

Western Australia's Innovation Focus

Overview

Innovation¹ underpins economic growth and community development. It has led to significant economic benefit for WA, particularly in the resources, energy and agricultural sectors, resulting in long term GDP growth. Current innovation skills in WA are narrowly based, in keeping with the State's economy. Now is both an opportune and necessary time to broaden the focus on innovation in WA. The State is rich in research, entrepreneurial and financial capability and has much potential to diversify its economy through increased innovation and commercialisation of new products and services, and improve competitiveness. Failure to optimise this potential will diminish the State's natural advantages in an increasingly competitive and innovative world.

TIAC advocates that encouraging innovation should be a strategic imperative for the WA Government to ensure long term benefits for the State, such as:

- Enhanced economic growth and diversity
- Creating new jobs in a changing world
- A broader revenue base for the WA Government
- Increased productivity, efficiencies and savings in areas of major government expenditure
- Increased competitiveness when accessing Commonwealth funds
- A successful, confident and more adaptable private sector with stronger international links within our region
- A more resilient society that is better able to meet the challenges of a changing world

There are many diverse examples of innovation in WA, and TIAC believes that it is most effectively achieved within well connected clusters of expertise and application with deep experience, such as those within the resources sectors. At the State level, the broader innovation ecosystem is unevenly spread, poorly coordinated and often weakly linked. Active encouragement, coordination, and some support are required to achieve a broader base of innovation within the State.

TIAC believes that targeted action by the Western Australian Government (WA Government) will achieve outcomes and impact that can drive productivity and competitiveness, and enhance prosperity. To this effect, it has worked with leading experts in innovation across a range of sectors to identify the areas and priorities it believes the WA Government should emphasise to stimulate innovation within the State. This work has resulted in the seven focus listed below and briefly summarised in the following pages:

TIAC has highlighted seven focus areas:

- WA Government – Leading from the Front
- Identifying and integrating multi-sector generic competencies
- Strengthen innovation and STEM skills
- Strengthen innovation linkages
- Encourage innovation across the community
- Encourage innovation in the regions
- Unlock private capital

¹ Innovation is defined as: 'improvements in technology, products, services or business operations that lead to a distinct competitive advantage or productivity gain.'

WA Government - Leading From the Front

Setting a vision and leading by example will send a strong message that the WA Government is actively encouraging increased innovation. Also, by actively promoting WA's best examples of innovation it can highlight the quality of opportunities within the State. With very limited resources, the WA Government can send a strong message to a receptive population by assuming a crucial leadership role in changing attitudes and consciously seeking to establish a culture of innovation in WA.

The WA Government can also benefit through the encouragement and adoption of innovation to improve services whilst reducing costs. WA Business News recently highlighted the innovative use of Department of Water data that reduced service time for information requests from up to 10 days to just 2 minutes. In 2013 the Department of Commerce and Horizon Power were partners in a technology challenge to encourage local companies to develop new technologies to allow greater solar panel integration into regional networks with reduced impact. These products are now starting to appear on the market.

Identifying and Integrating Multi-Sector Generic Competencies

The WA Government has identified 5 priority sectors in its Science Statement for Western Australia – mining and energy, agriculture and food, biodiversity and marine science, medicine and health, and radio astronomy. These represent areas of competitive advantage that have a strong track record of success and investment over time. An intensive innovation environment exists within these priority sectors. However, when analysed on the basis of generic skills these sectors also include a range of generic competencies that can be applied in new ways for the State's benefit. These include, but are not limited to;

- Computer programming and software development
- Big data and data analytics
- Imaging
- Advanced engineering and design
- Major project management
- Risk management
- Research capability
- Environmental analysis and management
- Sensor technologies and remote operations
- Regional and remote transport and communications

The WA Government can encourage the establishment of generic competency-based collaborative infrastructure to stimulate cross sectoral development and leverage the benefits flowing from the science priorities and our sectoral competitive advantages. For example, technologies developed to enable the Rio Tinto remote mining operations could be applied to facilitate automated agricultural operations and process controlled aquaculture. However, any such initiatives need to be preceded by better understanding of the State's generic competencies, and their networks and linkages.

