Australian Academy of Technological Sciences and Engineering
Level 1, 1 Bowen Crescent, Melbourne Vic 3004
GPO Box 4055, Melbourne, Vic 3001, Australia
T+61 3 9864 0900 F+61 3 9864 0930 W www.atse.org.au
Australian Academy of Technological Sciences and Engineering Limited – Incorporated ACT ACN 008 520 394 ABN 58 008 520 394

ATSE Submission to the Australian Government's Entrepreneurs' Infrastructure Programme

The Australian Academy of Technological Sciences and Engineering (ATSE)[1] welcomes the opportunity to provide comment on the Australian Government's Entrepreneurs' Infrastructure Programme (EIP).

The proposed structure of the EIP as outlined in the Discussion Paper preserves some elements of recently terminated programs (e.g. Enterprise Connect and Commercialisation Australia). However, the EIP Discussion Paper appears to offer no options for new approaches and reads as a *fait accompli*. ATSE therefore provides some general comments on the programme and suggests an alternate approach.

The Discussion Paper lacks information on how the $484.2 million commitment will be allocated over four years and raises some concern for ATSE. Given the amount per annum is not large it will be important to appropriately distribute the funding across the programme elements discussed in the discussion paper.

1) **BUSINESS MANAGEMENT**
   ATSE believes that the Business Management component should not be the core component of the programme, rather as a later element that offers business advice to innovative organisations and companies that have been successful in receiving government funding. This will better benefit innovative companies at crucial points in the research translation-innovation-commercialisation continuum.

   From ATSE's work and experience with CAESIE it is our view that business management support does not work through a website, rather it is optimally delivered by direct contact with experts.

   ATSE is concerned on the reliance of advisers to provide advice on business matters.

2) **COMMERCIALISING IDEAS**
   Presumably this service would provide introductions, advisors to help businesses evaluate their programs, and a website to link markets to investors. ATSE notes that much of this information is already readily available to businesses large and small, through private sector consultants, and though a plethora of publicly available databases.

3) **RESEARCH CONNECTIONS**
   ATSE welcomes the creation of this element as financing is a major stumbling block for innovation success and driving business productivity in Australia.

[1] ATSE advocates for a future in which technological sciences, engineering and innovation contribute significantly to Australia's social, economic and environmental wellbeing. The Academy is empowered in its mission by some 800 Fellows drawn from industry, academia, research institutes and government, who represent the brightest and the best in technological sciences and engineering in Australia. The Academy provides robust, independent and trusted evidence-based advice on technological issues of national importance. ATSE fosters national and international collaboration and encourages technology transfer for economic, social and environmental benefit.
www.atse.org.au

However, ATSE suggests that the grants, at $50,000 each, are much too small to change the investment or development plans of a company, even a small one, especially if it requires matching funding. There are examples where a small grant scheme can be effective but these are at the pre-competitive stage of commercialisation.

The eligibility criteria, such as the requirement to at least match funding and be operating for more than 3 years, **specifically exclude** innovative start-ups that might indeed benefit from small grants and basic advice. Contrary to the intention of the EIP, the companies that meet the eligibility criteria in the EIP Discussion Paper will not be constructively influenced by the proposed money and advice available. Given this, ATSE questions the use of the term entrepreneurship in the title of the programme.

ATSE considers that a fresh approach to the EIP is ideal; however, noting the 1 July 2014 deadline for announcing the scheme, ATSE offers a refocus of the EIP elements as outlined in Appendix 1. The ATSE proposal integrates proven commercialisation funding grants and contracts (outlined in Appendix 2); provides flexible options; maximises success by providing business support to successful grantees and reduces administrative overheads.

Discussion Paper Questions

ATSE believes that the questions raised in the *Entrepreneurs' Infrastructure Programme Discussion Paper* are substantially addressed in the recent report by the Australian Council of Learned Academies (ACOLA)[2] *The role of science research and technology in lifting Australian productivity.* The ACOLA Report, commissioned by the Chief Scientist for the Prime Minister's Science, Engineering and Innovation Council (PMSEIC), has three major conclusions:

- Building Australia's future industries will depend on adopting technological innovation to develop high-value products and services for a global market.

