinical data
  – Scottish Morbidity Records (SMR) / ISD
    • SMR01A *General acute inpatient and day case discharges*
    • SMR02 *Maternity data*
    • SMR04A *Psychiatric/mental handicap admissions, residents, discharges*
    • SMR06A *Scottish cancer registrations*
    • SMR99A *Deaths*

• Social science/survey data
  – UK Census / MIMAS
    • 1971 ... 2001

• Geospatial data
  – UK Boundary data / EDINA
    • Changes over time to local authorities
  – License protected mapping data sets and tools
Demonstration (video)
(used to convince data providers, full ethics application approved for real data linkage as part of SHIP project using the NeSC Glasgow VANGUARD system)
The Wider AURIN Context

• Major (complementary) initiatives across Australia
  – $47m National eResearch Collaboration Tools and Resources (NeCTAR) project
    • Lead by University of Melbourne
      – Director, Prof. Glenn Moloney
    • Four key strands
      – National Servers Program
      – eResearch Tools Program
      – Research Cloud Program
      – Virtual Laboratories Program
  – $50m Research Data Storage Infrastructure (RDSI) project
    • Lead by University of Queensland
      – Director, Prof. Nick Tate
    • Likely to be federation of storage nodes / data centres across Australia
The Wider Australian Context...ctd

- MANY other on-going efforts
  - Australian Access Federation (AAF)
  - Australian Bureau of Statistics (ABS)
  - Australian National Data Services (ANDS)
  - Australian Social Science Data Archive (ASSDA)
  - Australian Spatial Information Business Association (ASIBA)
  - Australian Spatial Marketplace (ASM)
  - AuSCOPE
  - Cooperative Research Centre for Spatial Information (CRCSI)
  - Energy providers
  - Housing data providers
  - GeoScience Australia (GA)
  - INSPIRE
  - Population Health Research Network
  - Spatial Sciences Institute (SSI)
  - Victoria eResearch Strategic Initiative (VeRSI)
  - Victorian Partnership for Advanced Computing
  - Water providers
  - Many government agencies
  - ...
Challenges

• Complexity of data landscape and number of data providers
  – Stakeholder buy-in challenges
  – Crowd sourcing … ABS

• Technology landscape
  – WS, REST, SOAP, Gov 2.0, OGC, ad hoc…

• Security
  – AAF issues, A(?)A(?)_ __, …
  – Firewalls, liability, licensing, trust, …
  – Data disclosure, aggregated data disclosure, sign-off, …

• Research diversity
  – Ten lenses (possibly with multiple VOs per lens)

• Sustainability/success criteria
  Teasing out commonality/added value/working with providers, but focus on improving and sustaining Urban Research!
Questions ...?