

Good morning, it's a pleasure to be here in beautiful Amsterdam for Broadband World Forum and to present, in front of many of the world's telecommunications leaders, on a topic that I am very passionate about – Australia's national broadband network.

But before we get into that I think it's worthwhile, when speaking to an international audience, to remind you that although we're tucked away on the other side of the globe, it's easy to forget just how big Australia is.

And Australia really is a nation of big things.

We've got the Great Barrier Reef, which hugs the state of Queensland's coastline and is not just the world's biggest coral reef but also the world's largest structure made by living organisms.

We have the world's biggest monolith, Uluru in the Northern Territory, a site of utmost sacred and cultural significance for indigenous Australians.

We also can lay claim to the world's biggest fence – the Dingo fence – which was built in the 1880s to protect sheep from Australia's wild dogs. At 5,614km this fence would take

you, as the crow flies, from the most western tip of France all the way to the edge of Afghanistan.

We also have some other big things that are a bit harder to explain - like the big banana, the big prawn and the big pineapple - but it would take a whole presentation to try and unpack why exactly, we've actually built these.

And, of course, there is another big thing that we are building in Australia and which we are very proud of.

It's one of our nation's – and if not the world's – biggest ever infrastructure projects: the national broadband network.

Whereas everyone loves to think they are unique, in this case I think we truly are.

NBN is a government owned organisation tasked with building and operating a layer 2, open access high speed broadband network. We operate a company called a Government Business Enterprise, tasked with running a commercial organisation and implementing government policy.

Much more than a government-funded infrastructure project, the nbn is a company that is lifting Australia's digital capability by fundamentally changing the way we learn, do business and connect with each other.

To do this we are tasked to deliver ubiquitous access to high speed broadband across the whole continent of Australia. We use six different access technologies from satellite and fixed wireless to fibre to the home, fibre to the cabinet, fibre to the distribution point, and HFC.

It's particularly significant to be here at Broadband World Forum in 2019 as this year marks the tenth anniversary since nbn was established by the Australian Government to right the competitive playing field of Australia's retail telecommunications market; and to fundamentally change the way Australians live and work by offering universal broadband access across the continent.

Over the last decade we have achieved this and more.

From coast to coast we've rolled out the nbn to more than 10 million homes and businesses, we've launched satellites into orbit, hauled fibre through the nation's busiest

city centres, we've bored under rivers and laid submarine cables to connect islands – all to bring better broadband services and competition to Australian homes and businesses.

This has involved rolling out more than 216,000km of optical cable – which is enough to wrap around the Earth's circumference more than five times. We've also built 27,000 cabinets, or nodes as they are called in Australia, and erected more than 2,200 fixed wireless towers.

It's been an incredibly challenging and complex build. We've learnt much and we've achieved much along the way.

Like in fiscal year 2019 when we achieved one of our most successful periods as in just twelve months we passed more than 3 million homes and businesses with the network and added 1.5 million new customers.

Today there are more than 6 million customers signed up to the network and even though we are in our last year of construction we continue to pass more than 40,000 homes and businesses with the network every week.

This brings me to the second reason why it's significant to be here today.

And that is the fact that this will be my first and last Broadband World Forum where I will be speaking to you as the chief executive of this network in its build phase.

That's because in less than nine months, by the end of June 2020 the major construction component of the nbn network will be complete, on time and on budget.

Anyone who knows about long term multi-year construction projects knows the success rate of coming in on time and on budget is rare.

But this is, of course, has been no ordinary broadband roll out.

We haven't just built out a network to a city-state, or even an entire state.

We've done it across an entire continent.

And it's been a construction program of enormous complexity, one that sees us connect every premises in every town and suburb across Australia's vast continent. In fact, it is one of the most complex projects Australia has ever seen.

To put the scale of that achievement in perspective, Australia - at 7.69 million square kilometres - is the sixth largest country in the world by land mass behind only Russia, Canada, China, the United States and Brazil.

Australia is also the planet's biggest island, and has a geographically dispersed population, which of course, comes with its own challenges when trying to roll out a national piece of communication infrastructure to every home and business.

Despite our large land mass, we are still a relatively small country when it comes to population, with about 25 million Australians and a very small population density of just 3 people per square kilometre. This compares to other countries in our neighbourhood like Singapore, where you will find 8,292 people per square kilometre.

Naturally, this presents unique challenges – in both logistics and costs - when rolling out a broadband network across the entire continent.

As a nation-building project our reason for existence is much more than just to deliver broadband to homes.

This important project is also about enriching Australia's social and economic fabric by boosting retail competition, improving telco services in the bush, and fundamentally changing the way Australians live and work by offering universal broadband access across the continent.

As just one example, but an important example, nbn has had a significant impact on rural and regional Australia, where this network has made a major difference by allowing new retail entrants to compete; by improving how people connect with each other; by providing the digital platforms that businesses need to thrive in the bush; and by laying the infrastructure platforms that allow distance education and better healthcare to be delivered to Australians.

