



**Economics and Industry Standing Committee**

Legislative Assembly Committee Office  
Level 1,  
11 Harvest Terrace  
West Perth WA 6005

Your Ref: A505641

**Attention: Principal Research Officer**

19<sup>th</sup> August 2015

Dear Sir/Madam

**Re: Inquiry into technological and service innovation in Western Australia**

In response to the letter dated 26 June 2015, from the Chairman of the Committee, I would like to provide a submission to the above inquiry on behalf of Fastwave Communications Pty Ltd.

Fastwave is involved in two of the three industry sectors that the Inquiry is focussed on, namely mining and energy and advanced manufacturing.

More specifically, Fastwave is an SME focussed on the development and commercialisation of autonomous remote sensing and data acquisition systems used in the maritime domain for offshore energy, defence, environmental, natural resource and scientific applications. Since 2001, the company has been developing and applying the expertise to integrate advanced instrumentation systems with subsea acoustic and satellite communication systems, enabling real-time data acquisition from assets on the ocean surface and subsea.

In the last two years we have established partnerships with USA and UK based manufacturers of autonomous marine robotic devices, with the objective of enhancing the data acquisition capabilities of these "marine drones" to meet the specific needs of different users.

The following comments are made in reference to the Inquiry's nominated areas of interest, and in the context of the comments above.

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- **What drives innovation?**

For an SME such as Fastwave, innovation is driven by balancing commercial opportunities against business risk, and built on financial capacity and entrepreneurial endeavour.

The business risk associated with innovation can be mitigated by careful identification of capability gaps or problems with existing products or services. However, inertia can be a major obstacle to innovation when dealing with inherently conservative, risk-averse industries such as upstream oil & gas and defence. This applies particularly to SME's, who cannot easily survive long periods without cash flow generated from new product introduction and sales.

In this respect, the ability to demonstrate the value of an innovative product or service to an end user, even in prototype form, can significantly reduce the lag time from concept to commercialisation, and hence the commercial risk.

**The West Australian Government could consider establishing and supporting a mechanism that encourages large organisations to partner with qualified SME's to jointly develop "Concept Technology Demonstrators" aimed at addressing a specific industry problem or need.**

The ADF's Rapid Prototyping, Development and Evaluation (RPDE) Group is an example of how this type of approach works well in the defence sector, acting as a neutral catalyst between defence end-users, large defence contractors, academia and SME's. However, the RPDE organisation is Canberra-centric, and there is a need for something similar in WA that encompasses the offshore oil & gas industry in particular.

For more information on RPDE, please refer to:

[www.rpde.org.au](http://www.rpde.org.au)

- **Collaboration between government, universities and business**

The RPDE organisation referred to above is a model that brings these entities together within the framework of meeting specific defence requirements.

However, there is also significant scope for collaboration between these entities in the field of subsea and marine technology development. As with RPDE, it requires government to provide the initial impetus and framework for this to occur.

A good example of how this can work is the UK Government's Small Business Research Initiative (SBRI) on marine technology, co-ordinated by the National Oceanography Centre (NOC).

Under the auspices of this programme, the NOC has co-ordinated a major research initiative with the World Wildlife Fund into a marine bio-diversity hotspot off the UK coast, using it as a "showcase" to demonstrate innovative marine robotic technologies and sensor systems. Aside from gathering a wealth of data that would not otherwise be available to researchers, the programme has allowed the demonstration of these technologies in a low risk setting to potential users in the offshore energy and defence sectors.

For more information on this model please refer to:

<http://noc.ac.uk/news/noc-wwf-partnership-novel-marine-robotic-vehicle-trials>

**WA's own marine bio-diversity hotspot, Bremer Canyon, could be a prime opportunity to do something similar by combining research initiatives from local universities with technology demonstrations from advanced autonomous marine technology companies such as Fastwave, and supported through the international media agreements (eg National Geographic) that have already been secured.**

For more information please refer to:

<http://www.bremercanyon.com/>

An issue that is of concern to Fastwave as an SME competing in the marine technology sector is the increasing propensity of research institutions to pursue commercial work directly with end-users, using facilities (eg vessels and equipment) and personnel that are intended for research purposes only.

This can compromise the research focus of the institutions in question, and act as a deterrent for the private sector to invest in R&D and new technology.

- **How research can lead to the development of new products, services and jobs**

As an example, Fastwave spends up to 40% of its revenue on R&D activities, entirely focussed on developing products and services that can be commercialised in the short to medium term. 80% of our employees are either directly or indirectly engaged in the R&D activity.

In this respect, R&D is a key driver for an SME to innovate and keep people employed, supported by the Federal Government's R&D Tax Incentive, which is open to firms of all sizes in all sectors who are conducting eligible R&D.

More importantly, R&D activity within an SME enables the development and retention of intellectual property that can ultimately become the most significant commercial asset and source of competitive advantage for the business.

Successful R&D initiatives by local SME's in the marine and subsea technology arena have been shown to have a multiplier effect by attracting direct and indirect investment from much larger international companies wishing to capture the relevant IP.

A key issue for the State Government is to ensure that the IP is not simply transferred overseas without any benefits accruing to the State in the form of investment in local production or service capacity.

