

The Chairman  
Economics and Industry Standing Committee  
Legislative Assembly  
Parliament House  
Perth  
WA 6000

19<sup>th</sup> August, 2015

**SUBMISSION FOR INQUIRY INTO TECHNOLOGICAL AND SERVICE INNOVATION  
IN WESTERN AUSTRALIA-David Karr**

G'day

Enclosed is my submission Into Technological and Service Innovation In Western Australia.

**1. SUMMARY**

- Open, educated, tech savvy and focussed society
- Undertaking of focussed research for realistic economic outcomes with resultant tertiary opportunities for Western Australians
- Co-ordinated education and training outcomes between universities, industry and government
- Co-ordinated investment strategies in new and existing value added industries
- Decentralising employment nodes within the Perth Metro Area(PMA) and Country WA
- Effective town planning by locating labour close to employment nodes
- Learn from successful individuals and organisations in exploiting the resources of WA for the benefit of WA, Australia and the world.

## 2. What Drives Innovation

2.1. The drivers of innovation include:-

- An open society, accepting of new and pioneering ideas that benefit the majority of the community, such as moving from a primary industry economy to a tertiary downstream or value added market
- Progressing with the times especially in the case of the digital age
- A basic understanding of not necessarily undertaking the most obvious course of action but seeking alternative actions. For example planning integrated developments with residential and employment close by.
- Innovative individuals who have the ideas, motivation, economic resources or network of contacts to promote new ideas such as Andrew Forrest, Ralph Sarich, Fiona Stanley, Fiona Wood or Barry Marshall.
- Being pushed into a corner and having no alternative but to do something constructive as in the case of a 'boom and bust' economy(This is not necessarily a suitable situation)

2.2. Innovation needs to be an ever present motivator of WA's society and economy.

2.2.1. This will allow for a more stable economy and thus society to travel through the ups and downs of the various financial and social crises that occur from time to time.

### **3. Collaboration Between Government(Bureaucracy), Universities and business(industry) AND SOCIETY IN GENERAL**

3.1. It is essential for the various components of society, to co-ordinate the education of the various occupations, to meet the needs of business as well as society in general.

3.1.1. As an example in engineering, it is necessary to have units that inform engineers that they impact on society namely Engineers in Society.

3.2. Also the courses especially in engineering need to be configured so that there is a positive outcome, namely useful employment opportunities.

3.2.1. For example UWA trains Mechatronic engineers. Companies in WA are not necessarily configured to use use this particular skill at this time. Possibly due to ignorance, unwillingness to change or...(How many mechatronic engineering positions are there in WA or how many mechatronic engineering positions could there be but industry is not aware or interested in this aspect of engineering?)

3.3. Another area of training mismatches, includes the training of doctors.

3.3.1. Do doctors need to know about alternative medicine-definitely YES? Or should they know about empathy-again yes?

3.3.2. Or the location of doctors, should recently qualified doctors(or teachers), as a condition of their training, have to spend 2 or 3 years in the country.

3.4. Another area of concern is the non focus of the training of those occupations that are needed now or in the near future such as Information Management, industrial engineering, hospital administration(doctors do not necessarily make the best hospital administrators) or town planners(town planning in WA is woeful in the extreme)

3.4.1. Town planning training in WA is extremely poor. As Eric Lumsden (Chair of the Western Australian Planning Commission) indicated, town planning especially in the PMA has been adhoc and wedded to the 1955 Stephenson Hepburn plan.

- 3.4.2. This plan, which is still being followed today by focussing on the car as the main means of transport as well as having a few central employment hubs such as the CBD.
- 3.4.3. There is a need to decentralise Perth and create integrated developments with commensurate residential and employment facilities complemented with educational, health, commercial and leisure infrastructure.
- 3.4.4. This would reduce travel times by effectively reducing the passenger kilometres travelled, which are estimated to be growing at least at twice the rate of population growth in Perth. (Prof Peter Newman of Curtin University would have the accurate data)

#### **4. How research can lead to the Development of New Products, Services and Jobs(opportunities)**

4.1. Prior to research being undertaken, there needs to be a clear vision that ALL research efforts needs to lead to clear and achievable outcome goal.

4.1.1. These goals could include:-

- Benefits to society such as in medical research
- A viable commercial outcome

4.1.2. The days of undertaking research for research sake are over.

4.1.3. On the other hand, necessary research(both public or private), meeting the above criteria should be undertaken and sufficient public and private funds and resources provided.

