The future of manufacturing in Australia

This brief paper aims to highlight an issue that may be critical to the future of manufacturing in Australia, and to propose in broad terms the approach to addressing this.

1. The objectives

There is evident support for the view that it would be highly beneficial to Australia to achieve the following.

- Reverse the decline of manufacturing industry, and accelerate its transformation to adapt to the "third industrial revolution".
- Generate jobs growth especially in those sectors where work is rewarding and is likely to retain or attract highly skilled individuals in a globally competitive jobs market
- Improve the national return on the significant investment of taxpayers' money currently allocated to research in public funded research organisations.

My proposition is that these objectives are linked.

2. The common point of action

Where these three strategic objectives meet, or at least overlap, is in the zone of technology based start-ups and SMEs.

- There is little evidence that large established manufacturing firms have much appetite to invest in growth or transformative new technology in Australia; very much the reverse – in almost every sector we see downsizing or shutdowns. Only new companies are primarily focused on investing in new products, processes and manufacturing concepts.
- It is commonly reported that in developed economies job growth comes from the SME sector. And it is reasonable to argue that jobs in technology based start-ups will be more stimulating and rewarding than those in locally static or declining industries.
- Start-ups, having no lock in to older manufacturing technologies via legacy investment in plant and machinery, will naturally be inclined to adopt latest technologies and thus be more globally competitive and "future proof"

- Broadly, new technology created by our research organisations can be commercialised either by license-out to an established (usually foreign) firm, or by means of a start-up or spin-out set up (usually locally) for the purpose. Where the latter is practicable, it is clearly likely to deliver more value to the Australian economy, and to lead to subsequent ongoing collaboration between the research organisation and the new company.

Overall, then, we argue that maximising the emergence and successful development of technology based start ups is a powerful way to advance towards the three objectives set out above.

3. What Australia can build on

There are several strengths in the Australian system that we can build on.

- It is well recognised that we have excellent research capability in our public sector organisations. These generate world leading research outcomes relevant to a wide range of industries.

- Australians as individuals are innovative. The culture and environment are rich in the factors that research has shown are critical to encouraging individuals to be creative and to attracting and retaining creative individuals; this combines with the Australian "have a go" attitude to generate useful innovative concepts and solutions to real-world needs or opportunities. There is a long list of commercially successful technologies or inventions that were created in Australia.

- Australia is a relatively entrepreneurial country, usually ranking high in the Global Entrepreneurship Monitor's annual league tables

- Australians are keenly aware of the rest of the world, and technology based start-ups are likely to be "born global" at least insofar as the vision of the entrepreneur is concerned.

- There is a significant volume of private sector money in the Australian economy, looking for suitable investment opportunity; this applies both to the institutional and to the individual sector.

4. The current gap

The major obstacle to the emergence of larger numbers of early stage high growth manufacturing companies (the next generation of Tenix's, ResMeds, Vision Systems Ltds, Cochlears, Memtechs, Varians) is lack of appropriate funding for early stage companies. Specifically, the unserved part of the "IP to IPO" journey is that stage immediately following the end of the public funded research: a start-up has been formed but needs significant

funding to advance the technology to launch-readiness and to develop its business commercially, famously "the valley of death". Various sources of funds are available to companies once they have demonstrated that they can generate revenue, but very few to pre-revenue companies. Of those that do exist:

- Business angels typically cannot provide the quantum of funding needed to develop and launch a significant new product.
- Commercialisation Australia provides some support, but applications for the larger grants have a lower chance of success and importantly CA does not cover R&D, which is usually the central need for this early stage; CA also provides only 50% of the funds required so the applicant has to have at least half the funding already available.
- The R&D tax offset provides very useful gearing, but only for those who have the funds already available to do the R&D in the first place and to fund their operations until the offset is received from ATO the following year.
- In theory some VC firms do operate in this domain but in practice they often show a preference for cases where there is already a revenue stream; and in any case Australia is not well populated with active VC firms at present.

Thus, an Australian start-up or pre-revenue company has a very good chance of having to leave the country to raise the funds to go forward.

5. The opportunity space

Put simply, the opportunity is to make it attractive for appropriate private sector investors to direct a proportion of their available funds to equity investment in early stage, potentially global and high growth, technology companies. At present, there are seen to be too few success-models and in particular Australian VCs that have operated in this sector have in general not performed particularly well, so the risks are seen at too high by most private sector investors; the need is for an incentive to offset this perceived-risk barrier.

A previous example of such an incentive was the Syndicated R&D Scheme: for all its faults, this was assessed as being most successful in mobilising private sector funds to R&D and thereby inducing significant private sector R&D projects that would not otherwise have occurred; of relevance to this paper, a number of today's Australian iconic technology based companies were launched or at the very least given a substantial boost by that scheme.

Desirably the incentive would focus more broadly than the Syndicated R&D Scheme, on funding of technology based start up companies for commercial development activities including R&D rather than on R&D exclusively. As an example, in many countries (eg UK, USA, New Zealand) Angel Investors are given some tax incentive or special support for this type of investment. Desirably also, the incentive should be designed to complement existing

programmes notably the R&D Tax Offset cash payment for SMEs, Commercialisation Australia, the IIF programme and the Innovation Precincts programme.

As noted above, the critical gap is for the first round of funding after a technology is transferred from the research environment into a start-up company: the opportunity we wish to address is more effectively to bridge this funding "valley of death". Measures could for example focus on special tax concessions for first-round investors in new companies, subject obviously to qualifications to prevent abuse. A very simple model might be that for first round equity investors any eventual capital gains (up to some prescribed ceiling for each investment) would not be subject to CGT; this could suffice in many cases to offset the perceived higher risk of this type of investment, and would have only a modest (and deferred) cost to tax revenue. This, broadly, would extend the benefits currently enjoyed when investing via a ESVCLP licensed under the federal government scheme to individual angel, private equity or institutional investors when making a direct first-round investment in a qualified start-up.

6. Concluding comments

This paper in no way suggests that sizeable established firms are not an essential contributor to achieving the objectives set out in Section 1. Today, they are the primary employers and the primary routes for technology commercialisation, and it is important that they continue to be so. But it is our contention we need also to be looking further ahead, and that the today's high-growth technology based start-ups will become the established firms of the future, replacing those that decline or leave Australia, and generating growth in a changing global technological and economic environment. This is particularly critical for those states (or regions) that are dependent on manufacturing rather than primary industries for local employment and wealth creation.

Addressing this issue, to encourage and support the flow of technology bases start ups, is therefore hugely important to our future, to achieve the objectives noted in Section 1 of this document, and to generate quality employment, future large scale industrial investment opportunity, and real wealth, for Australians. An initiative such as the one outlined above would be a powerful complement to existing federal government schemes, notably the IIF and ESCVLP programmes, Commercialisation Australia, the R&D Tax Offset, and the Innovation Precincts, in maximising the benefits to the nation from the key national assets noted in Section 3.

Author: Alexander Gosling