

SPEECH TO THE ‘DESIGN AS STRATEGY’ FORUM

Innes Willox, Chief Executive, Australian Industry Group

23 October 2017, Sydney

‘Prosperity through innovation, innovation through design’

Good morning everyone. It is a pleasure to be here with you today talking about the interaction of innovation and design, and how we can use these sometimes abstract concepts to drive concrete benefits for Australia.

My organisation, the Australian Industry Group, has been a peak association acting on behalf of businesses for more than 140 years. Along with our affiliates we now represent the interests of more than 60,000 businesses, employing more than 1 million staff in an expanding range of sectors.

These industries include manufacturing, construction, defence, mining, transport and logistics, infrastructure and engineering services, labour hire and ICT.

Our membership is broad and that drives us to pursue the broadest interests – to help drive public policy and improve business performance to build competitive and sustainable industries that are in the long-term interests of the Australian community.

Our work has never been more important. As I will outline today, the world is going through multiple enormous

upheavals that present challenges and opportunity to industry and the community. Those upheavals include the next phase of globalisation; a new industrial revolution; and the upending of our energy systems. We believe that Australian industry can be well placed to prosper through these waves of change. But innovation is essential to reaching that bright future, and we need to improve how we innovate.

Let's start with the challenges.

Australia's economy today has been shaped and reshaped by by the shifting currents of **globalisation**. Global trade agreements and local policy decisions have opened up our economy over recent decades, leaving us more flexible and prosperous but also without the appearance of security that old-style protection bought at considerable cost.

The rise of Asia generally and China in particular has created vast demand for our huge resources, increasing the economic heft of our resources sector while putting other sectors under pressure at times through higher input costs and a stronger exchange rate.

The resources went in significant part to fuel China's historic emergence as an industrial superpower. For ever more Australian businesses, China's low costs, huge labour supply and overwhelming policy emphasis on growth made it either

a source of inexorable competition or an irresistible place to relocate production.

With protectionism dead, resources booming and China unstoppable, many in Australia thought manufacturing was doomed to terminal decline – and some even cheered what they saw as a rational move to focus on national strengths.

Today it is clear that the world is changing again, along with the nature of globalisation.

We've seen the election of Donald Trump as US President and the rise to prominence – if not always to power – of populist nationalism across many of the advanced economies. Economic anxiety and insecurity is a powerful force, challenging and in some cases reversing the liberalising trends of recent decades. Unless we can achieve inclusive growth the pressure of nostalgic politics will increase.

We've seen the limits in Australia of a narrow focus on our undoubted and hard-won excellence in resource extraction. This is a deeply cyclical industry, and when a wave of new capacity has been built, the construction jobs dwindle and prices inevitably hit a weak phase, the value of a diverse economy with multiple growth drivers becomes obvious.

And we've seen China shift gears in its emergence. Amidst a huge demographic transition there is no longer an endless supply of new workers. Wages and expectations have risen steeply. Spooked by deep public concern about pollution,

Chinese governments are imposing more and stronger environmental protections – including a national greenhouse gas emissions trading scheme. The total cost of basing production and other activities in China is converging with costs in the West.

The result of these upheavals is that it has become clear that Australian industrial decline is neither inevitable nor desirable nor politically sustainable. Australian businesses can and should reach for global competitiveness.

The US may be the best placed of the advanced economies, with its low energy costs, relatively low labour costs and huge domestic market. But we can reshore and revolutionise old industries, and build new ones here in Australia too. And we are already starting to. You may not be aware that even as we have said farewell to the passenger motor vehicle assembly industry, Australian manufacturing *added* around 25,000 jobs over the past year. The sector's output has grown strongly in recent years. There is every chance we can march further down this path and find a bright future. But if doom is not preordained, neither is success. We are going to have to be clever.

Part of being clever is taking advantage of the new technologies, techniques and business models that make up what many are calling the '**Fourth Industrial Revolution**' or Industry 4.0. The idea is that the First Industrial Revolution built businesses on the possibilities of steam power. The

Second was set off by affordable, reliable and accessible electricity. The Third saw computers and information technology empower more automated production and more complex and efficiently choreographed supply chains.

The Fourth Industrial Revolution is about digitisation and data; embedding intelligence and connectivity into all elements of the production process and analyzing the resulting data to boost the efficiency and capability of these integrated cyber-physical systems. These technologies are helping new business models to emerge – or just as often, recasting old business models for new contexts.

An advanced manufacturing business like Rolls Royce creates much of its value after their jet engines leave the factory, by remotely monitoring and managing their performance in service worldwide on behalf of their customers. “Sell then service” is hardly a new approach, but now it is empowered by the capacity to gather, interpret and act on terabytes of data daily from products in the air above a hundred countries.

