

Far from the Car – the case for transformational change in response to the closure of the automotive manufacturing industry

John Spoehr, Executive Director, Australian Workplace Innovation and Social Research Centre, The University of Adelaide
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Far from the Car

Australian Workplace Innovation and Social Research Centre
The University of Adelaide
230 North Terrace
Adelaide
South Australia 5005

www.adelaide.edu.au/wiser

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1 INTRODUCTION

It worries and saddens me that the Australian automotive industry will soon close, particularly when I see high cost manufacturing nations like the United States, United Kingdom and Germany growing their automotive sectors. While I was in Birmingham recently visiting the former Rover/MG manufacturing site at Longbridge, Jaguar Land Rover announced they were recruiting 1300 new workers to build a new five seat Jaguar sports car at their Solihull factory. The CEO of Jaguar Land Rover, Ralf Speth said that "Today's announcement once again demonstrates our commitment to the UK and the advancement of a high-tech, high skilled manufacturing led economy". These are words that many of us would have liked to have heard in Australia. That was not to be.

And so our title, *'Far from the car'*, reflects the automotive industry's past and present both nationally and locally to South Australia, as our most significant integrated manufacturing value chain, upon which a myriad of other business and households depend. But *'Far from the car'* is also emblematic of the already-realised fact that swathes of other manufacturing enterprises have been permanently lost over the past half-decade, and of the real and present danger of wholesale deindustrialisation in the future. In simple terms what I mean by this is the emergence of a cycle of self-reinforcing decline, one that flows from the loss of critical industrial capabilities, knowledge and skills, undermining our ability to compete in the global knowledge economy.

2 SOUTH AUSTRALIA AND THE NATION AT A CROSSROAD

Both the South Australian and national economies are at a crossroad. The impending closure of GMH and, indeed, the whole national automotive industry, is the most dramatic of several unmistakable pointers to the acute danger of deindustrialisation and, consequently, the deskilling of the Australian economy.

Whether the current crop of national political leaders and decision makers is capable of recognising it or not, South Australia's and Victoria's economic problems and vulnerabilities are, in fact, those of the whole nation, and they are ignored at the peril of us all.

There is, in particular, precious little appreciation from Canberra of the economy-wide impacts of either the resources boom, or of the nation's position now that the boom's construction and investment phase is over. The reality is that we are facing years of below-trend growth.

It is generally known that the dizzying rise in the exchange rate and accompanying higher costs fuelled by the mining boom, placed extraordinary competitive pressure on other trade exposed sectors, such as manufacturing. But what is only now beginning to be appreciated is that the contraction of resources and return to a lower dollar will not lead to the compensating higher investment in other sectors of the economy seen in the past.

The reason? The boom and its aftermath have seen the accelerated demise of many large, scale-intensive industries, as well as smaller export oriented firms.

With the gradual return to a more competitive exchange rate, we are not seeing the previous compensating positive stimulus to these sectors - because of the massive disinvestment decisions by major companies. The installed capacity of these industries no longer resides in Australia. **It has gone forever.** The automotive industry needed an exchange rate of about eighty cents to be competitive. The exchange rate is now below that level. But neither the internationally mobile capital and capacity of the automotive industry - nor of several other industries - will ever be returning to Australia on the scale of the past.

Whatever have been the benefits of the resources boom, Australia's handling of it has reduced the competitiveness and size of much of the nation's tradeable goods and services sector, and the diversity of our economy.

My view is that without targeted action to retain, transform and diversify our manufacturing, Australia faces the permanent loss of essential economic capabilities and, with that, let me stress, reduced capacity to develop new ones in the future.

The consequences of this would include:

- Dependence on fewer, and lower value adding, industries
- Greater vulnerability to external shocks as a consequence, and
- A weaker, more narrowly-based and exposed Australia economy, with unacceptable transition costs on Australian society.

I want to talk about **why** and, just as importantly **how**, we must intervene to retain critical manufacturing capabilities in Australia and South Australia. Contrary to those who say manufacturing is part of the old economy we can do without – or even that we are better off without – I say that it is their thinking, and not manufacturing, which is antiquated.

If you want to be part of the global knowledge economy, manufacturing is mandatory, not optional.