**The WA Government should give consideration to more precisely targeted R&D support for local SME's, focussed on strategically important industry sectors that will generate sustainable domestic and export growth opportunities.**

An example of this is the Inspection, Repair & Maintenance (IRM) service sector that will be required to support the Shell Prelude FLNG operations from late 2016 onwards. There are many unresolved technical challenges facing FLNG, creating an opportunity for WA to become an international centre of R&D and innovation in this field.

- **The challenges associated with financing and commercialising new technologies, products and services**

Reducing the risk involved with developing, demonstrating and launching a commercial product and service is a key factor in securing the confidence to invest financial resources from internal and/or external sources.

As mentioned above, being able to incrementally expose and demonstrate the new product to potential users is an important part of this process, but it can be very expensive, particularly in the latter stages of commercialisation during the prototype stage, when field trials may be required.

For an SME involved with the marine and subsea technology sector, some of the challenges this presents are:

- Accessing and paying for vessel time for sea trials and demonstrations
- Having access to underwater testing facilities, including long term trials in a real-world ocean environment

**Given that WA is developing the nucleus of a marine and subsea technology industry, it would be appropriate for the WA Government to consider the establishment of specific “common user” facilities to support R&D and innovation in this field.**

This could be in the form of a suitably equipped vessel, such as an ex cray-boat, a dedicated jetty and pressure testing tanks.

An example of where this has been done successfully on a commercial basis is the Underwater Centre in Fort William, Scotland. This facility has been set up to support the large offshore engineering and subsea sector in Aberdeen, and has now opened a second facility in Hobart, Tasmania to service the marine research sector. For more information please refer to:

<http://www.theunderwatercentre.com/corporate/location-facilities/>

A similar facility in Perth could act as a catalyst for sustaining subsea and marine R&D activities that may otherwise stall due to the impediments described above.

Successfully launching and commercialising a new technology or service aimed at industrial and defence applications requires considerable expenditure on market promotion, in the form trade shows, conferences, presentations and supporting material.

In this respect, Fastwave has consistently promoted its products and services at a range of domestic and international industry forums over the last twelve years, using these as an important source of feedback regarding potential areas for innovation and R&D effort.

The premier international conference and trade show for marine and subsea technology is held in London every two years. Refer:

<http://www.oceanologyinternational.com/>

Fastwave has been exhibiting at this conference since 2006, and during this time has been the only Australian exhibitor out of more than 500 exhibitors per event. Many of the other exhibitors do so under the auspices of their country of origin, with large national and state pavilions hosted by Canada, Norway, France, Netherlands, UK, Germany etc. As a country with significant maritime interests and resources, Australia is notable by its absence. This applies in particular to Western Australia, given its position as regional hub for the offshore energy sector.

**Consideration should be given to supporting a WA trade mission to this event, due to its importance in the subsea and marine technology sector.**

- **Models of Development by which technological and service innovation could be encouraged in Western Australia**

Some potential models to address some specific issues have already been referred to above.

A model that has been particularly successful for achieving innovation, growth and export success in the marine and subsea sector has been developed by the Canadian Government, implemented at a regional level through the Newfoundland and Labrador State Government's Department of Business, Tourism, Culture and Rural Development. The primary mechanism used for this is the Ocean Technology Enterprise Centre, which describes its mission as follows:

*"The mission of the NRC Ocean Technology Enterprise Centre is to promote the development of ocean technology business in Newfoundland by:*

*Providing a supportive environment to assist the growth and development of new ventures in ocean technology and:*

*Providing co-location facilities to assist collaborative activities between NRC researchers and ocean technology companies and organizations."*

**This model combines many of the supportive elements described in the previous sections of this submission, and could provide a template for the WA Government to consider.**

For more information, please refer to:

<http://www.btcrcd.gov.nl.ca/sectordev/ocean.html>

Since the implementation of the “Oceans of Opportunity” strategy in 2006, the Newfoundland and Labrador State Government has been remarkably successful in fostering the establishment of a vibrant, innovative ocean technology industry in the face of significant economic and social challenges following the collapse of the fishing industry, the traditional employment mainstay of the region.

Fastwave represents a number of the small, innovative and export focussed companies based in the region, distributing their products and services in Australia.

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In conclusion, Fastwave sees a positive future for the development of the marine and subsea technology sector in Western Australia.

There is already a nucleus of locally established small businesses achieving success in this area, but they are vulnerable to industry cyclical downturns and domination by much larger global players.

There is no specific Federal and State Government support for this small but growing and strategically important sector. Instead, most support programmes are more generically aimed at supporting R&D and export growth across a range of industry sectors, with the exception of defence. At present, government policy and strategy towards the sector is fragmented, without clear direction and objectives.

**The opportunity exists for the Western Australian Government to develop a cohesive strategy to support this nascent industry sector, aimed at building it into a regional centre of excellence for advanced technology development and manufacturing.**

Thank you for the opportunity to make this submission, which I hope has been useful, and I look forward to providing any further input that you may require.

Yours Sincerely

Nick Daws

Director

Fastwave Communications Pty Ltd