- Improving collaboration in Australia, between businesses and between business and publicly funded research, will significantly enhance innovation. International collaboration is also critically important. Both domestic and international collaboration improves the productivity and competitiveness of Australian technology-based firms.

- An innovative workforce that combines technical and non-technical disciplines, and enables good business management, is essential to underpin the competitive advantage of Australian industries and realise opportunities to lift productivity.

Further information on the ACOLA report is provided in Appendix 3.

ATSE would be pleased to offer its considerable expertise expanding on our ideas and in finalising the details of the EIP. The contact at ATSE is our CEO Dr Margaret Hartley (03 9864 0901, margaret.hartley@atse.org.au).

Yours sincerely

Alan Finkel
President, ATSE

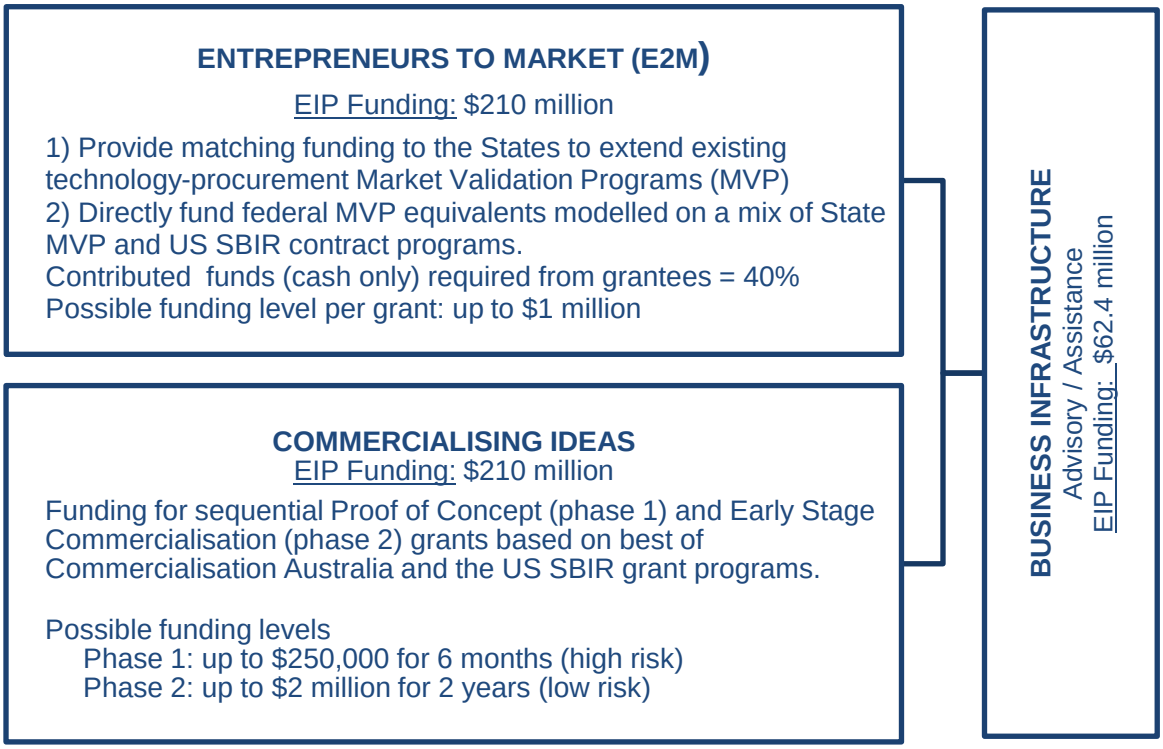
[2] The Australian Council of Learned Academies (ACOLA) combines the four Learned Academies (Australian Academy of Science, Academy of Social Sciences in Australia, Australian Academy of the Humanities and the Australian Academy of Technological Sciences and Engineering).