3 WHAT IS MANUFACTURING?

So our first question is this: What is manufacturing?

Throughout its history manufacturing has always meant, quite simply, 'making things', and this needs to be our starting point, even today. And, instead of thinking of manufacturing as discrete products or processes, it is far more useful to view manufacturing as an ever-expanding range of **capabilities**.

From its origins in handicrafts, through to the mass production and 'Fordism' of the past, to today's 'mass customisation' and flexible production, **the one constant of manufacturing has been change**.

Too many people think of manufacturing as synonymous with discrete industries such as cars or steel, much as Victorian English people might have equated it with cotton production or iron founding. That misses the point that manufacturing is complex, evolving and dynamic. It means different things at different points in history. Today, manufacturing covers an unprecedented vast array of products and technologies, with unprecedented diversity and sophistication.

Today, complex manufacturing is far from a discrete physical activity but encompasses complex value chains involving research, through to design and development, production, operations, maintenance, through to environmentally sustainable disposal and recycling of the manufactured product at the end of its productive life.

Manufacturing is the key to a nation or region's ability to participate in the global knowledge economy. As the Harvard researchers Hidalgo and Hausmann argue in their path-breaking work, *The Atlas of Economic Complexity: Mapping Paths to Prosperity*, manufacturing, as the intense application of knowledge to making things, is what drives higher and higher levels of 'economic complexity'. And they show that differences in nations' economic performance – and critically, their prosperity – depend on their level of 'economic complexity'.

4 THE CENTRALITY OF MANUFACTURING

In advanced economies, manufacturing is central to driving productivity and innovation and is the biggest spender on research and development and knowledge intensive services.

Manufacturing generates positive spill-over effects across the economy through its research and development intensity, and involvement in developing **future platforms or 'key enabling technologies'** such as nanotechnology, photonics, advanced materials, and so on. These platforms are keys to future competitive advantage.

Manufacturing is the largest component of world trade and, because of its strong linkages to mining, agriculture and service industries, it is a vital driver of employment across the whole economy.

In fact, manufacturing **transforms** other industries. Think of agriculture and food processing or agriculture and chemical production. Think of forestry and new technologies to cross laminate timbers. Think of the application of new (manufacturing) technology to health care. And so on, and so on.

There is no strict boundary between manufacturing and service anymore. The 'servitisation' of manufacturing is the process by which manufacturers use service offerings to build competitive advantage, sales and revenues.

Through servitisation, services become entwined with the manufacturing value chain, building value to the customer by going beyond offering a single transaction involving a discrete product, to a longer term relationship geared to meeting evolving customer needs. The lines between manufacturing and services are blurred. Up to 50% of workers in the manufacturing sector in key OECD economies are in service-related occupations. The amount of services in manufacturing was estimated to be 25-30% of total output in certain OECD countries 20 years ago, and could be expected to be higher today.

The evidence is also that, in advanced economies a dynamic manufacturing sector underpins higher net incomes and employment than would otherwise be the case. I would argue that, in so doing, it also supports greater social inclusion and cohesion.

Declining direct manufacturing employment levels is a phenomenon common to all OECD countries. That is not evidence of the reduced importance of manufacturing to advanced economies.

In successful advanced OECD economies, manufacturing's share of overall value added (or GDP) has either been maintained or declined by a much lesser proportion than employment (reflecting high productivity gains in manufacturing).

Add to that the fact that many of the sophisticated services jobs in such economies are actually manufacturing-dependent – they rely on having a strong manufacturing sector near-by – and you can see why looking only at numbers or percentages directly employed in manufacturing can be so misleading. Rather than services employment being seen as an alternative to manufacturing – as it is often presented – it is closer to the truth to say that the high end service occupations are to be found in association with the activity of 'making things'.

The most relevant measure for a country is the share of manufacturing in its GDP. The successful countries of which I speak – Germany, Singapore, Switzerland, and Taiwan – typically had a manufacturing share of GDP of around 20 percent in 2013. And even that high figure probably understates manufacturing's role in these societies for two reasons.

First, because of the interweaving of manufacturing and services that is so much a feature of advanced economies. And second, because the changes in manufacturing in these countries is often ahead of what is captured in the categories of the official statistics.

