



# Simulation Australasia

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Committee Secretariat  
House Standing Committee on Education, Employment and Training

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## **SIMULATION INDUSTRY INPUT TO THE HOUSE STANDING COMMITTEE INQUIRY: FUNDING AUSTRALIA'S RESEARCH**

Dear Committee Members,

As a modelling and simulation industry peak body, Simulation Australasia Ltd (SimAust) welcomes the opportunity to provide comment supporting the House Standing Committee inquiry into Funding Australia's Research. Within our constitution, SimAust is charged *to support and undertake research and development that demonstrates the benefits and applications of simulation and related fields to the Australasian economy as a whole or to specific sectors of it.* This submission supports the discharge of this duty to members.

### **Context of Submission**

Our membership base includes individuals, SMEs, Primes, hospitals and academic institutions that are intimately engaged in writing, administering and conducting modelling and simulation research. SimAust also routinely authors, administers and conducts research for both Federal and State departments as a Not-for-Profit entity.

Our company and members focus on delivering modelling and simulation products, services, simulation research and development to a broad cross section of industry sectors, including Health, Defence and Education, serving growing domestic and international markets. SimAust and our members are actively involved in all types of research recognised by the Australian Bureau of Statistics (ABS). Specifically, our members conduct simulation research both wholly within universities, but typically with industry members and federal and state entities such as hospitals that are dependent on both pure and applied research outcomes.

As a multi-sector peak-body, Simulation Australasia (SimAust) recognizes that modelling and simulation innovations are forged through research and development at the nexus of normally disparate groups. These groups include users, buyers, technologists, researcher/academics, policy makers, and not least, the companies that develop, market and sell modelling and simulation products and services.

Modelling and Simulation technologies are amongst the most dynamically evolving product lines globally and are a significant beneficiary from the commercial drivers for IT, communications and gaming technologies. Similarly, therefore, the scope of the application of simulation methods and technologies has grown exponentially over the last decade as has the growth of companies delivering "Simulation as a Service" and related services.

With Australian this product and service base is supported by a relatively small research community, both within academia and in industry. This community conducts research on simulation tools, methods

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and application in areas as diverse as “new mine-site optimization” and nurse emergency critical care training, as well optimising trainee outcomes for better known simulation applications such as “flight simulators” in both Defence and civilian sectors for example.

### Submission against Inquiry TOR

In the context of our engagement with research, SimAust responds as follows to the inquiry TOR on the efficiency, effectiveness and coherency of Australian Government funding for research. Where appropriate we address *administration* gaps and efficiencies, supporting the aim of the inquiry.

- *The diversity, fragmentation and efficiency of research investment across the Australian Government, including the range of programs, guidelines and methods of assessment of grants;*

SimAust supports the diversity of research programs across the federal government. In the context of modelling and simulation as a research topic (rather than research tool), we note that research grant programs are administered by almost every government portfolio – but chiefly those in the Dept of Health (even exclusive of NH&MRC programs), Dept of Defence, Dept of Education & Training and Dept of Industry, Science and Innovation. Necessarily, the varying focus across portfolios carries a range of guidelines and methods of assessment. Within these grant programs, administration by government and institutions for both competitive and targeted grants are required and included.

Notwithstanding this apparent complexity, however, effective mechanisms for monitoring the balance of research investment across government (including federal R&D tax incentive support) are not readily apparent and a picture of research grant the administrative burden, efficiency and effectiveness is fragmented and only exists for the ARC (and NH&MRC – excusing inquiry scope) supported and assessed programs, but the impost is obviously wider.

The breadth of the Federal grants systems, coupled with State grant systems necessarily require cells of dedicated knowledgeable staff in institutions to properly administer and monitor grant submissions and performance. However, it is noted that small companies in industry – including NFP such as SimAust, do need to “burden” grants with administration costs appropriate for compliance.

SimAust submits that the inquiry consider the full scope of the federal funding system (noting that NH&MRC is specifically excluded in this inquiry) and that measures to reduce red tape be addressed through progressive unification of grant systems across government as we illustrate.

For “emerging industries” such as modelling, simulation and serious gaming which rely heavily on multi-disciplinary research approached, SimAust suggests in this context that a broader view of research investment needs to be taken at the federal level – and that Government and administration would benefit from progress made to enable a view that is cognisant of State funding and international research investment in modelling and simulation that is leveraged within Australia.

Additionally, any drive to “simplify” the range of programs to reduce administration be mindful of any additional bureaucratic burdens of large program that might reduce the appeal of innovation grant programs to small innovative industry players.

SimAust recommends maintaining or increasing the diversity of grant programs supporting industry innovation – particularly in partnership with tertiary institutions.

- *The process and administrative role undertaken by research institutions, in particular universities, in developing and managing applications for research funding;*

SimAust notes that processes for developing, assessing, monitoring and administering are insufficiently supported by efficiencies offered by web and mobile technologies, which burdens both application and administration. However, SimAust notes the significance of steps forward like the ARC grant submission via the “Research Management System” (RMS). SimAust

encourages the development of end to end electronic systems for grants, which enable potential efficiencies that reduce administrative burden beyond the initial submission development.

