

The American Chamber of Commerce

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**Dr Alberto Calderon
CEO, Orica Ltd**

Business and Government Leadership in the Digital Age

Introduction

Thank you for the opportunity to speak to you today.

Before I turn to today's topic, I would like to acknowledge at the outset the close links between Orica and the United States.

We are the global leader in mining and civil blasting and have a total of over 11,500 people working around the globe, servicing over 400 customers across more than 100 countries.

Our North American business is the second largest of our four regional businesses with over 800 employees and 50 sites and it accounts for around 26% of our Group-wide revenue.

While the United States is a tough and highly competitive market, we enjoy more than 40% market share. This audience will appreciate what a tremendous achievement this is for an Australian-based organisation.

I'm also pleased to say that our North American customers are among the most enthusiastic early adopters of Orica's new technologies for optimal blasting which I will talk more about in just a moment.

National Leadership in the Digital Age

I'd like to start by winding back the clock to the last time I spoke to the Chamber in 2016 - a year which produced the twin shocks of the Trump election win and the outcome of the Brexit referendum in the United

Kingdom – events which are still casting large shadows over us and continue to dominate headlines.

Relevant to what I want to discuss today, 2016 was also the year that:

- Amazon started delivering packages by drones;
- the new iPhone7 was launched with the same computing capability as the best laptop you could buy of only 3 years earlier; and,
- Tesla released its AutoPilot software update for its global fleet of battery-powered vehicles and took the first steps towards driverless cars becoming a permanent feature on our roads.

Which brings us to today's lunch - some three years later. The disruptions caused by technology-driven changes to the way we live, work, learn and consume are upon us and everywhere we look. Just because we choose not to talk about these transformations on the national stage doesn't mean they aren't happening.

Investment patterns are realigning, markets are being reimaged by new possibilities and the sources that have traditionally underwritten Australia's enviable living standards are looking less certain.

What I'd like to say today is that it is now time to reset the discussion on innovation in this country and start making up for lost time. I want my comments to add to the chorus of voices across the business community calling on our political leaders to refocus on the critical links between innovation and growth.

In the second part of this speech I will also talk in a moment about how Orica is responding to the technology challenge that is facing Nations and the largest companies in the world.

As it stands in Australia, the void created in our national growth agenda by the end of the mining and housing booms remains. Multi factor productivity is still lagging and the economy is not growing. Current forecasts from the Reserve Bank and commentators suggest we are facing a prolonged period of subdued inflation, GDP and wages growth. Our ability to leverage monetary policy to stimulate growth is almost exhausted and it is clear the Central Bank is now looking to Canberra for help.

Of particular concern is the role that the private sector is having on growth. As we all know, sustainable growth comes from private sector investment and consumption. Nevertheless, if we look at the last 9 months of GDP growth data, the private sector has had negative growth. And I am not talking in percapita terms, I am talking about absolute negative growth. The only reason why Australia shows a relatively anaemic growth of 1% during the last 9 months is because of an even larger growth in public sector spending in investment and consumption. The growth in public sector expenditure has masked the decline in private sector consumption and investment. An economy dependent on public spending is not sustainable.

And we are not alone. Across many of the mature national economies, particularly in Europe, we see declining real incomes, poor growth and a worrisome fracturing across the political divide that is encouraging extremism and calls for protectionism.

So to grow, to increase productivity, the country needs to embrace technological innovation. Moreover, while the national discussion on 'innovation' may have been largely set aside here in Australia, other countries in North and South America, the Middle East and Asia have continued to move forward underwritten by supportive governments. Indeed, there are some very worrying signs about our relative performance:

- Australia's investment in R&D as a percentage of GDP of 1.9% compares poorly to the OECD average of 2.4%.
- The number of start-ups formed in Australia relative to public expenditure on R&D is less than half that of the U.S. and Canada.
- The percentage of the Australian population with STEM-related qualifications at tertiary level is only 20%, which puts us almost at the bottom of OECD rankings.

Also of real concern are the multiple threats posed to the diversity, size and competitiveness of our manufacturing base from the high costs of energy which may see many of our value-adding industries close or move offshore. Australia ranks a lowly 93rd in the Harvard University Country Complexity Rankings, which compares the level of depth in

national economic activity. We are already behind countries like Senegal, Uzbekistan and Indonesia.