These countries are not deindustrialising, but, instead, defending their GDP shares of manufacturing. Contrast Australia: between 2008 (the year of the GFC) and 2013 manufacturing's share of Australian GDP fell from an already-low 12 percent to seven percent.

5 THE AUTOMOTIVE MANUFACTURING INDUSTRY COLLAPSE

I turn now to the questions: *What does losing the automotive industry mean to South Australia, and to the nation? What do we lose when we lose complex automotive manufacturing? What are the consequences?*

Much more is lost from the demise of the automotive industry than 'merely' the ability to manufacture, engineer and build cars. Automotive has been, and has to a large extent remained, Australia's most developed integrated and complex value chain, despite the progressive lowering of local content in Australian production over the past decade.

Some of the enabling competences and technologies inherent in automotive manufacturing and engineering include: systems integration, materials science and engineering, process engineering, automation and control technologies, electronics and miniaturisation, digital content, sensing and simulation, high tooling skills, injection moulding, etc. These are vital competencies that can and are built in automotive manufacturing and then applied across other critical endeavours such as defence, medical and assistive technologies, food production, machine tools, mining and resources technologies, and so and so on.

Today our objective should be to identify and maximise applications for these capabilities outside automotive, in high growth local and global value chains in new manufacturing and related services.

It is true that 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. Over that period, we went from producing 400,000 units a year to half that number.

That is not to say that assistance was unjustified; far from it. But it needed to target actively and progressively build and transition manufacturing capacity and capabilities to opportunities outside automotive, as well as sustaining – for a time - automotive production itself. Recall however that it is possible to manufacture cars in high cost nations. Arguably we have chosen not to.

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. It is then a question applying these capabilities to new manufacturing opportunities, because the alternative is losing these capabilities forever.

Until last year, many of us with that perspective hoped we might buy half a dozen or so years to work on the transition; now we have less than a third of that time.

In other words, **the policy framework we should have had, and now need desperately, is one about diversification and accelerated movement into new manufacturing and related services.**

6 THE AUTOMOTIVE INDUSTRY CRISIS – A NATIONAL CRISIS

What are the local, state-wide and national impacts of the automotive closure?

My organisation commissioned National Economics to model the impact of the closure of the automotive industry. National Economics estimated the aggregate impact to be a net loss of **just under 200,000 jobs nationally** against the baseline scenario, to 2018. Around 100,000 jobs are lost from the Victorian economy, whilst South Australia loses 24,000. The balance of jobs lost is shared amongst other states less dependent on automotive production. These figures represent the losses viewed as the total of jobs lost and jobs not created as a result of the closure. The rate of job growth for the two automotive states is effectively halved over the forecast period.

The effect on national GDP is a permanent loss of **\$29 billion**. The basic reason for the largeness of the impact is the fact that automotive is complex manufacturing involving complex supply chains and interdependences.

The impacts therefore go well beyond the direct jobs lost and the usual second-, third and fourth-round multiplier effects in modelling.

This is the baseline scenario. The exchange rate is the fundamental determinant. A greater-than-baseline fall in the exchange rate to around 65 cents (and sustained at that level to 2024) increases the economic losses from the automotive closure. Because at this lower exchange rate, the industry would have been sustained at higher levels of activity than the baseline, the losses here rise to **270,000 fewer jobs** and a **\$44 billion** GDP loss.

Beyond these overall aggregate impacts, the temporal and spatial dimensions are of great importance. National Economics modelled these by Local Government Area (or LGA).

Of all LGAs in Australia, Playford in Northern Adelaide, home to the GMH assembly plant, is projected to suffer the greatest adverse impact in percentage employment change by location of work at the 16th quarter (four years) after motor vehicle industry closure, a 15.8 percent decline in employment – for every six employees in the area, one will no longer be employed four years after the closure.