Appendix 1: ATSE Innovation-Ready Entrepreneurs' Infrastructure Programme

GOAL: To promote translation of existing research outputs into innovative, commercially oriented products for national and global markets

FUNDING: $484.2 million over 4 years

PROGRAM OVERVIEW



KEY ELEMENTS

Topic Priorities:

Contracts in the E2M programme will intrinsically be aligned with national priorities. The Commercialising Ideas programme could also be aligned with national priorities by providing prioritised support to areas of global growth such as food and agribusiness; mining equipment technology and services; medical technologies and pharmaceuticals; oil and gas; and advanced manufacturing. These topic priorities will naturally define those government departments that need to participate in the E2M element.

***Risk Management*:**

Risk in the suggested programs is reduced through two different measures:

1) Companies providing matching funds of 40% cash (not in-kind) in the E2M contracts program; and
2) A staged approach in the Commercialising Ideas program, with small levels of funding and quick turnaround for the high-risk first phase, then eligibility for the lower-risk second phase being determined by successful completion of the first phase.

Encouraging Young Entrepreneurs A proportion of the Commercialising Ideas grants could be set aside for young entrepreneurs (< 40 years of age).

Reducing Red Tape Simple criteria for recognition as an Australian business and simplified application processes to eliminate unnecessary and time consuming procedures.

KEY DIFFERENCES FROM THE DRAFT EIP

Business infrastructure (ie, business management support) should not be the core component of the EIP or EIP funding. Rather it is better as a service component for users of the two main programme areas: E2M and Commercialising Ideas. There are a number of existing successful external providers operating in the innovation-commercialisation space and outsourcing of this work is recommended to maximise efficiency and reduce administrative overheads.

All projects are to be judged on their merits rather than the financial capacity of the company or its owners.

Removal of requirement for applicant companies to have been in operation for a minimum number of years as this effectively eliminates many innovative and highly capable start-up companies.

Appendix 2: International and National Programs

Basics of the SBIR scheme

General information about Small Business Innovation Research (SBIR)

The following information has been taken from a number of sources including the SBIR website:
http://www.sbir.gov/about/about-sbir

The Small Business Innovation Research (SBIR) program is a US Government program coordinated by the US Small Business Administration. The program is a highly competitive program that encourages domestic small businesses to engage in Research and Development (R&D) that has the potential for commercialisation. Each year, Federal agencies with extramural R&D budgets that exceed $100 million are required to allocate 2.8 per cent of their R&D budget to these programs. Currently, eleven Federal agencies participate in the program.

Approximately $2.5 billion is awarded through this program each year. The United States Department of Defense (DoD) is the largest agency in this program with approximately $1 billion in SBIR awards annually. Over half the awards from the DoD are to firms with fewer than 25 people and a third to firms of fewer than 10. A fifth are minority or women-owned businesses. Historically a quarter of the companies receiving grants are receiving them for the first-time.

The SBIR Program is structured in three phases:
Phase I.

- Feasibility study, proof of concept
- $150,000 maximum for 6 months

Phase II.

- Funding is based on the results achieved in Phase I and the scientific and technical merit and commercial potential of the project proposed in Phase II.
- Only Phase I awardees are eligible for a Phase II award.
- Full research and development effort
- $1,000,000 maximum total costs for 2 years.

Phase III.

- Commercialisation stage
- Seek external funding (no use of SBIR funds)

National Science Foundation Small Business Innovation Research

The following information has been taken from the US National Science Foundation website:
http://www.sbir.gov/about/about-sbir

The National Science Foundation (NSF) Small Business Innovation Research (SBIR) Program provides non-dilutive funds for early stage research and development (R&D) at small businesses. The NSF provides most of its funding through ***grants***. An applicant's R&D should be based on innovative, transformational technology with potential for great commercial and/or societal benefits. The program invites proposals from small businesses across a broad range of science and engineering disciplines. Successful companies receive a grant of up to $150,000 for a 6-month development/feasibility project. They can then compete for a second grant of up to $750,000 over a 2 year period, with the aim of advancing the technology toward commercial deployment.

