Inquiry into Pathways to Technological Innovation

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Introduction

ATP Innovations (www.atp-innovations.com.au) is a technology commercialisation hub that nurtures and supports start-up businesses in the biotechnology, ICT and electronics sectors. The convergence of these technologies is critical in creating new technology businesses in Australia. ATP Innovations is committed to ensuring the success of such emerging ventures. ATP innovations, whilst owned by four major universities (The University of New South Wales, The University of Sydney, The University of Technology, Sydney and the Australian National University) has a brief beyond public sector commercialisation and also actively works with private sector startup ventures to assist the development of their businesses.

Specific areas addressed

1. Pathways to commercialisation - universities

The recent debate around the effective outcomes from university and public sector IP commercialisation promoted by Minister Nelson is timely and encourages the community to enter into an important debate which if the right benchmarks and metrics are established will contribute significantly to establishing real outcomes for Australia as it seeks to build its future economy around knowledge based enterprises.

Over the past 5 years we have seen significant improvements in the commercialisation processes and methodologies employed by public sector entities. Data emerging from a number of studies conducted by both DEST and AUTM show that based on a number of indicators Australia performs quite well alongside some of our international counterparts. However data sets are relatively recent and there is a need for a more comprehensive set of performance metrics to be developed to chart our progress and measure our success going forward. The recent release of the government interim report on establishing commercialisation performance metrics is therefore an important one and we applaud this initiative.

Each university has their own set of protocols which govern their technology commercialisation activities. In most cases such activities are also covered by various state acts which mean that different conditions must be met in different states. Other differences occur around institutions seeking to meet their own internal commercialisation objectives. Despite this there is a degree of harmonisation across university IP commercialisation processes and practices and this is good for Australia. This will only be further enhanced once national performance metrics are implemented across the sector.

We note that there has been a discernable shift in the business models under which universities conduct these activities. The reality is that for most universities (even those with large research outputs) commercialisation of institutional IP provides relatively modest financial returns to the institutions in the short term and this is derived mainly though licensing opportunities. It is worth noting that international comparisons with other universities around the world also indicate that

most universities only derive modest returns on these activities and this is not isolated to Australia.

Increasingly we have also observed changes in the way universities operate their commercialisation activities. The most common model was where Technology Commercialisation Offices (TCO) operated as a separate corporate entity with the expectation that they will be profit centres. This is changing to a model where the TCO are now often being integrated into the broader university operational structure often as an unincorporated entity. Part of this change is due to the realisation that returns on investments are often long term and it is difficult to sustain these operations as profit centres. Combined with this is a view often expressed that universities have a 'moral obligation' to convert the results of research into useful products and process for the national good. After all most of the research was originally supported by the tax payers of the nation. These changes in thinking and approach are actually refreshing as there is now a strong recognition that it is important the IP generated from fundamental research needs to made more accessible for commercialisation and that this is probably better done outside of the TCO once it has reached a certain stage of development. This is leading to a more enhanced level of engagement with industry.

2. Intellectual property and Patents

The costs of protecting IP emerging from university and other public sector research institutions has traditionally be covered by those institutions in the early commercialisation stages. This often creates a heavy financial burden on these institutions especially when they are required to carry responsibility for maintaining the protection rights for considerable periods of time. For larger institutions this burden is probably somewhat easier to carry but for smaller institutions it creates major difficulties and could lead to licensing or other commercial deals being done in haste.

How could the federal government assist? I would suggest that they need to consider establishing an IP maintenance line of credit. This would allow universities to call on this line of credit to pay for IP maintenance and protection costs until such time as the IP is assigned to commercial partners. At this time once the commercial transaction has been competed the line of credit loans would be paid back.

3. Skills and business knowledge

The need for entrepreneur education has been highlighted by the IR&D board and also in the recent PMSEIC working party on growing technology SME's.

Commercialisation skills development needs to occur at 3 main levels.

1. Within our tertiary institutions: programs delivered at an early stage within tertiary education sectors possibly as compulsory foundation courses for undergraduate students. Short induction or refresher courses for academics are also required and worthy of consideration.
2. By industry facilitators (e.g. ATP Innovations and the AIC): delivered to entrepreneurs involved with very early stage enterprises and aimed at providing them with strong fundamentals around business formation and skills to deal with early stage business issues.
3. By professional services firms and industry peak bodies as part of an ongoing program of professional business development.

Relatively few universities offer basic introductory courses on commercialisation to students outside of those provided through their business schools and faculties or as part of an MBA type degree program. These courses whilst valuable rarely fulfill the needs of those starting a technology based enterprise. It is our experience that MBA graduate starting a business have little relevant knowledge required to sustain their business in the early stage start-up environment.

Whilst there are now a number of organisations which provide ongoing professional development programs for early stage businesses, these tend to vary in quality and focus. One of the key issues is the cost associated with setting up such programs both in terms of time and fees. The AIC courses go someway towards addressing this and our own bizNetClub professional development series is also highly cost effective for which an early stage entrepreneur can attend 22 events annually for a total cost of $125 per annum. We also deliver program content to our members as audiocasts (or podcasts) which allows them to review program content at their leisure and is easily accessible through the internet. We believe we are one of the first organisations in Australia and, one of the few globally, currently doing this. The opportunities therefore for the delivery of learning material to expanded audiences and interested parties are available in a way that was not attainable before.