Playford cannot afford these losses. It is the most disadvantaged LGA in greater Adelaide, and one of the most disadvantaged urban areas in Australia. Residents receive lower median weekly incomes than in Greater Adelaide (\$455 in 2011, almost \$100 lower than for Greater Adelaide). Almost one-third of Playford residents had a weekly personal income below the poverty line for a single person. At the 2011 census, the city's unemployment rate was almost double that of greater Adelaide. The economic shock generated by the closure of the auto industry will be large in the absence of substantial off-setting investment. It will be made worse by prevailing economic conditions, particularly slower economic and employment growth rates flowing from the end of the mining investment phase of the recent commodity price driven boom. More generally spending on major projects is set to fall in the absence of new ones being approved.

The closure of the automotive industry leaves a very large investment hole. The presence of the automotive industry in South Australia has generated around \$1.6 billion per annum in economic activity, returning a sizable income to the State and Federal government in the form of taxes and charges. Very little of the lost investment from closure will be reinvested in South Australia or Australia because many of the large automotive component suppliers are foreign owned subsidiaries of multinational companies and have no other reason to stay in Australia after closure. Some companies will rationalize while others will pursue new markets.

The economic context in which the closure takes place will have a profound bearing on the severity of the impacts. While total employment in South Australia has held up relatively well given the Global Financial Crisis short- term growth prospects will be

unfavourable. While there has been a slight recent rise in employment vacancies they are 50 percent below their March 2008 peak. Significant reductions in unemployment are unlikely in the lead up to closure, leaving a legacy unemployment rate of around 6 percent. But remember this doesn't capture the wider problem of under-employment in South Australia. At around 15 percent the labour force underutilization for November last year is very sobering. In areas most impacted by closure unemployment rates are of course much higher.

While manufacturing remains one of the State's largest employers and will continue to be so in years to come, the reality is that we have lost around 30,000 jobs from the sector over the last three decades with current employment standing at around 86,000. To put this in perspective total employment in the mining sector has risen to around 15,000 but unfortunately it is set to contract rather than expand over the short term. We won't get the much hoped for mining jobs boom until commodity prices improve or new cost saving technologies make mining more viable in locations like Olympic Dam. In the meantime it is smart to lay the foundations to capture the benefits of the next upswing in mining.

Our largest and fastest growing sector is health and social assistance. Employment has doubled in the sector since the mid-1980s to around 110,000 but it is set to slow as consequence of budget cuts at the Federal level. Overall, workers losing their jobs in the automotive sector have fewer opportunities available to them than in the recent past, particularly in those sectors they are best equipped to work in.

Some have argued that the growth in community services, health and ageing employment can fill the jobs' gap. To some extent it will, but we have to acknowledge that knowledge and skills gained in the automotive industry are not readily transferable to the services sector. This is particularly a problem for some autoworkers that have gained competencies on the job but don't have formal recognition of these. While recognition of prior learning will help bridge this gap, significant retraining will be necessary in most cases to make successful transitions to care based jobs. It should also be noted that much care based employment is casual and part-time and female dominated, compared to the predominantly fulltime employment of manufacturing, with male employment dominating.

In the midst of all this uncertainty is the fear that the Federal Government will renege on the promise to build the next fleet of submarines in Australia. This would have involved construction and consolidation in South Australia, in favour of imported vessels manufactured overseas. The prospect of both automotive and submarine manufacturing ceasing in South Australia is a frightening one - a perfect storm.

7 TRANSFORMATION OR DE-INDUSTRIALISATION?

Can we transform our industry or are we doomed to deindustrialisation? Without a strategy for industrial diversification the low road of reduced living standards becomes a fait accompli. That is the logical outcome of deindustrialisation.

South Australia has a very short time to effect a transition to new manufacturing opportunities. The transition needs to be based in large part on core capabilities related to automotive, but not on building cars. It will be centred to a considerable degree on small and medium enterprises.

The strategy I propose is a high value, high skill, high living standards model of economic and social development. Lets call it a Smart State Strategy. It is about generating knowledge intensive jobs in smart workplaces. We must be clear, particularly in light of the meagre support from the Commonwealth government, that this is an essentially defensive strategy particularly in the short to medium term.

The central objective of the strategy would be to help retain core engineering, technology and organisational competences that would be lost otherwise, and to retain these as the platform for longer term industrial growth and rejuvenation. But there is no glossing over the fact that, even if successfully implemented, such a strategy would not and could not compensate fully the scale of the losses in prospect from the automotive closure. A complementary package of short-term growth measures will be required to help fill the jobs hole created by closure.