Such a system might be developed across government.

SimAust notes and acknowledges the significant additional administrative burden borne by universities and other federally funded research institutions where industry co-investment in research is either the objective of, or necessary for, the grant program or research project. Without this support, industry participation might be compromised.

- *The effectiveness and efficiency of operating a dual funding system for university research, namely competitive grants and performance-based block grants to cover systemic costs of research;*

SimAust supports a dual funding model for university research. Noting that block funding gives universities a necessary mechanism to foster emerging research, minor research infrastructure, supplies and researchers that might not yet meet a competitive grant threshold. This mechanism is judged critical for creating the competitive research “pool” and supports a range of modelling and simulation pursuits in universities at present.

Government might seek efficiencies by combining the administration of block and competitive grants under one knowledgeable agency. Such a step has a potential to assist in the provision of a better view of the balance of the research investment to Government.

- *Opportunities to maximise the impact of funding by ensuring optimal simplicity and efficiency for researchers and research institutions while prioritising delivery of national priorities and public benefit.*

As an emerging multi-sector industry that is reliant on many research disciplines across several Fields of Research (FOR), SimAust notes in respect of *administrative effectiveness* that Government’s ability to measure the application and impact of funding in respect of national priorities and public benefit is not well supported by the current research classification scheme. Additionally, the current research classification scheme appears to be applied in a proactive manner to some of the federally funded research (chiefly for programs administered by the ARC and NH&MRC) and that therefore Government is only afforded a partial picture.

While the following comments may apply to a range of research applying to emerging IT based sectors, from the perspective of our core mission, SimAust offers the following for consideration by the Inquiry Committee against this inquiry objective:

1. The types, fields and socio-economic objectives of Australian research are classified under the Australian and New Zealand Standard Research Classification (ANZSRC), published by the ABS in 2008. Fundamental to providing a perspective on the balance of some of the federal research investment, the ANZSRC also supports the Governments objectives to report the Measurement of Scientific, Technological and Innovation activities internationally in accordance with the Frascati Manual Guidelines for Collecting and Reporting Data on Research and Experimental Development. This reporting supports treaty obligation and should capture our investment in leading edge research properly.

While the guidelines focus on the scientific – the committee might note that the current manual significantly post-dates the ABS publication. The ANZSRC might be revised by the ABS to meet the better measure the *delivery of national priorities and public benefit* for Government.

2. Under the ANZSRC, research into modelling and simulation for example is classified under Field of Research (FOR) “08 Information and Computing Sciences” and an associated category addressing Virtual Reality and Related Simulation. Aspects of simulation research might be explicitly covered by a further 3 categories in chemical engineering, computer

hardware and agriculture. By comparison, research in established industries such as Automotive Engineering, Agriculture and Mining for example is supported by an exhaustive research taxonomy.

For the contemporary simulation industry this is an inadequate categorization and may "frustrate" researches attempts to "fit" simulation research into these categories. SimAust hopes that the paragraphs above introduce the committee to the broader contemporary context of simulation research. The inquiry might note that, for Government, a limited categorization also obscures or frustrates attempts to identify the level of research investment in simulation and other emerging industries – the focus of successive government programs to foster innovation and new industry.

3. A similar observation can be made in respect of Socio-Economic Objectives (SEO), in that the SEO for simulation and other emerging elements of the Digital Economy are inadequately represented compared to objectives established for pre-industrial and industrial pursuits. In the absence of this taxonomy, Government's desire to examine national priorities and public benefit of research in emerging (innovative) industry is compromised.

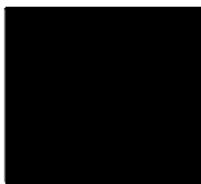
SimAust notes that the ABS derives the FOR and SOE with the assistance of several agencies and groups and strives to ensure that documents such as the ANZSRC harmonise with higher level categorizations such as the Australian and New Zealand Standard Industrial Classification (ANZSIC) 2006 codes and the Australian and New Zealand Standard Classification of Occupations (ANZSCO) 2006. Here the system is understandably silent on industries such as modelling and simulation that have undergone significant professionalisation this century. SimAust members continue work funded by members to identify relevant occupation codes to support professionalisation and could support a similar review of the ANZSRC.

While recommendations for a root and branch review of all the appropriate taxonomies is beyond the aim of this inquiry (to reduce red tape), in this submission SimAust seeks to illuminate the impact of the limitations of the current systems, supporting efficient administration and delivery of research against national priorities and public benefit for new and emerging industries.

Better administration of the whole scope of the federal research "eco-system" would be well supported by a revision of the ANZSRC as well as addressing the issues we illuminate here.

To discuss or clarify any aspect of this submission or to arrange an appearance before the Review, please contact the undersigned.

Yours Sincerely



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