INSTITUTE OF URBAN STUDIES ADDRESS

To know where we are going after the demise of Holden, and now in fact, the demise of the whole automotive industry, we really have to be clear about what this means.

This is a disaster, not only for our state (which will bear the direct brunt with Victoria) but also for the nation, less directly, but just as surely. What will be lost, unless there is dramatic action, is not ‘only’ the capability to manufacture and build cars, but our largest, most sophisticated complex manufacturing value chain. This industry has been essential to a wide range of other critical knowledge intensive manufacturing and engineering activities – ones that are essential to our being part of the international knowledge economy.

And this is indeed what is at stake here – our ability to be part of the global knowledge economy.

Now, I want to be clear. A lot of the recent argument about assistance to the industry has simply missed the point. In principle, that argument is only partly about making cars. Over the past decade or so, Australia has been on a treadmill of producing cars with progressively fewer Australian workers and lower and lower Australian manufactured content, at the cost of public budgetary assistance.

That is not to say that assistance was unjustified; far from it. But it needed to target actively and progressively building
and transitioning manufacturing capacity to opportunities outside automotive.

The point of that assistance should not have been seen as just about building cars, but also about providing time to gather together, and hold within Australia, the key capabilities auto manufacturing has imparted to us, and then applying these capabilities to new manufacturing opportunities, rather than losing them forever.

In other words, the policy framework should have been about diversification and accelerated movement into new manufacturing.

This means having active government and active policy and strategy for industrial diversification - broadly speaking, the kind of approach adopted by successful, high innovation industrial nations from Taiwan to Germany, from Japan to Scandinavia, from Singapore to Switzerland.

The Toyota closure became inevitable after the Holden announcement, because this is a scale-based industry, and we were already producing at well below minimum efficient economies of scale. With the Holden closure, there was simply no way of sustaining the complex, highly-interdependent network of component suppliers for one car assembler alone.

The consequences will be dire unless there is a transition plan to accelerate development of ‘new manufacturing’ –
about which I’ll talk later – to retain at least some of the capabilities associated with the car industry – and to make up for what we are about to lose.

Unless Australia takes action urgently to diversify and transform its manufacturing, the Nation faces the permanent loss of essential economic capabilities and, with that, reduced capacity to develop new ones in the future. The consequences of that deindustrialisation would include:

- Dependence on fewer, and lower value adding, industries
- Greater vulnerability to external shocks, such as currency devaluation
- A weaker, more narrowly-based and more exposed Australia economy, to those international shocks. A devaluation of the dollar without strong manufacturing means a tighter balance of payments constraint, which means the solution will have to be reduced living standards through higher unemployment.

This means unacceptable costs for society.

Deindustrialisation is virtually synonymous with the deskilling of the national economy and, because of the path-dependent nature of complex manufacturing, skills lost now will be either impossible or highly expensive to replace later.

Now if you prefer a less gloomy outlook, you can just go to the policy orthodoxy and its Computerised General
Equilibrium (CGE) models. These say that the demise of the automotive industry is, in fact, a good thing, because it means we are approaching an optimal allocation of our resources to their highest, most productive use, in line with our comparative advantage. Australia’s GDP will be higher because, in the new equilibrium, resources will be directed towards higher productivity uses.

There are two things wrong with this. First, the theory and model are only as good as their assumptions, particularly when dealing with the death of a whole industry. The assumptions do not pass real world tests. These include assumptions of:

- Full employment of workers and capital, such that affected workers will only be unemployed for a short period, or else, where workers are unemployed for long periods, it is voluntary unemployment, their having decided to take an extended, no-frills holiday in Northern or Southern Adelaide
- The exchange rate, wages and relative prices adjust quickly to allow ‘market clearing’
- This allows expanding sectors to absorb the displaced labour quickly, and
- The new higher productivity equilibrium arrives quickly.

In other words, the problems are dealt with by assuming them away.
Second, this view flies in the face of what we know about innovation and the strategic importance of manufacturing to the knowledge economy. That is, in advanced economies, manufacturing

- Drives innovation and productivity growth
- Is the biggest spender on R&D
- Drives high value services
- Has high multipliers through linkages to other sectors, and
- As the largest component of world trade, drives ever-increasing specialisation and sophistication.

The truth is that if you want to be part of the international knowledge economy, manufacturing is not optional, it is mandatory. Manufacturing is central to complexity.

Recent comparative longitudinal research has confirmed that ‘economic complexity’ (meaning an ever-deepening division of labour and specialisation, and intensified application of knowledge) is what explains differences in countries’ performance and prosperity. Further, this study by the two MIT scholars Hidalgo and Haussmann, *The Atlas of Economic Complexity: Mapping Paths to Prosperity*, underlines the centrality of advanced manufacturing to achieving this economic complexity.

I cannot go into great detail here on complexity. Their book is available free on the net.
Regardless of acknowledged limitations, their work is a significant longitudinal comparative study, and is a living model that will be refined in years to come. I stress, it is not the latest fad. Their approach stands in a line with the work of others, such as Michael Storper on ‘Trade and Product Based Technological Learning’ (for the economic geographers here), or Nobel Prize winner Paul Krugman, on increasing returns to scale and the role of intra-industry trade, or Cambridge economist Nickolas Kaldor in cumulative causation.