To many people, even in manufacturing, these concepts and technologies are still unfamiliar – or unintelligible. Ai Group’s *Business Beyond Broadband* report into business technology investment, which we released earlier this year, found that only 7% of Australian businesses made significant use of big data. 15% or less of businesses used any of the networked technologies such as sensor networks and machine-to-

machine communications that we shorthand as ‘the internet of things’. Despite their increasing dependence on internet-connected systems, only 22% of businesses reported investing in cyber security.

Uptake of all these technologies has likely increased since we conducted our survey. But there is a lot of ground to make up. The increased automation of routine tasks and emphasis on higher skills associated with Industry 4.0 could further level the playing field for Australian businesses competing with the world. How are they going to get there?

I think part of the answer is suggested by some other Ai Group research – our *Joining Forces* report on **collaborative innovation**.

Innovation and collaboration go well together. New knowledge that creates business value can of course emerge from lone geniuses and disconnected research departments. But there is a strong body of evidence to suggest that businesses innovate more successfully when they collaborate with other businesses or with research professionals. Collaborating businesses experience greater productivity growth from their innovations and are more likely to export; working with others can help leverage their own strengths and compensate for their weaknesses.

The background here is that Australia has a reputation as a laggard in collaboration. OECD and ABS figures show that

overall levels of innovation activity across Australian businesses are comparable to other advanced economies and Australia ranks well against individual economies.

However, the OECD figures suggest Australian businesses are significantly less likely to collaborate for innovation purposes. Just 20% of all Australian businesses and 32% of large Australian businesses collaborated with anyone to innovate in 2012-13, compared to 30% of OECD small businesses and 53% of OECD large businesses. And business collaboration with public sector research organisations seems to be extremely low: less than 5% of large or small businesses in 2008-10. That was less than in any other OECD economy.

Ai Group wanted to probe this performance, and to find out what makes collaboration work. So we did two things.

Firstly we gathered our own quantitative survey data from a wide range of businesses, both through our Skills Surveys of manufacturers and our Business Prospects survey of businesses across services, manufacturing and construction.

We found a somewhat better picture.

In our Skills Survey around 28% of manufacturers had links to universities, including around 10% with research partnerships with universities. This was more than double the ABS figures for the rate of collaboration with public sector researchers by businesses across all industries, and closer to the OECD average of 33% for 'collaboration' by all businesses.

In our wider Business Prospects sample 43% of large and 11% of small respondents collaborated with public sector research organisations.

It is probable that the wording of our questions captured forms of collaboration well beyond the scope of formal research partnerships. We have come to the conclusion that Australia's *rate* of collaboration on innovation is likely somewhat better than the official statistics show.

The second thing that we did was to gather qualitative information through interviews with a number of businesses with a history of successful collaboration and innovation. We asked businesses like Leica Biosystems, Planet Innovation, Siemens and Signostics what they thought about collaboration in Australia, how they approached collaboration themselves, and the practices they had seen lead to success or failure.

These case study businesses suggested that, based on their observations of their peers, most collaborative innovation in Australia is conducted on an ad-hoc basis as opportunities and connections present themselves. Collaboration within existing supply chains is relatively common. But it is much rarer for businesses to make a strategic decision to engage in collaborative arrangements and search widely for the best partners.

In other words, our case studies were telling us that the collaborative process itself needs to be *designed*. Chance, happenstance and the unexpected are essential and ineradicable parts of producing and applying new knowledge to create business value. But stepping back and taking a design approach to the innovation process makes it much more likely that bolts from the blue will lead to success.

This theme came through again and again in the markers and practices for successful collaboration. The three broad issues that successful businesses urged us to think about were how to identify and select innovation partners; how to manage those relationships once established; and how to effectively learn from the experience and iterate to improve future collaborations.

Partner identification requires businesses to think from the outset about many factors.

- What is the motivation for the collaboration – how will it shape their competitive advantage? What are they trying to achieve?
- What are their own capabilities – and where are their strengths and weaknesses? A partner can complement or compensate for some of these – R&D capability in a particular field, financial resources, infrastructure, key market or regulatory relationships. Other gaps will undermine a collaboration unless remedied, such as a

lack of commitment, self insight, technology literacy or an innovation culture.

- How is the cultural and personal fit between the potential partners – including through small exploratory collaborations that can inform larger projects?; and
- What are their internal processes for identifying and following up on partnership opportunities? The companies we spoke with have dedicated teams to ‘fill the innovation funnel’, identify and manage collaboration partners and draw expertise from the rest of the organisation to make the most of these partnerships.

Partner identification thus creates a lot of opportunities for a business to think deeply about its practices and situation, and an impetus to redesign itself to fit a strategy.

Once a collaborative relationship is in place it needs to be **managed for success**. Successful innovators do this in several ways.

