

Dear Committee,

Further to your phone call and invitation to make a submission I offer the following comments.

These views are my personal views and do not represent the views of any companies or entities that I am associated with or mention.

1. What Drives Innovation:

Money.

Problems

Dreams

2. Collaboration

Collaboration between government (local, state or federal), universities and business is difficult because of the following factors:

Time frames rarely match. Commercial interests usually want the innovation now to solve an immediate problem or fill an immediate opportunity, where as government funding is usually tied to a budgetary cycle. Furthermore, grants are time consuming to apply for, there is no certainty of the grant, and then the project usually has to start straight away.

There is often a catch 22 situation of the government needing matching funding, but also requiring a need for funding, which is often at odds with private investment in that private investment wants certainty before funding.

3. How research can lead to the development of new products, services and jobs.

You cant always predict research outcomes.

Doing, leads to something.

Commercialising from the small WA market is difficult. There is a general lack of understanding of the scale of big world markets.

Finance industry generally wants a quick return.

Product cycles are long. It takes decades to build a solid significant business. (eg BHP, Rio, Austal Ships, Fastbrick).

4. Challenge of financing.

Early stage financing is almost always by individuals, or in house by a company already in business.

Most successful innovations come from a business already in the industry. eg Austal ships, large trimarans and Littoral ships were developed after Austal was already well established in the industry. To do this, there must be "base" industries established.

One big industry leads to many supporting industries which then produce innovative products and services. There is a critical mass of industries required to do this. From my perspective it appears that a large amount of critical mass is disappearing from WA, or changing in ways that aren't clear to me. The critical mass can have complex interactions within it self. I can give an example:

This is a short, simplified and personally biased view of some events.

The foundry industry in WA was once quite diversified and large. Then ANI / Bradken purchased most of the big foundries. These foundries produced a lot of product for the mining industry. The foundries purchased a lot of patterns from local suppliers. This allowed my business By Design Group to develop CNC pattern making machines which were sold to Tooling Solutions and Bradken (amongst others). These machines were used to make foundry patterns for the stabilisation foils which contributed (in a very small but essential way) to the Austal Ships Littoral combat ships and Trimarans to become successful. The foils were cast by Veem. The ship stabilisation development involved Halcyon Naval architects and led to them becoming established in WA and then to develop a gyro stabilisation product, that is now a project of Veem engineering. Prior to this there were a number of large ship builders in WA including Austal, Wavemaster, and Oceanfast, all of which were amalgamated into Austal Ships. In the meantime, the success of the mining industry pushed up the exchange rate and labour prices and took away skilled trades from the ship building industry, then the GFC hit which took away demand for aluminium ferries. This resulted in most of the big ship builders either closing or moving offshore. The high labour prices here may also have contributed to Bradken closing its large foundries here (Henderson and Welshpool). The loss of the critical mass of the foundry industry appears to have led to the scale back and closure of Tooling Solutions. Now that mining is in a slump, wages have reduced but the big ship building, foundry and fabrication industries have virtually gone. By Design Group's and my involvement with CNC machines, and support of a wide range of engineering related customers, and knowledge of surveying techniques used in the mining industry, led to my invention of the automated brick laying machine and "Fastbrick Robotics". I hope this illustrates that innovation doesn't happen in isolation and is built on doing, context, immersion, experience, education and critical mass.

5. Models of development.

Fund the teams, not the project. Given the long term nature and the uncertainty of innovation, it makes sense to encourage teams that might come up with innovative products to exist by supporting industries that such teams might evolve within, or to support (eg design teams for projects that are built locally, design teams for manufactured products that are built locally).

Locally built projects encourage support industries and the solving of problems. For example any fabrication project involves support industries that start with simple things like profile cutting. If the profile cutting is local, then the support for the CNC profile cutter is local, so then there is a person with CNC skills locally who one day might come up with a new innovative machine design, locally. On the contrary, for example if our food is being processed in China, then the support industries that do innovation are going to be in China.

More fundamental research for breakthroughs. But the innovation might happen in something not related to what the fundamental research was for. For example, researching how to cure cancer might lead to a mould resistant wheat crop, who knows what might happen.

More education and training at all levels, trade, professional and academic. The more tools people have for their brain, the more likely they are to innovate. The more educated they are, generally the more income they earn, the more savings they have, and the more likely they are to self fund and innovation from savings or debt. If we overtrain, then those excess skilled people may go overseas, but will pick up valuable experience or innovation ideas and may then come back. I doubt it would be wasted money in the long run.

More "basic" industry will lead to innovations, either within the industry, or as support to solve problems.

Continuity of work and projects. Big projects employ a lot of engineers and skilled trades, but if the continuity of work is lost, then they go overseas or shift industries.

Provide more easily accessible risk funding.

In general please encourage an ecosystem that puts people and teams in a state where they are able to come up with innovations and then provide the means to assist those innovations to get to market via risk funding.

6. Other comments

There are significant negative influences on innovation in WA from highly cyclical industries such as mining, housing and agriculture. The negative influences are high wages and use of skilled innovators for routine technical jobs. However in the good times, these industries drive innovation in WA.

There has been a massive lack of trade training in WA since the loss of trade training in government departments such as the Water corp, Railways, military and large companies such as mining and mineral processing companies. Since the large increase in employment via contractors, the contractors in general do not train apprentices. Eventually the cost of contractors rises and this then pushes supply to overseas.

Perhaps we should consider temporary work visas for refugees to come here while their country is in trouble, but not to get permanent residency, but to be able to work in jobs that are hard to fill, like fruit picking. They could pay a higher tax rate. If they dont work they would have no welfare. I am sure its too complicated to even consider.

I was not going to bother to respond because typically the WA state government support of innovation has only involved small grants for very specific things.

Governments tend to have a short term view on innovation. I think innovation and support for industry needs to have an infinitely long view. Industry support starts with strong education that starts with educating our children, right from pre school and goes right through to supporting, or at least not hindering mature industries.

I am mindful that there are currently very attractive and large grant and industry programs in SA and Vic.

Regards
Mark Pivac