Thank you for that kind introduction.

And thank you to the University of Queensland, Engineers Australia, the Academy of Technological Sciences and Engineering (ATSE), and Brisbane Marketing for hosting this event.

We are – I think you will agree – living in fascinating times. We are facing the two edged sword presented by massive disruptions from new technologies.

In many ways, these are incredibly exciting times – filled with new ideas and possibilities.

But they are also uncertain times – fueled by rapid change and new challenges to overcome.

This is true all over the world – and Australia is no exception. The debates we are having in this country are – shall we say – unusually intense. They concern issues that have been percolating for years, but are on the front burner in a new and insistent way. Debates about electricity, for example… about energy policy… about the best uses of our incredible natural resources.

Of course, these are extremely important issues in themselves. But, ultimately, they are part of a much larger conversation – about the kind of country we want to be and the kind of future we want to build.

The larger conversation concerns Australia’s role in the world…

A world that seems to become more fluid, and less stable, every day.

Look no further than the G20 summit in Germany earlier this month. If it felt different to you than other, recent global gatherings… your impression was right. This was not what we would call business as usual.

This is not only a product of leadership and policy changes in countries like the U.S., the U.K., and France. It is also a result of new players emerging – and ascending – on the world stage. Look at China, for example, which continues to enhance its influence – as a multilateral leader, but also bilaterally, as President Xi moves to strengthen China’s ties with countries like Germany and Japan. Or look at India – which has one of the world’s fastest growing economies… and a leader in Modi who is committed to asserting India’s power in global affairs.

Simply put, the world order is becoming more dynamic and more competitive. What it takes for countries to succeed is evolving – quite rapidly. For Australia, that means the old formula – of relying on our abundant natural resources and riding the commodities cycle – is no longer good enough.

Our country is at a crossroads, and our leaders face a choice:

Will Australia compete to win… punching above our weight, as we have so often in the past?
Or will we be carried along by external forces that we cannot control?

Will we tackle our challenges head-on… or sit back and hope that Australia’s legendary “luck” holds out?

I do not think I have to tell you which path I prefer!

From my vantage point as the CEO of a global company, I am witness every day to the ways that countries are grappling with these transformational changes. I can tell you that most countries are not being passive. Australia cannot afford to be passive either.

Yet when I look at Australia right now, I am struck by the uneasy tension between incredible opportunity… and, I regret to say, missed opportunities. I see a country that clearly has the ability to lead and innovate… but that needs to do more to live up to its potential.

So, today, I would like to discuss three forces that I see shaping the future of Australia and the world – globalization, digitalization, and sustainability – and I would like to share my view of how we must respond. Not just to compete, but to lead – today and tomorrow.

A NEW ERA OF GLOBALIZATION

The international order has been redefined, in the past half-century, by the interconnectedness of the world’s economies. Globalization has spurred incredible growth and rising prosperity in nearly every nation. This is certainly true in Australia – which was completely transformed when it opened its economy to the world. We see the benefits of globalization all around us: especially here in Brisbane, a hub of multinational enterprise where so many industries have flourished.

Nonetheless, there is a widespread sense today that globalization is somehow in retreat.

This is not only because of the political climate in many countries across the West, but also because of the numbers: After peaking at 53 percent of global GDP in 2007, global flows of goods, services, and finance nose-dived amid the Great Recession and – despite a brief rebound – have flattened over the past few years.

But globalization is like gravity: it simply does not stop. Those who claim otherwise are mistaken.

The reality is that we have entered what the McKinsey Global Institute calls a “new era of digital globalization”: an era defined not only by traditional flows of goods, but also by “data flows that transmit information, ideas, and innovation.”

In short, globalization is not retreating; it is evolving into something even more powerful.

McKinsey has reported that today – for the first time ever – more than half of global trade flows involve emerging economies. Even as the flow of goods has flattened, the flow of data between countries has exploded, growing 45 times larger between 2005 and 2014.

Unfortunately, the evidence suggests that Australia is not keeping up with these massive changes in the global landscape. In 2016, the MGI Connectedness Index – which evaluates countries based on their participation in five types of global flows, including data – ranked Australia 27th in the world… just behind Kazakhstan and Ukraine. Even

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more worrisome, we dropped ten positions from the previous index, in 2014, when we ranked 17th. On data flows alone, we dropped from 30th to 33rd.

To be clear, this does not mean that Australia is literally becoming less connected to the world. We are not. What it does mean is that we are becoming less connected relative to other countries – countries that are responding more assertively to these new opportunities. For instance, China surged from 25th to 7th in the most recent index; Ireland climbed from 14th to 5th.

In addition, in the Western democracies, the benefits of this new globalization – and the wealth it creates – have not been distributed equally. We reject socialism, but there is no question that globalization has left many people behind. We need to pause and allow them to catch up as we rewire the education system to give everyone the skills to compete for jobs in the new economy, not yesterday’s economy.

This is the broad global context for the next two trends I want to discuss. And it underscores why I believe it is so critical for Australia to act boldly in response.

