Review of the National Innovation System Submission

- **Author** – Keith Anthonisz, Manager Strategic Business Development
- **Organisation** – ISA Technologies Pty Ltd
- **Type of organisation** - ICT Industry
- **Address** – Western Australian Technology Park, 1 Brodie Hall Drive, Bentley WA 6102
- **State or Territory** - Western Australia
- **Email and phone contact** – keith.anthonisz@isatechnologies.com, (619) 9470 4411

- **Declaration of Interest**

ISA Technologies is a Western Australian information technology company that is a diverse provider of specialist technology including High Performance Computing (HPC) and 3D visualisation as well as E Business systems, advanced networking, software engineering and its own software products. The company has its head office at Western Australia's Technology Park as well as one in Kuala Lumpur, Malaysia. ISA Technologies HPC facility is one of the largest in Australia operating on a commercial basis to support 'Supercomputing On Demand' to a range of industries and has invested over $AUD5 million in HPC and visualisation facilities. ISA has targeted strategic linkages with a variety of industries for use of HPC and visualisation solutions with a particular focus on the oil and gas sector. Major oil and gas companies such as Woodside and Chevron are ISA clients.

ISA is also active in collaborative research with key technology vendors. ISA is an IBM Business Partner and is a member of the external advisory board of the *IBM Deep Computing Institute* in the USA. ISA is also a Microsoft Gold Partner and has won an international Microsoft Technical Innovation Award for its SAMLite software product.

- **ISA Technologies Involvement in Innovation**

ISA Technologies is focussed on leading edge solutions in ICT for large clients that will keep it competitive against ICT outsourcing to cheaper overseas locations. Examples of ISA Technologies innovation includes the following:

  - *Beta Testing* – ISA Technologies has partnerships with multinational ICT vendors that link it with research laboratories in the US. For example ISA Technologies is a business partner of IBM and has worked with IBM for developing modules for the IBM Deep Computing Visualisation (DCV) product. ISA Technologies has also been selected by Microsoft for their High Performance Computing (HPC) Server 2008 Rapid Deployment Program (RDP) to assist customers that are interested in Windows HPC Server 2008 with access to Beta code prior to formal product launch. Under the program, ISA Technologies will receive licenses for HPC Server 2008 as well as access to Microsoft technical support and training. Microsoft has noted that not more that 15 Companies worldwide will be participating in this program making ISA selection internationally significant.

- *Software Engineering* – ISA Technologies has a software engineering group that has produced a number of products and also works to develop large multi user applications for large companies and government agencies spread over geographic areas. ISA Technologies software engineering group has also worked on innovative solutions including a Biodiscovery portal with support from the Western Australian Government and the Microsoft .Net Fund, the first such portal established to support this part of the Biotechnology Industry.

- *R&D* - ISA Technologies invests in development of internal R&D including a Virtual Reality Engine.

- *Partnering* – ISA Technologies works with a number of partner companies which are typically Small to Medium Enterprises (SME's) to access competencies for industry specific solutions. These include working with companies involved with digital content for films, engineering animation, seismic processing and storage, 3D visualisation and imaging for biotechnology.

- **An Industry Perspective of the Australian Innovation System**

ISA Technologies has sought to develop partnerships and collaboration with universities, CSIRO and related research institutes. A number of projects have been conducted with university groups on developing specific technical solutions to problems that can lead to commercial potential in the medium to longer term. Projects that have been developed include:

- Bioinformatics Pharmaceutical Development Visualisation (BPDV) project for accessing the Busselton Health Study databases on the ISA Technologies High Performance Computing facilities between ISA Technologies and WA Institute of Medical Research (WAIMR).

- Hydrodynamic testing project in virtual space for marine engineering applications, as a supplement to the conventional testing of models in a physical facility. ISA worked with the Interactive Virtual Environment Centre (IVEC), the State Centre of Excellence in visualisation and high performance computing, the Centre for Marine Science and Technology at Curtin University and WBM, an international consulting group with expertise in computational fluid dynamics and stress analysis.

- Simulation modelling by Charles Darwin University using hydroinformatics and knowledge management tools and techniques to understand flow and transport processes for Northern Territory water management with particular reference to a water quality study of Darwin Harbour.

It has been very difficult for ISA Technologies to engage with universities, CSIRO and related research institutes with the majority of these organisations viewing industry as a means of sourcing funding on a short term basis or as token support for their applications for their own funding. Strategic partnering with a view to developing long term relationships has not been established.

University programs such as the ARC grants system appear to be geared towards receiving funding from industry without particular regard to longer term partnering and sharing funding streams.

For SME's, these programs are not conducive to encouraging strategic work with universities and research institutes as funding from the company is required in cash and the return to companies is generally not a priority issue to universities and research institute staff.

Multinational companies can afford to fund university research on specific areas of research interest over a period of a number of years. However, SME's cannot afford this luxury particularly when commercial work is much more straight forward and directly contributes to company growth and bottom lines at a time of resource industry expansion and skill shortages.

If the Australian innovation system is to move forward from its current position, Australian SME's need government incentives to work with universities, research institutes and CSIRO to build trust, a common understanding and a change in culture that accepts the roles of industry and academia. Similarly, universities, research institutes and CSIRO need to be encouraged to understand SME culture and be aware that SME research priorities while not the same as a university, are never the less valid.

Finally any government incentives devised to support SME interaction with academic researchers need to be conscious that commercial work offers a far lower level of complexity and higher chance of success than many grant programs that feature significant preparation and compliance costs, long time scales, upfront investment of cash and little acknowledgement of SME needs.

National Priorities in Innovation

The encouragement and involvement of industry and in particular SME's is critically required to ensure lasting economic benefits to National projects and priority issues including:

- ***Infrastructure Productivity*** – Information technology can improve productivity through automation of processes that are holding up the Australian economy. At a time of labour shortages and time and cost blow outs for many infrastructure projects designed to deal with bottlenecks, information technology provided by industry and SME's can make a valuable contribution to supporting increased productivity as well as supporting local technology development.

- ***Square Kilometre Array (SKA)*** – Local industry involvement in SKA is critical to commercialisation of any technology spin offs from this $2 billion project. Currently, the SKA project is driven by CSIRO and universities and industry and SME involvement is negligible.

- ***Energy Engineering Modelling and Animation*** – Billions of dollars in new investment is required in the coming decades for new ways of delivering energy as a result of global warming and Australian Government commitments to climate change mitigation and a carbon trading scheme. Modelling and animation of new technology processes in virtual space by industry can reduce the risks inherent in building pilot plants as well as supporting local technology development.