And what, specifically, is the model of 'new manufacturing' to which we wish to transition?

We know that Australia will struggle to be competitive in forms of manufacturing where the bases of competition remain scale of production and unit cost. The end of Australian automotive manufacturing attests to the difficulties Australia faces in being a competitive manufacturer where scale and unit cost is king or queen. We cannot compete with China and India.

But changes in technology and international supply chains (greater and greater specialisation and complexity), together with innovative business organisation, have opened up new opportunities for internationally competitive manufacturing based on short run production, high variability, rapidity to market, and high value products exhibiting medium to high complexity. These changes have opened up opportunities for small and medium enterprises and clusters of these enterprises in increasingly specialised, interdependent, global supply chains. This is what we mean by 'new manufacturing'.

New manufacturing also involves the application of new technologies such as additive manufacturing or 3-D printing, use of new materials such as titanium and graphene. It applies Key Enabling Technologies such as photonics and nanotechnology. These are areas of research and development in which this university has proven excellence, and they help to take us from scale- and cost-based production, in which we have no future, into highly sophisticated, complex, niche production, through which we can avoid head to head competition with the industrial powerhouses to our north.

Critically important for South Australia and the nation, alignment to new manufacturing means that being small need no longer be a disadvantage.

Examples abound of small, high cost countries that have actively sought out and secured positions of international competitive advantage, moving up the value chain to compete less on cost – price factors and more on agility and 'new manufacturing' characteristics. These include Switzerland, the Scandinavian countries, Singapore and others. They sought to maintain and expand their involvement in manufacturing as central to their prosperity and their ability to participate in the global knowledge economy, rather than allow de-skilling and deindustrialisation.

These countries recognise that building and sustaining positions of competitive advantage is about more than technology (vital though this is), and includes a rigorous understanding of demand and global market and value chain opportunities, and recognition of the critical role of complex non-price factors and workplace and sector-wide organisation and strategy.

Industry transformation and diversification must be front and centre of the response to the closure of the automotive industry.

8 THE RESPONSE TO DATE

What then of the response to date? The **state government** responded early by establishing the Automotive Transformation Task Force, chaired by former Federal Industry and Innovation Minister, Greg Combet. The Task Force is designed to support the transition of enterprises and workers into new areas of industry opportunity and to drive initiatives under the state's Our Jobs Plan suite of programs. This is an excellent appointment and one that is respected across the political spectrum. The Task Force is looking closely at how automotive components suppliers – mostly locally owned Small and Medium Enterprises (SMEs) – can identify and then enter new product and market niches. It is also looking at the future of the Elizabeth plant.

The state's Our Jobs Plan statement (January 2014) committed \$60 million in state funds (and sought, unsuccessfully, a substantial package of Commonwealth funding) in response to the automotive closure to address:

- Assistance for displaced workers and their reskilling
- Support for the affected communities through urban regeneration and local projects
- An Automotive Diversification Program to help companies diversify into new markets and products, setting targets to diversify 200 firms
- Accelerating advanced manufacturing to provide industry roadmaps, support for clustering and accelerated business transformation (e.g., vouchers)
- A Jobs Acceleration Fund to be applied to new plant and equipment, investment attraction, retraining, and business improvement
- Accelerated infrastructure projects, such as the North South Corridor, the Northern Connector, fast-tracking of the NBN, and regional initiatives.

The state government has also committed \$2 million over four years to the Stretton Centre in Playford to function as a local node of the proposed Innovative Manufacturing Cooperative Research Centre, focussing on accelerated industry transformation through business model innovation, diversification into new value chains, building high performance workplaces, etc.

These **state** responses, together with the *Manufacturing Works* suite of programs, are well-designed world class initiatives. The problem with them is overwhelmingly that they are of insufficient scale to address the challenges comprehensively. This is a national problem. Substantial investment from the Commonwealth is necessary to tackle economic shocks of this scale.