Strengthen Innovation and STEM Skills

It is well understood that science, technology engineering and mathematics (STEM) skills are key foundation blocks for a future skilled workforce and underpin a range of competencies; TIAC continues to recommend increased emphasis on STEM in WA schools. STEM and related disciplines also provide many of the skills for innovation and sophisticated problem solving. Society benefits when these skills are linked to entrepreneurial capability to convert knowledge, ideas and technology into business opportunities. The innovation ecosystem foundation skills include:

- STEM skills
- Entrepreneurial skills
- Coding skills

One size does not fit all in the innovation space. A range of training and skills development options need to be fully developed in collaboration with private organisations, the public education system inclusive of TAFE colleges and universities. An essential part of the entrepreneurial education process is acknowledging and learning from failure. While bankruptcy laws are being addressed by the Commonwealth, the WA Government may need to identify and modernise regulations impacted by business failure to send the appropriate message to innovators and entrepreneurs.

Strengthen Innovation Linkages

There is considerable evidence that Australia has a poor record of commercialising research findings into market ready products or services. These low translation rates result from limited engagement across sectoral boundaries and there is a dire need to strengthen engagement between industry, academia, government and venture capital through targeted incentives and encouragement.

At a micro level, there is also a need to improve an innovator's ability to link with experts, mentors and support infrastructure that will cultivate and grow innovation, such as incubators. Such support can also be extended to include better facilitation, and better access to capital networks for commercially ready innovations. Many linkages could be facilitated through virtual hubs and an effective website that provides a meeting point for diverse inputs. For example: industry problems needing a solution; researchers and innovators looking for a problem to solve; advanced innovators looking for capital; capital looking for potential investments.

Linkages need to be broader than the domestic innovation ecosystem in order to maximise opportunities. Western Australia could benefit by using its favourable time zone as a competitive advantage to link closely with Asian innovation hubs, thereby building opportunities for international collaboration and investment. While some relationships currently exist, there is much potential for WA's economy, if they are further developed.

It is important to understand and map existing innovation networks, linkages and to identify where there may be weak links in the ecosystem that require strengthening. It is also important to be aware of how generic competencies are intertwined across industries and where clusters have formed.

Encourage Innovation Across the Community

It is important that the community is part of the broader innovation ecosystem if a culture of innovation is to be successfully embedded in WA. If the public understands and supports the benefits of innovation it will strengthen and extend its impact, making innovation part of the daily conversation and leading to community driven innovative solutions for important issues.

While there are successful award programs in Western Australia that highlight the State's innovators, there are limited platforms for ongoing celebration of Western Australia's best innovations and business opportunities. Developing a permanent virtual showcase would substantially raise the profile of WA's best innovators. Publicly celebrating innovation and acknowledging the impact is just one way to encourage change.

Community innovation motivates people to help themselves and their community while decentralising problem solving. The WA Government can support events and forums that facilitate community based solutions using existing organisations and networks.

Encourage Innovation in the Regions

Regional Western Australia has been highly successful in harnessing innovation to grow the regional economy. Agriculture and other primary sectors have been at the leading edge of innovation in WA

for many decades. New communications technology means that regional centres, large and small, can have active and engaged innovation programs, developing a wider range of economic opportunities. This will create opportunities for a more engaged in-region work force that boosts sustainable regional economies. Regional Western Australia has a diverse range of businesses that have both capacity and skills.

Government and commercial services may be limited by existing operational paradigms. Servicing the regions can be expensive for both businesses and government. New solutions to support regional communities can be region-specific changes that save money. Technology driven solutions based on the internet, remote sensor technologies, drones and distributed energy and water models are an example of how new solutions could change the ways in which regions can flourish.

Unlock Private Capital

Investors have advised TIAC that there is already substantial private capital available to support innovation commercialisation, business start-ups and small high growth companies. However, barriers and inefficiencies in the innovation ecosystem inhibit optimum investment of this capital in the venture capital and start-up sectors.

While there are some regulatory barriers that should be addressed, non-regulatory barriers include a low appetite for and understanding of risk and insufficient market ready opportunities in the investment pipeline. For example, improving the entrepreneurial skills of innovators will increase market readiness of proposals.

Early stage innovation investments that assist commercialisation will require patient capital application in the knowledge that full commercialisation can take a long time.

Actions

Capitalising on the Focus Areas

TIAC together with its network of experienced specialists has considered practical actions that assist implementation by the WA Government in each of these focus areas. These actions can have short term impact whilst also influencing the longer term innovation culture and ecosystem across Western Australia. The table in Attachment 1 provides a series of possible actions for each focus area.