4.1.3.1. We do not want to repeat the case of David Warren, an employee of the CSIRO having to go out on his own time and spend his own resources to invent the Flight Data recorder(which Australia totally ignored)

4.1.4. The evaluation process for research resources, needs to be such that there is co-ordination, prioritisation, timescale and humanitarian need considerations are taken into account at all times.

4.1.5. Research resources also need to be evaluated in order to optimise the value adding benefit outcomes for WA.

4.1.5.1. This process will lead to further employment opportunities once the manufacturing processes are setup in WA(and not overseas such as happened with the Orbital Engine Company)

4.1.5.2. Again notice needs to be taken of the situation where funds were provided for solar cell research in NSW. There were no Australian companies wanting to setup manufacturing facilities. The outcome was the technology being exported to China and solar cell manufacturing occurred there on a massive scale.( Shi Zhengrong)

## 5. The Challenges Associated with financing and Commercialising New Technologies, Products and Services

5.1. As mentioned in section 3.1, there needs to be a clear and achievable outcome for research to be viable in WA.

5.2. The financing of new technologies, products or services, needs to be a THREE WAY endeavour.

5.2.1. Participation by the state government, large corporations and venture capitalists/banks.

5.2.2. There is the WA State Innovation Centre in Technology Park, Bentley as well the Federal Small business Grants and Assistance program to assist new businesses.

5.2.2.1. Of course these programs need to be focused on what will give the "biggest bang for the buck".

5.3. There are various technologies(new or existing) whereby WA could commercialise and value add to and benefit tremendously. These include:-

- Carbon fibre manufacture
- Graphene batteries
- Nano technology(research now at UWA)
- Titanium refinement and subsequent cheap manufacture(similar to cheap bauxite(aluminium) refinement in the 1930's)
- Development and manufacture of unmanned aerial vehicles and associate technologies
- Solar cells
- Tertiary education of overseas students
- Healthcare research and subsequent products
- Agriculture research into healthier crops(NON GENTICALLY MODIFIED)
- Electric motor vehicles
- Chemicals
- High quality steel manufacture
- High quality aluminium manufacture
- Information Technology management, gathering and innovation

5.4. A system that encourages new businesses and technologies to flourish including realistic planning, safety, health and environmental processes.

## 6. Models of Development by which Technological and Service Innovation could be Encouraged in Western Australia

6.1. There needs to be a suitable framework for encouraging businesses to operate in WA.

6.2. Some successful innovative WA value added organisations include:-

- Austal Ships
- Orbital Engine Company
- Carnegie Wave Energy
- Bombora Wave Power
- Trackem
- Avita Medical(spray on skin)

6.3. There needs to be a radical review of how WA encourages new businesses to set up in this state. This includes:-

- Location of industrial parks close to potential employment resources(not ala Ellenbrook, Alkimoss, Baldivis or Mandurah)
- Suitable road and rail access to industrial parks-absolutely necessary
- Cheap land(WA is over 2.5million km<sup>2</sup> in size with just over 2.4 million people)
- Cheap utilities(electricity and gas prices are unrealistic to be competitive with Asia)(why) especially for value adding industries
- Realistic pay structure both at the high and low end(compulsorily share ownership and profit sharing)
- More state and federal assistance and incentives with the setting up of new small businesses( as per Innovation Centre and grants)
- Efficient ports
- Efficient airport
- Productive and educated labour force

6.4. Education needs to be constantly updated and upgraded. The need for more students to study the STEM(science technology, engineering and mathematics) subjects at school. Also the need to follow occupations leading from these subjects is essential.

6.4.1. Bursaries in the STEM subjects/occupations need to be a priority

6.5. Encouraging established companies especially the mining companies to move into value adding industries fro example BHP to high quality steel, Alcoa into aluminium etc

6.6. Decentralising of industries and realistic location thereof.

6.6.1. Setting up a chemical industry in Karratha near large sources of energy(cheap) and chemical base(natural gas)

6.6.2. Setting up timber and agriculture value industries near where these primary resources are located.

I would be available for any additional input as required.

Thanking you

A handwritten signature in black ink, appearing to read 'DKarr', with a horizontal line above and below it.

David Karr(C.P. Eng)

Principal/CEO

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