The industry sector has been a major source of investment and human capability for R&D and innovation in this country and the loss of domestic manufacturing scale will have significant impacts on our resilience and prospects. It is a ridiculous situation to be in given the enormous natural energy resources we are blessed with.

However, this situation can be turned around. I will restate what I have said in the past on a couple of matters:

Firstly, we need a renewed policy focus on improving our nation's 'multifactor productivity' - the efficiency measure of how well we combine capital and labour – which has the closest correlation with raising living standards of all the economic performance metrics. At its heart lies both the rate of technological innovation and how quickly it is adopted into business activity. This is where I believe our national government and business leadership should place their sustained efforts and focus. It is where a new national discussion on innovation and our future growth should begin.

Secondly, there are obvious and immediate policy reforms that should be pursued. At the height of the recent debate on reducing corporate tax rates, I suggested a sensible compromise that would instead see the introduction of targeted tax concessions for investments made in technology and innovation by big business.

For me, our franking system complicates the argument that blanket company tax reductions will automatically lead to local investment and the creation of jobs and growth. In contrast, a well-designed and accountable R&D incentivisation scheme - allowing a write off for capital works and research spending and increased depreciation rates - can fuel multifactor productivity, revive growth and keep forward looking companies firmly committed to staying in Australia.

This approach is something I will continue to advocate for. It presents an opportunity for both major political parties to meet in the middle of their current positions on corporate tax.

And I choose to remain very positive. Even with all the uncertainty created by advancements in analytics, automation, artificial intelligence and blockchain, Australia still has a huge opportunity to develop the next

engine rooms of the economy, diversify our manufacturing base and build structural resilience to better weather the boom and bust cycles that have typified the commodities-based Australian economy since the late 1800s.

We still have substantial competitive advantages, such as:

- the talent of our workforce and strength of research institutions;
- our high levels of access, use and the quality of existing technological infrastructure;
- the openness and certainty of our markets; and,
- our considerable legacy in leading technology and global innovation in fields such as medicine, agriculture and METS.

But we need to get going and quickly. And that includes business leadership – we will need to play a far more central role in the debate, to help government leaders build greater confidence within the Australian community that transformation and the embrace of technology is not a threat to our way of life and job security – far from it - it is the foundation for sustaining our high living standards across the Digital Age.

Business leadership also needs to do a better collective job convincing capital markets of the value of market incumbents wanting to make long-term investments in innovation.

Currently we see capital markets bestowing high earnings multiples on start-ups with great 'ideas' and innovations but little in the way of tangible pathways to commercialisation and sustainable business models.

On the other hand – more traditional industries – those operating in mature markets, with established commercial and business models, are often punished for either real or perceived mis-steps on innovation.

The clear message to these incumbents is that only “safe innovation” will be tolerated and rewarded. This gives very little latitude for management and boards to pursue game changers for growth.

Leadership within Orica in the Digital Age

Of course, the opportunities presented by emerging technologies are not just at the macro-economic level for governments to consider. They are there in front of every business.

And Orica is no exception.

We strongly believe that we can shape technology-driven disruption into an advantage and write the next chapter in our long and successful corporate history. And we are that time in the mining cycle where the focus on cost cutting has run its course. With an increasing emphasis on productivity and doing more with less, we are well positioned.

But success will not be by accident or simply just happen. It will depend on us showing leadership in four critical areas:

- accurately anticipating the future demands of our customers and markets in response to the expanding technology frontier;
- reacting pro-actively to a changing competitive landscape;
- investing for the long-term; and,
- the careful and balanced allocation of capital.

And at Orica I am confident we are doing all of these – let me give you some examples:

By way of background, Orica and our competitors are currently involved in a fierce contest across mine sites all over the world. It relates to the correlation between how you design and execute the blasting of rock with explosives and the quality of the fragmentation you get.

Getting this relationship right is critical because it determines the digging, loading, hauling and milling efficiency that turns the extracted rock released from the blasting into useable product. These downstream processes can be as much as 80% of total mine processing costs and are a perennial efficiency target for mine site management. So there is a lot at stake.

