Innovation, R&D and Creating A Competitive Advantage

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1. Innovation and R&D, Keys to Prosperity

1. Background.

Australia is heading for a huge negative re-adjustment in wealth. The Australian dollar is depreciating and this will ease the pain. However our outmoded taxation system continues to favour the overseas owned multinationals at the expense of the smaller Australian owner and operated industries. Typically a multinational here will pay less than it should pay as such companies inflate expenses to parent entities and so make less profit and he pay less tax. Australia often struggles to trade in surplus because most of its trade is in commodities like coal and iron ore. This balance has tipped even further away rom Australia's advantage with significant drop in commodity prices over the last few months. Commodity trade involves large volumes of raw materials of low value goods when compared with moderately transformed or highly transformed manufactured goods.

The main drivers of economic growth are productivity due mainly to improvements resulting from the application of technology and skill and the new creation of intellectual property and its application, particularly by adding value to lower value products.

The new free trade agreement signed with South Korea will accelerate the demise of the Australian automotive industry but could enhance the component manufacture for aerospace and transport if the full strategic advantage of Australia's Aluminium supply chain is fully exploited. A free trade agreement with Japan will end the involvement of GM and Ford in Australia and maybe Toyota as well.

It is in the long term national interest to trade in surplus not deficit otherwise there is a never-ending loss of control of national assets. Economists argue that trading in deficit does not matter as long as overseas companies are willing to invest in Australia, but what this view fails to recognize is that the control moves overseas and therefore most often decisions made are not necessarily in the Australian national interest. For a nation well endowed in resources like Australia, there is a strong temptation to use this wealth to live well and rely on imported international goods. Unfortunately this attitude historically, has led to a burgeoning international private personal and private corporate debt. This is balanced by a massive inflow of capital much of which is used to buy assets or invest in developing intellectual property owned by the overseas entity. Some capital is used to re-equip existing plants but these are often overseas owned. Entity purchase here is not balanced by Australian investment in overseas entities because the Australian funds are not available.

Japan is tackling its current problems with an increase expenditure on R&D. At 3.67% of the GDP it is now the second highest in the world after Israel. Australia

languishes at 1.2% despite the fact that we are supposed to have the strongest economy in the world. Private companies like Honda spend in excess of 5% of their revenue on R&D.

There is only one practical solution in the short term. This involves the painful reconstruction of a viable value adding manufacturing industry. The service industry provides 70% to our GDP but has not greatly helped our exports.

We must create a value adding society, focused on innovation and education using our natural comparative advantages. Some of this can be in the service industry like education, design, research, medicine, for example, but the opportunity is greater in the manufacturing and health related industries because some significant comparative advantages are there already.

It is essential in an advanced developed nation that equal opportunities are given to all talented people regardless of their profession or special skills provided that these are in the national interest for the betterment of society. Increasing our manufacturing capability is one significant way of achieving this and broadening intellectual opportunity at the same time as improving our standard of living and balancing our trade.

Recent studies of productivity growth in Australia have revealed that the most significant contributor to productivity growth is warehousing. Warehousing does not add value to a community other than enable them to consume imported manufactured goods and perhaps employ a small number of people in the supply chain. This does not contribute to value adding for society even though it increases our GDP. One can argue therefore that the raw economic measure of productivity growth based on GDP is in error. After all, Italy once increased its GDP by 20% by suddenly estimating the size of the black-market and then claimed at that time that Italy was then more productive than Britain.

We urgently need to develop an intellectual culture that values highly, skills in science and engineering that add to the wealth of society.

An innovation policy must aim to create wealth from industries and activities where, at least in the first instance, we have a comparative advantage. Later we can create such strategic advantages. Such an advantage must account for our natural resources in materials and people and position in the world aimed at competitive equilibrium but mindful of all moral sentiments.

This means we must develop an innovative system which enables small Australian owned businesses to tap in to the world's intellectual knowledge quickly and seamlessly and use the technological scientific and engineering resources available which are continuously upgraded with superior education facilities at school, colleges and universities. It is useless however to train more

scientists and engineers if they have no job to go to. Barriers to business created by state bureaucracies must be removed.

Professional bodies can also play a significant role in the wider community. Scientists and engineers should no longer be invisible. A totally free market or completely unhindered free use of capital is not the answer as the GFC financial crisis has illustrated. A model similar to that in Denmark with a superior balance between the welfare state and Adam Smith's invisible hand and flexible security systems can improve Australian society significantly, but first we need to trade in surplus.

The government and Keynesian economics are the way forward. Incentives are needed in a truly cooperative system with an elevation of the need to create a new society focused on long-term growth using science and engineering education and its application to innovative processes and products as a driver.

The current innovation system is not yielding the best result for the Nation. Much of this has already been enunciated in recent Productivity Commission reports and numerous parliamentary studies. It is not intended to repeat their findings here but the following facts are highly relevant to a current review of our National Innovation System.

1. China also has a very great need for capital but trades in surplus and has a high savings rate currently used to invest in its own innovations and buy assets abroad.

2. Our research and development expenditure as a percentage of GDP is low for as developed country and is mainly in the public sector by institutions such as the CSIRO. In the aggregate, private companies contribute little because of the poor R&D effort of many corporate overseas giants.

3. The CSIRO's contribution, whilst significant, unfortunately is too thinly spread in too many areas and in fact 50% of its expenditure on R&D in manufacturing is in areas where Australia does not have a comparative advantage and is therefore not used as effectively as it could. It is recognized that too sharp a focus can stifle creativity and inhibit the development of new products, however, we need a better balance.

4. The current government funded R&D schemes and those in the past have been overly bureaucratic and the failure rate is high. Recent changes have been very beneficial. Too often the assessment process involves only paper filing and no audit. **R&D auditors are needed to improve the success rate**. Successful projects are rarely commercialized in Australia because of the reluctance of Australian venture capitalists to take a reasonable risk on innovative products and processes. VCs are focused on money so we need some sweeteners from government, tax concessions or matching grants.

5. Overseas ownership and control often results in ideas developed here being exploited overseas instead of Australia. This has occurred with three major Blakemore Consulting Innovations. Worse still, multi-nationals with operations in Australia tend to do their R&D closer to their head office.

6. Scientists and engineers are largely invisible in Australian society except on global warming, and comments made by those who wish to make public statements, are not supported by those who control the media. Hence a lot of incorrect scientific information is spread about. Many journalists and economists are guilty of this. Such misinformation is probably due to the very poor understanding of science by the general population. Engineers and scientists have a good understanding of many technological problems, however because they realize they are not experts, they are reluctant to make public comments. This vacates the stage for people with little or no understanding of the problem who are usually driven by ideology. Scientists and engineers need to stand up and be heard and need a strong advocate in government. **The current Chief Scientist fails badly here.**

7. The CSIRO and Universities staff and equipment are not readily available to the general business community who therefore are unaware of the true capability of this resource and the untapped knowledge. R&D innovations need to be digested and promulgated to the business and general community.

8. Professional institutions like the Australian Institute of Company Directors and The Australian Institute of Management are not scientifically focused. Additionally, many companies do not have a scientist or engineer on the board and they have no policy on innovation.

9. Venture capitalists are reluctant to invest in technological research or they place unrealistic timetables to deliver outcomes. This is related to their lack of scientific understanding, risk aversion, and their short-term focus and the fact that they do not understand the nature of the spin-offs that will occur. VCs are not risk averse in general but tend to take risks in the financial world since they believe they understand this a little better.