Many peak industry bodies also run courses and seminars throughout the year which tend to supplement the more formal courses on offer and are a valuable source of ongoing professional education. However these programs are primarily directed to those living in metropolitan centres whilst for those in isolated or regional centres such opportunities are not easily accessible. We suggest below some ways in which this situation could be altered.

The NSW Enterprise Workshop: a model for early stage company education

One excellent program which is often overlooked is the enterprise workshops (EW) scheme. The NSW EW program is arguably a most important source of entrepreneur education in NSW. It runs as a not for profit that trains on average 25 teams of 3 persons in business planning each year. It is able to put cost effective entrepreneur programs into the market because of the voluntary efforts of approximately 100 experienced business people. ATP Innovations has been involved with the NSW Enterprise Workshop (NSW EW) for a number of years and is represented on its board and supports its office secretariat as an in-kind contribution.

The workshop offers two streams each of 13 weeks duration. It is a team based program and begins with a series of seminars followed by teams forming to create a business plan around a product. It has been designed to be taught primarily on Fridays and weekends and apart from a small secretariat is taught entirely by business volunteers. Each team works on the development of a business plan with help from mentors, and they undergo a series of reviews through presentation to mentor panels which review and critique their progress. Whilst most states have an EW program the NSW program has been the most successful and is currently in its 22nd year of operation. 50 % of the participant course fees are subsidised by the either NSW DSRD programs or through leverage from the COMET program. Without these government subsidies there would be considerably lower demand because many entrepreneurs have access to limited finance. However, we are very concerned that COMET as a source of funds is being unintentionally squeezed.

As a result of recent changes to the COMET program we sense a tightening of the criteria around skills applications. Also, from the COMET advisers there appears to be a reluctance to get involved on what used to be "Management Skills Development" (MSD) style applications

because they don't attract a success fee. We are quite concerned about this because it puts the very survival of the workshop in question.

Questions which need exploration include:

- Was it AusIndustry's intention in the restructure the program to limit the number of applicants funded through the new equivalent of the MSD?
- Is it still AusIndustry's preference that the equivalent of MSD applications are processed through COMET advisers?
- Clarification is required on the details of AusIndustry's guidelines to the COMET advisers as to how to treat skills-only applications, because we are concerned they are disinterested in processing such applicants.
- In the case of disinterest from the COMET advisers (because of the success fee issue) would it be possible to submit skills-only applications directly through the AusIndustry office?

Other initiatives

All of these programs are fine if you live in or are close to metropolitan centers. For those in regional Australia it is very much more difficult to access such courses.

ATP Innovations in partnership with the NSW DSRD have created an experimental program called the Regional Biobusiness Outreach Program (REBOP). The aim of this program is to:

1. Clearly identify and map the biotechnology activities with business potential being conducted in the regional centres.
2. Identify the needs within these centres for assistance with commercialisation programs and processes.
3. Seek to promote the regional biotechnology initiatives into the broader NSW community
4. Foster development of productive partnerships with industry sectors seeking to commercialise such technologies.
5. Provide hands on practical introductory courses to biotechnology commercialisation.

We believe that more emphasis needs to be placed on delivering similar broad based programs to regional centres in Australia, in particular addressing regional strengths and providing programs to support the commercial development of smart businesses. We believe that REBOP could be broadened to cover sectors other than biotech and may serve as a model for a wider program targeted across regional Australia.

4. Capital and risk investment

Globally the most difficult period for an early stage venture is at the pre-seed funding stage when access to start-up capital is extremely difficult to source. The situation is pretty much identical whether the companies are emerging from the public or private sector. However there is often a significant advantage for companies emerging from public sector institutions as these organisations tend to provide significant levels of early stage support especially in terms of infrastructure and access to various services.

Most entrepreneurs or ventures will seek start-up funds from private individuals or in some cases employ their own funds. The VC community in Australia, with the exception of a small number of funds has not broadly supported investments in early stage high risk ventures and they are not a ready source of pre-seed investment.

The governments' response to this was the establishment of the Pre-seed Investment Funds (PSF's). However their creation has still not really addressed the early stage funding gap issue for a number of reasons.

1. The PSF's are run along the lines more akin to VC funds which tend to be quite risk adverse in their investment mandates. These funds often seek onerous investment conditions and are not keen to invest less than $1M per project
2. The funds only have a mandate for public sector research and yet the majority of early stage ventures emerge from the private sector.

Overseas particularly in the US and UK these early stage funding issues are quite effectively addressed by well established and highly respected angel investment groups which often have access to significant investment funds. An excellent model for how this operates on a national level in the USA is the National Association for Small Investment Funds (www.nasvf.org) this organisation is an umbrella association for most of the angel groups in the US as well as for State operated investment vehicles, regional development agencies and local economic development agencies. I would commend the committee to further explore the NASVF with a view to supporting the establishment of a similar model here in Australia. It is worth noting that the funds invested by NASVF members in some cases exceed those by VC groups within a particular region.