Now, while makers of explosives have long acknowledged this link between controlled blasting and fragmentation quality, our competitors

have mostly chosen not to invest in the technologies that are revolutionising the level of blasting precision that can be achieved through digitalisation. They are basically doing things the same way as 30 years ago.

I am very pleased to say that Orica has chosen a different path and we are now seeing the rewards of many years of investment in R&D.

Over this time we have invested in bringing the potential of digitalisation, improved wireless communication and automation to the mine site. We are now driving a fundamental transformation in the understanding of the causality between blasting and blast outcomes such as fragmentation that is data-driven, evidence based and continuously learning and improving. This is providing the information required by our customers to optimise blasting practices, quantify the unlocked value and drive downstream efficiencies.

The rewards of our long-term investment can be best seen in our digital platform for drilling and blasting called BlastIQ.

This system provides mine site management with a fully integrated learning platform that captures real time and post blast data to optimise blast design and improve execution and verification in the field. It is supported by mobile applications and an array of advanced interconnected IoT sensors.

Just over a couple of weeks ago we released a new automated rock sizing measurement technology called FRAGTrack. This sensor captures real time data in the form of 2D and 3D mapping of the broken rock extracted by our blasting to verify outcomes and real-time quality control. This data can then be fed back into the BlastIQ platform, analysed and then potentially used to make adjustments in the planning and execution of future blasts.

We also have a fleet of highly specialised on-site trucks that deliver our bulk explosives based on wireless instruction from this platform and then record the 'as loaded' data for quality assurance. This interconnectivity drives unrivalled reliability and predictability and has seen the costs, time and frequency of blasting all decrease. We believe we can reduce drilling costs by 10% and increase mine productivity by 5% which are significant figures.

Importantly, BlastIQ also reduces the number of people in harm's way and makes mine sites significantly safer for both us and our customers. Another of Orica's innovations is WebGen – the industry's first wireless initiating system.

Most important of all is the improvement in safety where we can eliminate the 90 per cent of known misfires which are currently due to downline damage.

The wireless detonator is also the first detonator to achieve an International Standard Safety Integrity Level 3 rating – the same rating that nuclear power plants have to operate to and a bit closer to home, the same safety rating that the airbags in our cars have to operate to.

We can also significantly reduce the impact of exclusion zones when there is the potential for lightning strikes as we are removing the primary mechanism where lightning can trigger a blast.

As we deployed this new technology in the field, we realised that this is a much larger value proposition than even we had first imagined.

And when it comes to mining productivity, we can potentially do what we call multi-layer blasting which means we can materially lift drill rig utilisation, use fewer loading trucks and offer the mine much more flexibility. We can always be ready to blast if the mine plan changes for whatever reason.

We foresee similar transformational value propositions with wireless blasting in underground applications. Particularly where it enables us to mine otherwise non-recoverable areas where today we can't safely pre-charge them because the leads would be damaged in a preceding blast.

We believe that wireless initiation systems are the game-changer of modern blasting, and a critical enabler for full automation of the drill and blast process. WebGen improves safety by removing people from harm's way, enhances productivity by removing the constraints imposed by wired connections and is fundamentally changing the way blasting and mining is approached by enabling new blasting practices.

Since its release last year, more than 200 WebGen wireless blasts have been executed globally across 4 industry segments. Importantly, Miners

are identifying and validating the value of this game changing technology to their operations.

To illustrate this, I want to share a video with you, from our customer CMOC Northparkes, located in central NSW. They have recently converted their entire mine to the WebGen wireless initiation systems. An Australian and world first. As a result, Northparkes are seeing significant improvements in safety, productivity and increased ore recovery.

(PLAY VIDEO)

<https://www.youtube.com/watch?v=C-l4o7P69Wk>

And we are not resting idly on these achievements. At Orica we are also identifying opportunities created by technologies developed outside the business and broader mining services industry.

What this has highlighted is how technology is fundamentally changing the face of our competition. On the new battlefield, our rivals are fragmented, technology-rich and without the burdens of capital intense production assets. They are just as likely to be an emerging software company as a bulk ammonium nitrate producer.