DIGITALIZATION

The next trend is closely connected to the dynamic that I have just described – and that is digitalization.

I am not simply talking about the smart phone in your pocket. I am talking about the digitalization of entire industries: Analysts empowered by real-time data about every aspect of a business. Factories filled with machines that learn and communicate.

I am talking about technological progress that is reshaping the ways we live and work… unleashing creativity… boosting productivity… and, yes, connecting us like never before.

We at Dow are certainly putting the power of digitalization to work in our operations: because of advances in big data and high-throughput experimentation, for example, we can now conduct over 2 million experiments a year, each involving hundreds of thousands of data points. This is accelerating our ability to bring world-changing innovations to market.

Yet as my friend, the political scientist Ian Bremmer, likes to say, the future does not arrive everywhere all at once.

The benefits of digitalization only accrue to the companies – and the countries – that fully embrace it.

Take, for example, a country that is not often discussed at forums like these: Estonia. The Estonian government declared internet access to be a legal human right in 2000, at a time when many of us were still using dial-up. Today, the country’s 1.3 million residents can file their tax returns online in just a few minutes… vote easily from any device, anywhere… and access electronic health records that are integrated across hospitals and providers.

Or take South Korea – which Bloomberg rates as having the world’s most innovative economy. South Korea is already the global leader in R&D investment as a percentage of GDP. Its government announced last month that it will increase spending on science and technology R&D by 26 percent in 2018. And last year, the country announced that it would invest a trillion won in artificial intelligence research by 2020.
Or consider the United States — where I have been privileged to work with the administration’s Manufacturing CEO group. As we think about how to spark innovation and job creation for the digital age, reskilling the workforce for the 21st century economy has become a principal focus. This is part of a broader strategy that includes streamlining regulations, investing in infrastructure, and reforming the tax code — but reskilling is one of our most important work streams. That is why I was encouraged, last month, that the U.S. pledged a $200 million investment in apprenticeships with more funds on the way. The idea is to replicate the German model, and make vocational training and apprenticeships that provide skills for the digital economy something that our kids aspire to as much as a four-year university degree.

These are the kind of strategic responses to digitalization that could pay huge dividends in Australia. Australian Governments at all levels need to re-evaluate the syllabus and quality of technical training both within the universities and in vocational training institutions. We need our students to be tech ready and we need to retrain older workers to know how to reap the dividends of digitalization.

Indeed, according to McKinsey: “Digital can represent the next frontier of productivity and economic uplift for Australia, with the potential to contribute between $140 billion and $250 billion to Australia’s GDP by 2025, based on currently-available technology alone.”

But, today, we are still a long way from unlocking this massive potential. Australia’s chief economist has noted that, by international standards, Australian businesses are slow to adopt new technologies. Likewise, the World Economic Forum reports that Australia ranks 25th in the world when it comes to “business capacity for innovation.”

This should clearly serve as a wake-up call. Even more: it is an opportunity to be seized!

To that end, I am encouraged by some of the recent developments we have seen here in Australia.

The government’s National Innovation and Science Agenda, which launched in 2015, represents an important step forward — though I would still like to see much bolder action. And I am extremely optimistic about the promising work that is underway right here in Brisbane to prepare a rising generation of Australians for the high-tech, high-skill, high-paying careers that will define this country’s future.

For example, the Wonder of Science program, housed at UQ, shares the excitement of STEM education and innovation with approximately 2,000 young people a year. Meanwhile, programs like CoderDojo, Power-Up, Visiting Entrepreneur, and The Capital are part of a comprehensive Digital Brisbane strategy to teach high-tech skills, boost productivity, and jump-start a digital business revolution throughout Queensland. Perhaps we need to expand STEM to give more weight to the T to include coding skills and other learnings that will equip young people to drive the interface with the automated world.

SUSTAINABILITY

This is precisely the kind of innovative thinking that will be required — on a grand scale — to address the final trend shaping our future: the mounting sustainability imperative.

The facts are sobering: By 2025, 1.8 billion people will live in regions where clean water is scarce. By 2030, 40 percent of the Earth’s people will lack adequate housing. By 2040, global energy consumption is predicted to nearly double — and unprecedented extreme weather events are likely to become the status quo, rather than outliers. And by 2050 – as the global population tops nine billion – demand for food will increase by 60 percent.

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Also, a word on climate change and the U.S. withdrawal from the Paris Agreement: We cannot let this impede our progress or determination to remove carbon from the atmosphere. Many businesses in the U.S., along with states and NGOs, have picked up the slack. And I believe the U.S. will re-engage with a different approach as well.

The magnitude of these challenges is the reason we at Dow have transformed our company. We have reoriented our entire enterprise to meet the incredible demand for solutions – including energy-efficient housing, a safer food supply, and the light-weight, eco-friendly transportation of tomorrow.

Yet while the private sector can do a great deal, it cannot solve these challenges alone. We also need governments to make sustainability a priority, establishing policy frameworks that enable innovation to flourish.