An Industry Growth Fund has been established as the **Commonwealth's** response to closure of the entire automotive industry. Commonwealth resourcing of the Growth Fund is unduly modest, with a \$101 million contribution (South Australian and Victorian state governments contribute an additional \$54 million).

This is a far lower federal resource commitment than past responses, which, it should be noted, addressed smaller challenges at times when overall economic conditions were more favourable. The Growth Fund includes:

- a Regional Infrastructure Program (\$15 million earmarked for South Australia);
- a Next Generation Manufacturing Investment program to assist automotive companies to find new manufacturing opportunities (\$30 million earmarked for South Australia);
- an Automotive Diversification program to assist automotive companies to find new opportunities outside manufacturing; and
- two programs focussed on skills, training and jobs placement.

The provision of these very modest funds in response to the closure of an entire industry needs also to be analysed against the Commonwealth government's proposal to cut \$900 million from the Automotive Transformation Scheme and to truncate its operational life, which will hasten the closure of automotive supplier companies, and reduce time and opportunity for possible diversification into new products.

And, at this critical time when the case for public investment in industry innovation and diversification is stronger than ever, the Commonwealth's stance has been one of severe financial retrenchment or complete withdrawal - cutting rather than redirecting, funding for adjustment and industry diversification. They are renegeing on commitments to naval shipbuilding, and also downgrading their commitment to a range of other growth-promoting policies and programs.

These policies and programs, long embraced by both major parties, typically cover skills, education and training, and promotion of industry transition, growth and innovation. Such policies and programs involve a cost but are justified on the basis that those costs are lower than the benefits they deliver, through overcoming market failures, generating positive spill over benefits, cushioning the impact of shocks (such as closure of the automotive industry) or accelerating the transition to new knowledge intensive activities.

The Commonwealth claims that changes to industry support programs in the Budget will result in streamlined, more efficient services. However, the centrepiece of this rationalisation, the Entrepreneurs Infrastructure Program (EIP) is funded to just over half the level of the suite of programs it replaces, including Enterprise Connect (\$484.2 million over five years compared to \$845.6 million).

The recently announced Industry Growth Centres initiative, whilst welcome, is nevertheless a revival of the previous industry precinct model, but at less than one-fifth the previous level of funding.

9 THE RESPONSE WE NEED

That is the response to date, but what of the comprehensive, strategic, larger and smarter response we need?

There are clear international lessons and guides from regions that have fought back successfully against deindustrialisation. Here are some.

First, the need for an integrated plan of interdependent actions covering the short-, medium- and long-terms, and covering key 'stimulus categories' from industry diversification, to infrastructure development, to urban regeneration, to health and ageing, amongst other areas. These are covered in detail in the document *Strength in Diversity* prepared by WISeR in collaboration with the Cities of Playford and Salisbury as a submission to the Commonwealth inquiry into the automotive closure in February last year. As I cannot cover all this ground here, I commend the report to you.

9.1 INDUSTRY TRANSFORMATION AND DIVERSIFICATION

Front and centre is **industry diversification and transformation**. This involves understanding opportunities within local and global supply chains aligned to the competences local companies may have already, or could acquire. Industry diversification can only be achieved over the long-term, but must start now. Understanding the demand drivers is the starting point: the strongest levers for industry diversification are on the demand side and an understanding of complex and interdependent international value chains. Technology is vital but the strategy cannot be supply- or technology-push. That will not work. Amongst the complex value chains that should be mapped for local industry opportunities are:

- Selected defence projects related to armoured vehicles and of course submarines
- Sophisticated technology inputs to selected resources and energy projects such as copper and complex combined ore bodies and unconventional gas
- Assistive technologies for older persons and people with a disability
- Medical devices
- The cellulose fibre chain and new construction materials and technologies, such as cross laminated timbers and pre-fabricated buildings
- Clean technologies, including energy storage technologies, water technologies, and so on
- A whole of value chain approach to expanding food and horticultural production, and
- Applications of key enabling technologies in which South Australia is strong, such as photonics and sensing, visual technologies, and advanced material engineering, particularly titanium and graphene).