As business leaders we need to embrace this reality. In Orica's case, we believe we continue to enjoy several significant advantages over the tech-led newcomers.

History has shown that our commitment to R&D and innovation over many decades has been central to our ability to sustain growth and our relevance to our customers. Orica has 5 Technology Centres of excellence based around the globe with over 200 dedicated technologists.

And the development of the BlastIQ platform and WebGen wireless system has shown me that when we combine this R&D investment with:

- 1.) our deep understanding of customer needs built up over time from close working relationships, and
- 2.) our ability to de-risk the adoption of new technology at the mine site by offering fully integrated solutions at multiple points of the ore extraction process...

...we continue to present the market with very compelling offerings that are unique in their scope, seamlessness and ability to unlock value for customers.

Put another way, the benefit of incumbency is that we have all the learnings and relationships built up over time of having some 4,500 of our people based on customer sites and undertaking some 1,500 blasts daily around the world.

Importantly, we also share our customers deep, core commitment to improving Safety which is a deliberate, defining feature of all the innovations I have referred to. The strength of this alignment cannot be understated and it's opening up new digital possibilities for even deeper collaborations.

Our recent acquisition of GroundProbe is a good example.

GroundProbe is a global technology leader that measures and monitors geotechnical data to enable mine sites to make confident, informed decisions to better manage risk, increase productivity, and ensure maximum safety. GroundProbe now has its radars and sensors in place across a number of Vale's tailings dams in the wake of recent tragedies in Brazil to provide data and early warning capability. Other potential uses for GroundProbes geotechnical measurement capability include civil tunnelling and engineering.

This acquisition provides us with a new capability to support our customers beyond blasting to related areas covering compliance, safety and risk management across the mine site.

In response to the new competitive landscape, we have also continued to focus on the multiplier effect of close collaboration with external technology and R&D specialists.

We are a foundation partner with the CSIRO and undertake work with multiple Universities including the University of Cambridge and the local Universities of Queensland and Newcastle.

We are also in a partnership with Data Cloud, a Silicon Valley based company, to improve detection of faults and spacing by using enhanced sensors that collect real-time subsurface geotechnical data in blast holes while drilling.

And, of course, we have not forgotten that our core business of producing bulk explosives and initiating systems, and applying them with technical services and expertise beyond that of our competitors.

To provide just two examples:

- we have developed our own robotic automation at our Brownsburg site in Canada in the manufacture of initiating systems to minimise the amount of human intervention necessary in the manufacture of detonators.
- we have also piloted a digital robot at our Kooragang Island ammonia nitrate facility to collect daily efficiency measures to optimise production. This approach has replaced manual collection and is safer, more accurate and reliable.

So I have spoken about how Orica is anticipating customer needs, investing for the long term and responding to the changing face of competition.

The final challenge we face is getting the balancing act right in capital allocation. For us to sustain growth – and I imagine this situation is shared with most manufacturers - we must both maintain and enhance our production assets, and, astutely invest in new digital and automated frontiers that may not be profitable in the near term but will secure long term value creation.

Without this balance, you cannot generate the short to mid-term earnings from the core to fund the long-term game changers, such as BlastIQ and WebGen, made possible by technology. At the same time, capital for innovation must be ring-fenced and markets convinced that this is critical to sustain value over the longer term as markets and customer needs evolve.

This challenge is particularly acute for incumbents and doubly so for capital intensive industries and publicly listed companies.

All business leaders must also ask themselves the hard questions regarding human capability within their organisations and the ability to embrace new ways of undertaking sales, pricing, marketing and production: *Can I redirect the current workforce, do we need a more*

agile cultures, do I develop internal capability or acquire it through acquisitions and collaboration?

I am confident that Orica is demonstrating the leadership required on all fronts to navigate successfully through the Digital Age. We are deeply committed to capturing the opportunities created by technology and working with our customers on delivering reliable systems to the mine site. We are doing this through long term investments in innovation, careful capital allocation and transforming our human capability.

But we also need support from enlightened policy makers and economic settings that recognise innovation and the tremendous potential of harnessing technological change.

I trust that, now the dust has settled in Canberra, this is something both sides of politics and the business community can all agree on and – more importantly – act on quickly.

Thank you.