NSF solicitations ask for information about company "track records" of commercialisation in various ways. However, proposals are encouraged from a diversity of entrepreneurs - new and seasoned. What is most important is that the company has a transformative idea or innovation and their team's primary goal is the commercialisation of the technology.

National Institutes of Health Small Business Innovation Research
The following information has been taken from the US National Institutes of Health website:
http://grants.nih.gov/grants/funding/contracts_vs_grants.htm

The National Institutes of Health (NIH) supports research using both grants and contracts. NIH provides most of its funding via ***grants***. About 95% of NIH SBIR awards are made through the grant (assistance) mechanism, and about 5% of NIH SBIR awards are made through the contract (procurement) mechanism.

Small business concerns are invited to submit Phase I grant applications in any area within the mission of the awarding components identified in the Grant Solicitation. Contract proposals are accepted only if they respond specifically to a research topic within the Contract Solicitation. The topics are not the same as those in a grant solicitation; they are much more focused and specific.

Department of Defense Small Business Innovation Research
The following information has been taken from the US Department of Defense website:
http://www.dodsbir.net/solicitation/sbir142/default.htm

The Department of Defense (DoD) accepts submissions three (most departments) or four (army) times per year. DoD appears to provide all of its funding via ***contracts***. Some of the departments (for example Defense Advanced Research Projects Agency - DARPA) have a fast track process that can operate in between scheduled submission dates.

Comments on Australian mapping

SBIR ***contracts*** are most similar to the Australian State MVP programs. Note that the Victorian MVP program has been refined and renamed DBI (Driving Business Innovation).

SBIR ***grants*** are most similar to the *Proof of Concept* and the *Early Stage Commercialisation* grants from Commercialisation Australia, but SBIR does not offer the *Skills and Knowledge* nor the *Experienced Executives*.

The $484.2 million proposed EIP program will probably allocate $400 million after overheads. Thus $100 million per year. Comparing this allocation to that of the SBIR:

- The population of America is 14 times the population of Australia. Therefore the allocation of $100 million per year is equivalent to $1.4 billion per year in the US totalling about 60% of the SBIR, assuming all the EIP is for SBIR equivalents.
- If some of the funding in the EIP Programme will be for business advisory services (separately handled by the Small Business Administration in the US), the EIP allocation might be equivalent to half the current SBIR level.

Commercialisation Australia

The following information has been taken from the Commercialisation Australia website:
http://www.commercialisationaustralia.gov.au/Pages/Home.aspx

Commercialisation Australia Funding:
Flexible options to suit your stage of commercialisation

- Skills and Knowledge
  Up to $50,000 to access specialist advice and services.
- Experienced Executives
  Up to $350,000 to engage a CEO or other senior Executive.
- Proof of Concept
  $50,000 to $250,000 to prove the commercial viability of new IP.
- Early Stage Commercialisation
  $50,000 to $2 million to take a new product, service or process to market.

Victorian Government MVP

The following information has been taken from the Business Victoria website:
http://www.business.vic.gov.au/grants-and-assistance/programs/driving-business-innovation

The Market Validation Program (MVP) has now been replaced by the Driving Business Innovation (DBI) program. DBI follows one contract identification phase and three funding phases.

Technology Challenge
At the Technology Challenge stage Victorian government agencies identify a particular challenge to the delivery of their products or services. Selected Technology Challenges are then released to the market through a Call for Proposal inviting eligible small to medium enterprises (SMEs) to propose new technology solutions to the government challenges.

Feasibility Study
Selected SMEs receive a grant up to $75,000 to undertake a Feasibility Study into their proposed solution over three months.

Proof of Concept
Feasibility Studies are assessed for further funding of up to $1 million to undertake research and development to Proof of Concept stage over 18 months. The Proof of Concept project leads to a working demonstration of the developed product in the government agency's environment.

Market Ready
During the Proof of Concept, SMEs may be invited to apply for the Market Ready stage, providing (matched) funding of up to $500,000 to undertake activities aimed at bringing their developed solution to market.