An example here is the growing local and international assistive technologies sector that designs, builds and services equipment and technologies to support independent living and healthy ageing. This is a growing multi-billion dollar industry. Ageing both here and abroad will be the source of increasing demand for medical devices and assistive technologies – generating jobs and new businesses. This is the focus of our Stretton Centre project in partnership with the Department of State Development and the Stuttgart based Fraunhofer Gesellschaft.

9.2 INDUSTRIAL PRECINCTS

Accompanying several of these value chain target opportunities are propositions to develop advanced industrial precincts in northern Adelaide.

International evidence is that industry clusters and co-location of firms support higher growth, productivity and employment and innovation and help overcome issues of small scale. Industries and activities agglomerate.

An observable element of successful industry growth is often the use of industry precincts and centres of competence. High value industry precincts can accelerate growth of new industries, and build on economies of scale and scope.

9.3 URBAN REGENERATION

While recovery from the collapse of the auto industry will take decades, action must be taken to help mitigate a multitude of negative impacts now. Patient long-term strategies need to be accompanied by job rich short-term measures, measures that have wider industry and community development benefits associated with them. International and national experience suggests that we need to bring together two self-reinforcing policy agendas – **industrial rejuvenation and urban regeneration**.

Successful job rich industrial rejuvenation involves the transformation of existing industries as well as the development of new and more resilient ones.

In broad terms it recognises the need to respond strategically and sometimes in transformational ways to structural and cyclical change. Innovation is often seen at the core of rejuvenation, necessitating the development of close and robust formal and informal linkages between government, industry, unions and the research community. Agile industry networks and clusters situated in a sophisticated regional innovation system are central to this challenge. Many of the ingredients of this already exist in South Australia.

Urban and regional regeneration on the other hand entails the modernisation and revitalisation of ageing infrastructure including housing stock, transportation systems and civic spaces, creating healthy, stimulating and vibrant spaces to live, work and invest in. This is commonly regarded as a foundation for improving well-being and productivity, essential to building and sustaining successful industries and economies.

During periods of crisis, urban regeneration can play a vital role in boosting domestic demand, creating alternative employment opportunities for those who lose their jobs through downsizing and closure. It also plays a vital role in boosting regional pride and morale.

Linking urban and regional regeneration to industrial rejuvenation represents a significant conceptual, policy and practical challenge, one which we have considerable experience with in South Australia through the Tonsley project and others involving Renewal SA. You may recall that the Tonsley project was implemented in response to the closure of Mitsubishi. It involved significant state government investment and leadership in repurposing the site.

Having recently visited the former Rover/MG site in Longbridge, just outside of Birmingham, I can say that the Tonsley model is far superior and much more advanced than Longbridge. Unlike Longbridge, Tonsley is developing an innovation system and has attracted a number of significant companies.

While they both have similar objectives, Longbridge is managed by a property development company that has no industry development expertise. Tonsley on the other hand is managed by the Department of State Development with a team that has considerable capability to deliver a more integrated outcome.

We know from our experience during periods of recession, and from the management of major company closures, that it is vital that national, state and local policy be directed at bringing forward capital investment in productivity and amenity enhancing projects in the regions affected by closure.

International experience attests to the power of urban renewal and a focus on city revitalization as a driver of industrial rejuvenation. Such revitalization can drive development of a more robust regional innovation system. New public buildings and new urban form can help build connectivity and collaboration, e.g., better linking the city's businesses to high quality customized training. They come with new digital technologies and communications. They can bring people who create and make together with investors.

They can help modernize education and training. They make a city more attractive as a place to live for mobile knowledge workers, who bring expertise and high spending power.

In association with strategic and smart procurement practices, urban renewal can bring new products and innovations into being. Just consider the opportunities to use upgrades of the housing stock to introduce new smart home technologies, or to stimulate the growth of newer better energy technologies, or of the potential to include new materials (such as cross laminated timbers) in the construction of new public buildings. Imagine factory sites being used to build world class modular and prefabricated buildings.

9.4 PROCUREMENT AS INDUSTRY POLICY

One of the most powerful tools to stimulate innovation and industrial diversification **internationally** is the use of procurement by public authorities to maximise longer-term public benefit. In response to the automotive closure, this is not only to generate demand that will help sustain businesses and households in the region, but also to create an environment in which innovation can be captured, and new industry capabilities

created. Many advanced and developed countries make explicit use of public procurement to stimulate local industrial activity and innovation.