Government Finance and Support Programs

Government financial support under the commercial ready program is without a doubt a critically important program for early stage ventures in Australia. COMET whilst very useful in some settings is less attractive when capital raising is involved due to the success fee payable to advisors.

Access to the programs

An issue which has caused some concern and needs addressing is the ineligibility of many university spin out companies to access the Commercial Ready Program. During the early phase many of these spin out companies are still majority owned by the university. This majority ownership rule excludes them from access to the program.

This is a major hurdle for these companies. It is our experience that access to matching 'Commercial Ready dollars' is the one of the critical circuit breakers in assisting a new ventures to establish itself through accelerated investment in product development and is a key driver in enabling an entity to successfully migrate from the university environment to a more commercial setting. We therefore encourage the government to look at this issue with a view changing this restrictive rule that is effectively cutting off a major source of funding and making spin out activity from universities more difficult.

5. Business and Scientific Regulatory issues

Increasing levels of regulation and compliance are causing a range of problems for early stage businesses. A critical issue relates to business insurance cover. There are significant barriers in place to obtaining and maintaining public liability, professional indemnity and directors and officer insurance for early stage ventures. These barriers include the high cost of premiums, the perceived high risk levels around early stage companies by insurance companies and a particular reluctance of insurers to cover businesses such as those engaged in the biotechnology sector.

The inability of these companies to obtained cost effective and comprehensive business insurance coverage is causing problems for companies who are required to furnish proof of such cover when seeking to take on government contracts, manufacturing activities or even in the recruitment of company board members. All of theses are significant barriers against which early stage technology companies have to fight.

The commonwealth government is urged to address this issue as a matter of urgency. They may wish to consider working with the relevant industry peak bodies to determine the nature of the issues around each sector.

6. Research and market linkages

A major issue for early stage companies is how they assess and ultimately access new markets globally. The first issue is cost, and although Austrade provides excellent services to assist companies often these are expensive and not always appropriate for early stage companies. The second issue is access to appropriate introduction and networks of people who can assist them in assessing the local market opportunities and secondly assist them is establishing a low cost 'beach head' or 'soft landing pad' from which they can conduct their business.

With these aspects in mind we have recently established a project aimed at assessing options for the provision of such activities in a low cost and easy access manner for our own emerging companies. We have created a discussion board called the World Innovation Network (WIN) to promote discussion around the formation of a worldwide network of entities interested in collaborating to help drive market access opportunities for emerging technology companies in the ICT, electronics and life science sectors. The genesis of this was a visits to the UK by ATP Innovations staff to attend two meetings entitled '*The Best Practice in Science Based Incubators*' held in Oxford and organised by the Science Alliance and the *2nd Global Connect Conference* held in London during early December 2004.

Both of these meetings had a common theme - the creation of a worldwide network to assist emerging technology companies move into global markets, and were attended by market facilitators from many countries. We will be developing this concept further over the coming months but all the evidence from discussions suggests that there is a real need to provide such services to emerging technology companies in Australia which are seeking to enter global markets.

7. Factor determining success

Our experience in working with early stage technology companies (we currently have over 40) has confirmed a number of key success factor for commercialisation.

- Access to knowledge
- Access to key strategic networks

- Getting the right people behind and in a new enterprise
- Access to smart money
- Ability to assess validate and enter key markets
- Development and testing of realistic business models

8. Strategies in other countries that may be of instruction to Australia

The SBIR program[1]

SBIR is a highly competitive US Federal Government program that encourages small business to explore their technological potential and provides the incentive to profit from its commercialisation. SBIR targets the entrepreneurial sector because that is where most innovation and innovators thrive. However, the risk and expense of conducting serious R&D efforts are often beyond the means of many small businesses. By reserving a specific percentage of federal R&D funds for small business, SBIR protects the small business and enables it to compete on the same level as larger businesses. SBIR funds the critical startup and development stages and it encourages the commercialisation of the technology, product, or service, which, in turn, stimulates the U.S. economy. Unlike Commercial ready program in Australia, funds are awarded as grants and no matching funds or future payback required. They have been highly successful since their inception in the original form in the 1950's

Following submission of proposals, agencies make SBIR awards based on small business qualification, degree of innovation, technical merit, and future market potential. Small businesses that receive awards or grants then begin a three-phase program.

- Phase I is the startup phase. Awards of up to $100,000 for approximately 6 months support exploration of the technical merit or feasibility of an idea or technology.
- Phase II awards of up to $750,000, for as many as 2 years, expand Phase I results. During this time, the R&D work is performed and the developer evaluates commercialization potential. Only Phase I award winners are considered for Phase II.
- Phase III is the period during which Phase II innovation moves from the laboratory into the marketplace. No SBIR funds support this phase. The small business must find funding in the private sector or other non-SBIR federal agency funding.

[1] http://www.sba.gov/sbir/indexsbir-sttr.html#sbir