Of course there are unsurprising practices for any successful relationship – like working to ensure genuine mutual benefit. Realising that means building flexibility and equality into the collaboration, so that the partners learn from each other and agree their needs are met.

One practice that several businesses referred to was the idea of a ‘stage zero’ in the collaboration. This is where the

partners develop a shared vision for what they are doing. It is important *not* to jump straight to defining roles in the development of a pre-chosen technical solution – even where one partner brings in another as a contractor to do a limited job. Stage Zero is about inviting all collaboration partners to consider the underlying problem that is being solved and its commercial context. Access to partners’ differing perspectives may reveal unconsidered approaches – or whole new opportunities that would otherwise be missed.

Extending this fundamental commercial conversation, those early discussions also need to sensibly address intellectual property issues. The innovation project needs to be considered in terms of its aims for business success, not just narrowly defined technical goals, and the expected allocation of the benefits needs to be agreed. Intellectual property arrangements can be extremely important and a source of major friction if there is a clash of expectations in later stages.

Successful collaborators also boosted their chances of a genuinely novel outcome by putting together teams that span different disciplines, departments and companies. Cross-functional teams – including people with experience in research, development, commercial management and IT – bring together people who think in different ways and will challenge each other and, as Planet Innovation put it, “broaden how we work and think”.

Finally, case study businesses urged us to avoid rigid structures that dictate how the relationship proceeds and the opportunities that can be realised through it, and instead aim for flexible, lightweight and adaptable structures that actively facilitate interaction between partners; and practices that quickly respond to opportunities as they arise. They described governing collaborations through relatively loose memoranda of understanding, not contracts.

The third element of successful collaboration is **learning from the experience**. Each project has its unique benefits, but can be a platform to improve the next collaboration. Successful collaborators had a couple of rules for achieving this.

One was to ensure that there was deep interaction between the collaborators. Simple outsourcing and transactional relationships provide little opportunity to learn. Jointly staffed project teams and employee placements between the organisations can greatly ease transfer knowledge between partners.

Physical proximity to collaboration partners – even through visits and exchanges – was important to many case study businesses. Employees with ‘T-shaped skills’ – depth of expertise in their own field, combined with an ability to understand and interconnect with other disciplines – are particularly useful for exchange and placement.

Connections back to the business ensure that learnings and opportunities for business development are not lost when a partnership ends. Those involved in the collaboration should not become fragmented from the rest of the business. Their connections and experience can influence their home organisation's culture. They may place a greater value on flexibility, variety and change. They will certainly have lessons to impart on how to identify, select and manage successful relationships.

The second rule was that each organisation's leadership needed to be committed to learning from the relationship and backing change based on experience.

Overall, these insights paint a clear picture. It's important to leave space for serendipity and to follow up on unexpected opportunities. But successful innovation is rarely something that just happens. The collaborative process needs to be carefully designed from the ground up, pursued mindfully, and continuously improved as experience builds and the range of perspectives an organisation has been exposed to grows.

The more businesses learn these behaviours, the more likely we are to be at the forefront – not just of Industry 4.0 and digitisation, but of the next wave of industrial change after that, whether it involves nanomaterials, gene editing, artificial intelligence, or something else again.

Many people now share Ai Group's view of the opportunities open to Australia in the shifting global landscape, and the imperative to innovate better. There are many positive initiatives to spread and share better practices. One in which we are closely involved is the Innovative Manufacturing Cooperative Research Centre, or **IMCRC**.

This government-backed collaboration between industry and the research community has high ambitions. Not only is it pursuing a range of advanced industrial research projects in additive manufacturing, automation and robotics, advanced materials, sensors and data analytics, and augmented and virtual reality. The IMCRC is also looking beyond projects between defined partners, to foster a transformation in the innovation capability of the entire manufacturing sector. Detailed and repeated assessment will track hundreds of participating enterprises' readiness for Industry 4.0, Business Model Innovation and Leadership development. They will be connected to best practices through a national network of demonstrators and offered extensive capability development. And they will keep iterating assessment and improvement over time.

There are many important arguments to be had about **public policy** settings for innovation.

Changes to the R&D tax incentive remain under consideration, including a potential bonus rate of incentive for spending on collaboration. The attraction is obvious, but

there are costs and complexities to implementing this concept.

The funding formula for public sector research has been altered to give clearer weight to industry collaboration, not just academic publication. This should be a big positive over time, though payments to researchers by industry are not an ideal proxy for collaboration.

We look forward to further work on all these issues with the Federal Government. But we firmly believe that the primary driver for improved innovation will not be increased spending or greater interest from universities. It will be businesses taking a much more considered approach to designing the process of innovation itself. The work we've seen member businesses do, the discussion you are having today and the relationship between Good Design Australia and Ai Group give me confidence that we will make that leap – and build a more prosperous and diverse economy in a world of change.

Thank you all.