Actions that could be taken to implement the seven focus areas

Innovation Focus	Potential Actions
Government Leadership (Government leading from the front)	<ul style="list-style-type: none"> • Innovation Champion - appoint a Minister or a Parliamentary Secretary for innovation • Set a vision for innovation supported by a policy statement that includes measurable success indicators • The WA Government consider how to focus its activities, improve the innovation profile and make it easier for innovators, investors and the broader community to engage • Strong public statement of support from the Premier, with support from community leaders • Government to act as an exemplar, making innovation a measure of success for all agencies, and included in agency KPIs and Directors General performance agreements • Innovation sub-committee of Cabinet to drive cross government initiatives • Implement WA Government Intellectual Property (IP) Policy and Open Data Policy, allowing agencies to co-invest in IP opportunities generated, to trade IP and to reward agencies while reducing
Multi-Sector Generic Competencies - identifying and integrating generic competencies	<ul style="list-style-type: none"> • Undertake a project to map key functional and generic competencies in innovation across the Western Australian economy, identifying clusters of expertise within and across sectors, their linkages and networks, the nature of their relationships • Apply mapping outcomes to consider opportunities for catalysing development of organic growth innovation hubs • Facilitate development of generic competency based common user infrastructure technology hubs (EG sensor technology or visualisation capability), and employ initiatives such as hack-a-thons and competitions to bring together disparate competencies and extend the markets to which the technologies are applied
Strengthening Innovation and STEM Skills	<ul style="list-style-type: none"> • Provide support to assist the development of entrepreneurial and commercialisation training initiatives including mentoring, product development and network access, working closely with existing networks and organisations such as Founder Institute, Geraldton's Pollinators and Fusions Labs. For example, assist with costs associated with initial development of course content or equipment required for delivery • Create programs to link tertiary STEM skills to industry, including industry fellowships to place leading researchers in companies; a contribution to administration costs for PhD industry engagement programs such as iPrep and CEED, and insist that commercialisation and entrepreneurial skills training is a component of State research grants • Make STEM and coding skills a key focus of primary and secondary schools and TAFE, and build capacity by encouraging TAFE based coding factories • Include entrepreneurial and commercialisation training as a component of TAFE and university STEM courses
Strengthening Innovation Linkages	<ul style="list-style-type: none"> • Support the creation of a virtual hub / web site linking networks, mentors, innovators, incubators, programs, training and investors. • Reinvigorate the Innovation Centre of WA as a stand-alone non-profit organisation and support other

Strengthening Innovation Linkages (Continued)	<p>innovation hubs to ensure an adequate stock of incubators providing advice and supporting angel investor networks. A primary role for ICWA would be to become an innovation connection centre.</p> <ul style="list-style-type: none"> • Support mentor networks – one inventor/innovator needs many supporters and linkages in their network to be able to bring their product or service to mature commercialisation utilising and building on existing skills and experience in the State • Identify clusters of innovation within the State and their linkages and networks as an integral component of the mapping of generic and functional competencies • Establish strategic innovation and commercialisation relationships in Asia and the Indian Ocean region, build linkages through trade missions, showcases, exhibition attendance in strategic international events and a virtual presence consistent with the cash constrained nature of start-ups and high growth SMEs; promote the high level functional and generic competencies of the State
Encourage Innovation Across the Community	<ul style="list-style-type: none"> • Support existing organisations to deliver community innovation activities through support for events, competitions, hack-a-thons and online forum leading to solutions to important community issues • Support organisations to translate social innovation into effective solutions by providing access to commercialisation and entrepreneurial training and support for trials • Make available low cost co-working space to foster innovation widely across the community
Support Innovation in the Regions	<ul style="list-style-type: none"> • Develop biodiscovery legislations to drive research opportunities in the regions, develop a regional biodiscovery innovation hub initiative • Acknowledge a one size does not fit all paradigm – encourage identification of unique needs, capacities and opportunities on a region by region basis – identify points of difference in Regional Blueprints, and, where they include an innovation focus encourage connection with metropolitan innovation support and investor networks. • Use virtual technology to take innovation programs to the regions • Develop a regional start-up skills training workshop and mentor network • Promote and provide support to access Commonwealth funds to help regional innovation to solve WA issues • Continue to expand regional internet access through roll out of mobile communications towers across WA leveraging private and commonwealth funds
Unlocking Private Capital	<ul style="list-style-type: none"> • Amend the Limited Partnerships Act to enable Venture Capital Limited Partnerships • Promote “WA’s Best Innovators” throughout the year, including public sector and community innovations, to highlight to investors the opportunities in WA and the quality and capability of innovation within the State • Through targeted support improve the quality and quantity of opportunities in the investment pipeline • Create an innovation investment hub linking the many incubators, co-working spaces and accelerators with investor networks and individual organisations to maximise the pipeline of opportunities for investors. • Develop a strategy to increase venture capital investment in Western Australia

It should be noted that some actions, while listed against one focus, could also be listed in other focus areas.