We see this in China, which is prioritizing urbanization, energy efficiency, environmental protection, and private consumption, as they work to support the country’s growing middle class. The Five Year Plan that China recently announced embraces sustainability and environmental reform through its “Blue Skies, Green Mountains, Clean Waters” initiative.

We see this in Saudi Arabia, as well; the Kingdom has begun to invest in reskilling its workforce, while investing more natural resources in value-added industries that provide a foundation for future growth. They are doing this to reduce their society’s dependency on one commodity – oil – and to employ their youth in diverse, technology-driven sectors, all under the Prince’s Vision 2030 Initiative.

And we see this in Argentina – where the government has established a goal of getting 20 percent of its energy from renewables by 2025, while also tapping into its vast shale reserves to meet its near-term energy needs and drive a rebirth of its manufacturing sector.

This is the mindset we need to see in Australia.

The policy prescriptions will differ; in this complex world, there is no one-size-fits-all approach.

But this mindset – determined, creative, relentlessly forward-looking – is a requirement in this century.

Australia will need more of this mindset to meet our sustainability challenges head-on.

Nowhere is that more apparent than Australia’s disastrous energy policy – the blackouts and brownouts we have seen across the country. We face an energy crisis… in one of the most energy-rich nations on the planet.

As you know, Australia has been selling its natural gas resources to the rest of the world at about twice the rate it invests them back home. For years, I have warned that Australia is selling its future from underneath its feet. At the UQ Centenary – back in 2010 – I called on Australia to invest more in gas pipelines and electricity transmission. I said that we could not be content “selling what is below ground without any consideration…to what is above ground.”

And I warned that “a country – however lucky it is – cannot rely solely on luck.”

Today, the situation I and many others feared has come to pass. It is simply outrageous that we recently faced a situation where – to quote the Wall Street Journal – “the world’s number two exporter of liquefied natural gas didn’t have enough energy left to keep its own citizens cool.”
There is no shortage of discussion today, no shortage of suggested solutions. That is new – and welcome.

The Finkel Report provides one potential road map for resolving this crisis, but there is more to be done. It is clear that we need pragmatic solutions – not esoteric debate – to address Australia’s failed energy policy. The time has come to unleash the potential of our abundant natural gas supply.

Natural gas, of course, is a commodity – simple to sell for a profit.

But it is also a strategic resource that is vital to Australia’s transition to a more sustainable and productive future.

Solar and wind power are essential – increasingly so. But natural gas is, today, indispensable. It is not an intermittent power source, but a continuous and fast-responding one. It can fill gaps when our other energy resources are in short supply. Sadly our mismanagement of our gas resources has robbed us of the opportunity to use gas as a transition fuel. It is not too late to reclaim some of those advantages.

That is critical as we transition to renewable energy sources. Better energy storage – like the screen-printed battery technology being developed at UQ’s Dow Centre for Sustainable Engineering Innovation – is also an essential part of the solution.

But right now, we need natural gas – a far cleaner power source than oil or coal – in the mix.

More than an energy source, however, natural gas is also a critical feedstock for manufacturing companies like Dow. We use it as a base. And then we add value to it by turning it into new products.

By 2021, if we continue to favor natural gas exports over domestic industries, it will cost the Australian manufacturing industry $120 billion – and 15,000 full-time jobs. But if we invest our natural gas in Australia’s manufacturing sector, we can unlock seven times the value – and export world-class Australian innovation.

Right now, there are several steps that the government can take to move in this direction. It can lift restrictions on gas exploration and production; it can require exporters to earn the right to export gas by supplying the domestic market first; it can improve market access via new regulated pipelines connecting the eastern and western markets.

Whatever path we take, the bottom line is that Australia needs a strategy… not just to meet the energy challenge, but to face, forthrightly, all our challenges. The answers we provide at home will determine, in large measure, the role we play in the world. And the world needs Australia to be a leader.

CONCLUSION

I began today by talking about the G20. It is not a coincidence that Australia has a seat at that prestigious table. We have earned it, and our leadership has done us proud. But our mere presence on the global stage does not automatically make us a leader on it. The mantle of global leadership has to be earned and renewed over time.

The challenges that I have described present this country with a series of choices – choices that will have enormous consequences in the years to come.

Australia can work to increase its connections with other countries… or we can allow the new era of globalization to leave us behind.

We can educate young Australians for a resource-based economy… or we can teach them the skills for a digital one.
We can continue to supply raw materials to the rest of the world… or we can invest more of them at home… and supply our ideas, products, and solutions.

Australia can choose to punch above its weight – becoming an island of innovation, a geopolitical marriage broker, and a beacon of Western values in the Asia-Pacific… or, if we do not act now, Australia could crumble beneath the weight of its challenges.

The decisions that we make today will determine Australia’s role in the world – not just for this generation, but for many generations.

I am confident – indeed, I am certain – that Australia has what it takes to lead the world into the future. But that is a choice that Australia has to make. Let us make it together.

Thank you.

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