

Response to the Exposure Draft of the 2011 Strategic Roadmap for Australian Research Infrastructure

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The roadmap outlines a clear vision for the provision of support to capability areas in the physical, biological, medical and environmental sciences.

It is encouraging to see the inclusion of the Cultures and Communities as a capability area, particularly its recognition of the challenges of data diversity.

The broad area of research into the mechanisms of economic activity, including the role of the financial sector, and the tools required for the management of this activity is a noticeable omission from the roadmap. That is despite the Roadmap document implicitly recognising that underpinning opportunities for development across all the target areas is a well functioning economic and financial system, as reflected in its reference to the OECD: “OECD also notes that while a stable macroeconomic environment provides the overall basis for growth” (p6)

This area of research is important in its own right. Research in this domain needs to be considered in its own right, not as a sub branch of the culture and communities capability area.

This area of research is of significant importance to the nation. The Financial services industry is the largest sector in the economy in terms of contribution to GDP. For the year ending June 2010, the ABS estimated that its direct contribution to GDP was 10.3% of the total. By way of illustration, its contribution was larger than that of manufacturing (1.18 times), transport, postal and warehousing services (1.07 times), education and training (2.53 times) and health care and social assistance (1.81 times). The sector employed over 400,000 people and accounted for 3.6 per cent of total employment. The difference between the sector’s size in terms of GDP contribution relative to employment share reflects the high reliance on modern technology involving substantial expenditure on information and computing systems to deal with and capture substantial amounts of financial data.

Innovation in the design and regulation of economic mechanisms (markets and financial institutions), supported and enhanced by eResearch infrastructure, has the potential to deliver substantial social and economic benefits.

This research domain is of national importance. The recent funding of the “Centre for International Finance and Regulation” demonstrates the governments’ recognition of the need to support world class research in this area. World class research is dependent on world class infrastructure, as well as academic talent. The Road map

appears to largely ignore the critical importance of this research and the resulting significance of resulting infrastructure needs. The CIFR is a national centre made up of six universities from NSW, VIC and ACT which was co-funded by the NSW government. The A\$20M funding provided to the centre is a substantial co-investment by the Federal and NSW governments in the mechanisms of economic activity capability area.

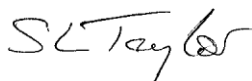
Similar government recognition of the importance of collaborative research into the structure of financial markets, implications for economic development and design of policy is reflected in the Victorian government's seed funding of the establishment of the Australian Centre for Financial Studies in 2005.

The success of researchers in this area will be dependent on the infrastructure available to the participants in the research programs. Support for data integration, data analysis, inference and simulation modelling is critical to the research efforts of such centres and to individual researchers.

This is reflected in the success of Sirca, a collaborative venture between Australian and NZ Universities, in developing accessible financial databases to support researchers. But while those databases are important and substantial, they only reflect a small portion of the data being generated in financial market and institution activities. Better understanding of the way in which the financial sector operates as a network, and ability to develop better financial policies to avoid financial crises with their deleterious effects on all the goals of the roadmap, is critically important.

A description of this capability, suitable for inclusion in the Road Map document is included below.

The national importance of research into the mechanisms of economic activity, the dependence of this research on appropriate infrastructure and the co investment by the Federal and NSW governments support the inclusion in the roadmap of a capability area devoted to this research domain.



Proposed New Capability Area Entry for the Road Map Document

Mechanisms of Economic Activity

Frontier Technologies, Safeguarding Australia, Understanding Culture and Community

Description

Australia is an advanced, small, open economy. The future prosperity of the country is dependent on economic mechanisms that support the efficient allocation of resources to ensure their most productive use.

The design and regulation of economic mechanisms, for use in product, capital and labour markets requires access to comprehensive information at the economy, market and individual transaction levels. It also requires access to data analysis and simulation modelling platforms that can provide the level of detailed analysis of alternative market and regulation designs required to inform policy-making in support of the goal of economic growth.

The Mechanisms of Economic Activity capability will require the development of an integrated and coordinated approach to data collection and the linking of diverse data sets which are held by the Bureau of Statistics, the Reserve Bank and various other commercial and research organisations. Connection of these data resources to modelling and simulation environments will also be required to promote a deeper understanding of the linkages between regulation and mechanisms at the transaction and market level and their impact on the overall level of economic activity.

Strategic Impact

The challenges presented by events in global markets, particularly markets for private and sovereign debt, equity capital and physical commodities have underlined the need for research and innovation in the design and regulation of market mechanisms. It is important for Australia to develop research capability which can enhance understanding of global financial and commodity markets, their interconnectedness, and their influence on the real economy. Research is required to examine ways of having an innovative financial and regulatory framework which fosters real economic growth balanced with reduced risk.

To understand economic mechanisms and their regulation from a research and policy perspective it is essential to have reliable and consistently integrated data sets in which markets can be analysed as systems. Understanding the linkages and interactions among component systems and the encompassing economic system requires a platform for system wide modelling and simulation.

The Australian financial system and the entire economy can be made more secure by research, facilitated by a consistent data set and a common modelling and simulation platform, which in turn leads to a deeper understanding of the mechanisms which transfer shocks between financial markets and the real economy and the ability of

regulatory mechanisms to reduce the magnitude of such shocks and inhibit their transmission.

Challenges and Assumptions

Understanding and managing complex economic mechanisms is impossible without strong cross disciplinary approaches which span economics, finance, law and data modelling, enabled by eResearch infrastructure.

Relevant datasets are held by numerous government, commercial and research organisations. Integrating these datasets demands engagement with multiple public and private sector interests who hold the data and utilise research outcomes. Coordination of data capacities and infrastructure will be vital.

An effective capability in this area would interact and link with other capability areas, such as eResearch infrastructure, digitisation infrastructure and cultures and communities.

Specific Requirements

Key research infrastructure to draw together and support the research community will be required:

- Shared approaches to data management and ICT infrastructure to support discovery, access and interoperability of datasets, and national coordination in areas such as developing metadata standards.
- Sustained investment is required in the human and physical infrastructure needed to develop enhanced data management tools, to improve integration across observation, analysis and modelling and to increase uptake by end-users including researchers and policy-makers.
- Sophisticated software and tools will need to be developed, deployed and standardised to enable simulation, data analysis, data modelling, data mining and high resolution visualisation.