Once again, the contrast is striking between the enlightened policies of our international competitors and the current Australian government's preference to purchase our next generation submarines from offshore. This decision means the loss of extremely high end manufacturing and engineering capabilities Australia needs, as I have said. Moreover, the imported vessels would likely be more expensive than a local build, despite government claims, and would be less strategically and less operationally effective than a local build geared to Australian requirements.

Use of public procurement as industry policy to create opportunities for local industry to innovate, would be applied to both the urban regeneration of northern Adelaide and the development of its industrial precincts, as well as major projects in defence, resources and energy, and elsewhere.

9.5 REGIONAL INNOVATION SYSTEMS

Finally, successful regions build regional innovation systems as the basis for their competitiveness. They build the intellectual and organisational assets and resilience of the region. This involves several elements but especially;

- Promoting collaboration and networks between firms and industry clusters to build flexibility, capability and counter problems associated with small scale
- Building innovation centres and precincts as focal points for industrial transformation
- Having a strategic awareness of future opportunities and threats through value chain mapping and technology fore-sighting, and recognising that the most powerful factors are on the demand side
- Understanding the critical role of complex non-price factors and of organisational superiority in sustaining their competitive advantage
- Focussing on multi-faceted innovation and experimental development and diffusion, with tacit knowledge and networks at least as important as formal knowledge and technology
- Having a co-design culture bringing together researchers, companies and users in the design and development of new products
- Reforming national and local research incentive structures to encourage our leading researchers to engage more deeply in projects that help to generate economic and employment outcomes at the State and National level.

The Waite Institute, Roseworthy, the Thebarton bio-science precinct, Mawson Lakes, Tonsley, SAHMRI, and the Stretton Centre are some of South Australia's existing high value industry research extension institutions. While they do not yet cohere into a Regional innovation system, they are critically important parts of a future regional innovation system. The idea common to them is bringing people, resources and focus to a defined site to work on common or overlapping problems and opportunities. The missing ingredients are the right funding mechanisms and more deliberate attempts to curate an innovation system for public benefit.

International best practice tells us that the role of intermediary organisations is indispensable. These are organisations like Fraunhofer Gesellschaft in Germany and VTT in Finland, and they work between researchers, government and industry, as translational and highly networked organisations. They are technically excellent, but they are just as exceptional on the non-technological elements of broader industry competitiveness, innovation and high performance enterprises. Innovation involves new technology platforms articulated to business model and organisational innovation. These organisations work on the connections between the two. They work at the intersection between universities, industry, government agencies and end-users.

They are knowledge rich and provide knowledge brokerage. The objective in assembling these cross- and multi-disciplinary teams in one place is to accelerate learning, application and diffusion of new technologies and high performance production systems. In short - 'action research'.

Such organisations hold excellent technical knowledge. But that is not all. A very large part of their value to industry is the knowledge they hold on major trends and the future. That is, they build foresight into where global markets and technologies throw up challenges and opportunities. That in turn indicates where the region's or nation's industries need to be over the coming five to 10 years. It is probably in its understanding of this area, where Australia and South Australia have lagged badly.

This will be a specific area of focus of the Stretton Centre opening in June. The Centre is a partnership between the City of Playford and the University of Adelaide, funded by the SA and Australian Governments. Our ambition is for the Stretton Centre to play a leading integrative and collaborative role in South Australia's industrial rejuvenation in partnership with government, industry and the wider community. In so doing, we want it to help integrate and bring together more of those other players in our regional innovation system.

10 CONCLUSION

In conclusion, I hope that I have convinced you that manufacturing matters. It matters to our prosperity – and also to our strength and fairness, as a community. I also hope that you are persuaded of the need for a much more substantial investment by the Federal Government to tackling the impacts of the closure, particularly the need to boost investment in enterprise transformation and infrastructure expenditure simultaneously. If the right actions are taken now we can avoid escalating unemployment and growing hardship in our hardest hit suburbs. Recognising that we need to act boldly and decisively is the starting point. We cannot afford to wait and see what transpires from the closure of the industry.