But, just quickly, complexity is held to be the key driver of differences of income per capita between countries, predictive of a country’s future growth, and the complexity of its exports. Economic complexity could also be called network richness. It is about how societies amass and utilise and mobilise productive knowledge. It’s not the level of knowledge in a society that matters most, but how it is organised through increasing specialisation and division of labour, through markets, firms and institutions.

Products embody knowledge, so we can say: “*what a country makes is what it knows*”. Sophisticated products reflect high and diverse capabilities in local value chains – ‘economic complexity’. And, be it noted, much of this knowledge is tacit, bound up in institutions and networks, rather than formal and codified.
The authors extend this line of thinking by the concept of ‘diversity’. Countries with diverse products have a wide variety of capabilities present within them, and are likely to have a portfolio of sophisticated products. A country exhibiting diversity in its products has a large amount of embedded knowledge and a sophisticated array of capabilities: it can do many things. Less diversity indicates the reverse.

Again, their aphorism is powerful and worth remembering: “what a country makes is what it knows”.

Now to Australia’s position, and the map behind me. Hidalgo and Haussmann have analysed and ranked 128 countries in a longitudinal study commencing in 1964 and concluding in 2008.

- Australia’s economic complexity has fallen dramatically:
  - 2008 ranking is 79, below Trinidad and Tobago, Mauritius, and Chile, and ahead of Zimbabwe, Jamaica, and Pakistan. Australia’s complexity rating is -0.321, compared to Japan (2.316), Germany (1.985) at the top of the list, Singapore at number seven (1.639), and the USA at 13 (1.447), China at 29 (0.894), Thailand at 31 (0.814), and Malaysia at 34 (0.759).
  - Australia’s ‘economic complexity’ has deteriorated since the middle 1960s, with a dramatic deterioration of -0.50 over the 1998-2008 decade,
the period during which our exports came to be dominated by coal, iron ore, other minerals and liquefied hydrocarbons and manufacturing’s GDP share fell dramatically.

Automotive manufacturing is industrial complexity par excellence. But as a small high cost economy, Australia cannot be competitive in mass scale-based manufacturing, such as cars. We cannot be competitive where the basis of competition is scale and unit cost. We have to face this. We know this.

But, with changes in technology and international supply chains, together with new innovative business organisation, have opened up new opportunities for internationally competitive manufacturing based on short runs, high variability, rapidity to market, and high value products exhibiting medium to high complexity. These changes often mean that being small is not a disadvantage, and have opened up opportunities for small and medium enterprises, and clusters of SMEs in global supply chains.

This is called **new manufacturing**.

The challenge, then, is to use the capabilities we still have, build on them, and find opportunities in new manufacturing and new value chains. We need to build complexity and move up the value chain.
This is path-dependent. In other words, whilst you can certainly slip and lose complexity massively, as Australia has, complexity-building has to take place in stages. You can certainly go down the ladder fast, but you can only go up one step at a time. You cannot leapfrog from basic commodity producer to leading semi-conductor manufacturer in a decade.

So, a nation or region needs to build on what capacities and abilities it has, targeting products close to the current set (‘near-by’ products), and addressing capability gaps to move up the value chain progressively. By building on existing strengths, you can make a transition from old to new. But you have to must translate and transform on the basis of what you have already.

This has been Singapore’s explicit approach for decades.

Work is being done presently at DMITRE, WISeR and the Stretton Centre to identify value chain opportunities for such translation. WISeR’s work on industrial diversification opportunities in Northern Adelaide and on a future Innovative Manufacturing cooperative research centre have indicated prime facie opportunities in:

- selected defence (armed vehicles fit-out and through-life support; the Future Submarine project, amongst others)
• selected resources and energy areas (copper and complex combined ore bodies; unconventional gas)
• assistive technologies for the aged and disabled
• medical devices, and
• clean technologies.

The first cab off the rank here has been an opportunities mapping project focussed on assistive technologies for the aged and disabled, in partnership with DMITRE and Fraunhofer Gesellschaft, Germany. We know about population ageing and that disability rates rise in tandem with it. We know rising demand will come from this, as it will also come from the rapid rate of technological change and development of new products, making the value chain more and more complex, which creates its own demand. Fraunhofer has described assistive technologies as the next automotive industry.

What are the opportunities for our manufacturers to participate in this growth? The project is about finding out. It requires a methodical approach, which arrives at what we call a ‘demand/supply/capability matrix’ to identify high value industry development opportunities for us over the medium and long terms.

First step: Analysing domestic and international demand by key product/market segments, over the next 10 years.
Second step: Working with local companies to analyse their existing capabilities, against what they need to be competitive in particular parts of the Assistive Technologies value chain.

Third step: Narrowing the range of products in scope on the basis of an understanding of what local industry capabilities are.

Fourth step: Targeting gaps in company capability and capacity, pinpointing where individual companies need to acquire new capabilities or improve processes to capture the prime facie opportunities identified in step three.

Fifth step: Taking stock, and undertaking a reality check on the information gathered to create a demand/supply/capability matrix of the highest value, credible and actionable half dozen industry development opportunities.

These are the basic steps. In reality, there may be more, because the process needs to be a very iterative one. It can be likened to a funnel, progressively going from broad brush opportunity assessment, comparing that to local industry capability to narrow the focus, then gaining a more detailed practical understanding to arrive at a schedule of opportunities that are actionable and credible, as well as high value.