Appendix 3: The role of research, science and technology and innovation in Australia's productivity and economic growth

The Australian Council of Learned Academies (ACOLA) recently published a report on *the role of research, science and technology and innovation in Australia's productivity and economic growth.* The report and its findings are evidence-based, allowing for enhanced policy development and better targeted interventions by governments.

ATSE recognises that there is limited funding for the EIP Programme, and therefore understands not everything outlined below can be adopted. However, we provide the following points from the ACOLA Report for future consideration. ATSE believes that some of these points will need to be addressed outside of the EIP Programme.

For innovation to occur, new knowledge needs to be translated to the business setting, and to do this Australia needs its university researchers to become more engaged with business. New measures are needed if Australia is to get a better return on our substantial investment in public sector research. The so called innovation incentive programs will need to be well funded, targeted and sustained over a reasonable period of time if Australia is to fully utilise its investment in research as a pathway to enhanced productivity and prosperity.

The ACOLA Report offers some suggestions for enhanced government innovation incentive programs.

Venture finance

- Venture capital needs fixing. Innovator companies simply do not have access to sufficient venture capital within Australia.
- The Commonwealth Government's Industry Innovation Funds have helped. Without them, things would be even worse.
- Other OECD countries have moved ahead of Australia and adopted some novel ways of financing innovative SMEs.
    - Crowd sourced equity funding is one such initiative.

Tax treatment of employee share options

- A suggestion to facilitate the growth of start-up technology-based firms is to reverse the 2010 decision to tax employee share options.
- Many countries recognise that start-ups can reduce the demands on their limited capital resources, and ensure retention of key staff by providing share options. They are normally taxed when (and if) their value is realised.
- Unfortunately this business model cannot currently operate in Australia. There are already strong pressures on start-up companies to leave Australia and this is yet another one.
- We need to provide a business environment in Australia so that wherever possible, start-ups can grow and establish their base here before expanding offshore.

Support for SMEs

- OECD country governments appear to be focussing more of their assistance through **direct** support.
- This sort of support is not business welfare. It is assistance that recognises the system and market failures that, if not addressed, result in less than optimum productivity and economic growth.
- It recognises that today's fledgling entrepreneurs can be tomorrow's business leaders, if they can access help when they need it.
- Many measures have been in use overseas for a number of years. They are tried and tested - but have not yet been adopted in Australia. For example:
    - The **US Small Business Innovation Research (SBIR) Program** has been adapted and copied around the world.

    - Victoria and South Australia have implemented adaptations of this Program. Adequately resourced, a Commonwealth Government version could be very effective.
- An attractive aspect of the program is that it is funded from what the US calls a 'small business set aside'. The set aside legislation requires US Government agencies with R&D programs over a threshold (around $100 million) to set aside a small percentage of their funds for measures to assist small business.
- Other examples are:
    - the UK's Knowledge Transfer Partnerships,
    - the US Manufacturing Extension Partnerships, and
    - Finland's funding agency for technology and innovation (TEKES).

Better Delivery systems

- Many countries within the OECD have been searching for more effective and efficient methods of delivering assistance to firms.
- The use of intermediary organisations to deliver assistance to SMEs has proven to be very successful in other OECD countries - and where it has been trialled here in Victoria. The Small Technologies Cluster in Melbourne is a good example.
- Intermediary organisations aid research translation and facilitate the uptake of new technologies. They articulate market needs to researchers.
- Some of these intermediary organisations can help SMEs access vouchers. The companies themselves can choose where to go to get that help.
- Victoria has successfully pioneered this approach in Australia - an approach that has merit for national implementation.

Consistency and being there for the Long Haul

- SMEs concerns inevitably go to the frequent changes to Commonwealth Government assistance measures. The ink is hardly dry on the last set of changes before new changes are being proposed.
- There is a lot of instability in support for Australia's SMEs.
- This makes it very hard for companies to plan for growth.

The **proposed Entrepreneurs Infrastructure Program**, announced in the Budget, provides an opportunity to break with the past and develop seamless, flexible and well considered incentives and assistance programs.