So now you know what nbn is, it's time to share with you the impact that nbn has had on improving Australia's broadband speeds and access and, by extension, the social and economic fabric of the nation for the better.

It goes without saying that the download and upload speeds delivered to homes and businesses via broadband networks are vitally important.

Afterall, what's the point of building a network if it can't deliver what you promise.

But in Australia, we face some unique challenges when it comes to gauging the real impact of nbn on the nation's average download speeds, especially when those impacts are measured solely by free online tests.

Of course, as many of you are aware, the broadband speed and service that a customer ultimately receives in their home can be a function of many things.

Speed and service are not just dependant on the physical network that connects a home or business, they are also a function of how capacity is managed by retailers and wholesalers, the state of internal wiring in the home, and how in-home equipment like modems and wi-fi setups perform.

What is common, however, is how people diagnose issues when they are experiencing speeds that do not live up to their expectations.

And typically, that's by jumping on one of the many free speed ranking sites that proliferate on the internet today.

While these speed tests can yield accurate results individually, we as an industry face a serious problem when these speed tests are taken as gospel when measuring a nation's broadband market, particularly when methodologies are fundamentally flawed.

The United Nations' International Telecommunication Union itself has noted there is no global, standardised way to assess consumers' broadband speeds.

And this is a problem because by presenting results that may not be as robust as they can be, these tests can create false impressions of a nation's speed, which in turn creates a disincentive for customers to sign up to new broadband networks.

For us it's caused a few headaches.

As an example, in May this year, speed test website Ookla ranked Australia 59th in the world for fixed broadband speeds.

This ranking placed Australia behind known digital leaders such as Singapore and South Korea, but more perplexingly this also placed us behind developing countries such as Romania, Thailand and Paraguay.

This has caused a lot of head-scratching at nbn where we operate a network that has the two thirds of customers on layer 2 speeds of 50mbps or faster.

As we see it, there are three fundamental flaws with these current speed tests.

The first is that speed test samples are not representative of the general population, as they are often small, highly volatile and unreliable.

The second is speed tests do not represent a country's average broadband speed as they do not account for households without fixed-line broadband.

And the third is speed tests do not account for population and geographic factors that affect the cost and complexity of providing high-speed broadband as alluded to earlier.

This is an important point that is often overlooked when comparing speed rankings against other nations.

In 22 of the countries ranked higher than Australia in the Ookla speed test ranking, more than 30 per cent of households lack access to broadband.

Countries like Thailand, Panama and Paraguay are found to have average speeds higher than Australia in these tests but almost half of households in these countries do not have access to broadband.

To give you a sense of what we see in these rankings Saint Vincent and Grenadines was ranked 110th by Ookla in March this year but three months later jumped to 55th, four places above Australia.

So, for a more accurate reading of a nation's broadband speed ranking, we turned to economics and analytics firm Alpha Beta which has developed its own ranking system to account for availability, population and geography.

This model differs from online tests in two fundamental ways.

First, this model uses government-validated subscription speed data as well as data from the OECD to consistently represent broadband availability to all broadband users within each country, instead of accounting only for users of a particular speed test website.

And second, it accounts for the vast differences in broadband availability across countries.

By these measures, Alpha Beta found the average Australian broadband download speed has more than doubled over the last five years, as the nbn rollout picked up pace, from 16Mbps in 2014 to 37Mbps in 2019 – a 138 per cent increase in speed.

Taking these factors of speed and availability, into account, Australia's average broadband speed actually ranks 17th out of 37 major economies – which is ahead of comparable nations such as Germany, France and China and a far cry from Ookla's suggested world ranking of 59th.

Importantly, the research forecasts that Australia will continue to climb these ranks and at the completion of the nbn rollout – when more than 50 per cent of our network will be capable of delivering gigabit speeds - Australia's rank could rise to 13th among comparable countries.

Of course, for us to achieve a true measure of national broadband performance, it's not enough to simply look at raw speeds.

We must also look at how speeds are distributed across the population.

On this front, the nbn is also playing a crucial role.

By 2021, the nbn rollout is expected to move Australia from the bottom 10 OECD countries to the top 10 in terms of internet equality.

This will help ensure all Australians have fair, equitable access to the internet and the social and economic opportunities it enables.

This is a truly significant point and goes to the heart of why nbn was created in the first place.

And that's to serve all Australians, from young apartment-dwelling couples in the heart of the nation's capital cities, to families living in far-flung regions where their broadband connection is their connection to family, friends, work and education.

nbn's commitment to increasing regional and remote internet access is a key reason for this improvement. In 2011, only 61 per cent of rural, regional and remote Australians had access to the internet at home, compared to 71 percent of those in major capital cities.

By 2017, this had improved to 82 per cent and 88 per cent respectively.

This role that NBN plays in helping to uphold the nation's social compact - that no matter where you live, you are entitled to access critical services, have job opportunities, and connect with loved ones. This is a commitment we are proud of and we take it very seriously.

I believe accessibility is a crucial factor in determining the success or otherwise of broadband networks.

And key to providing accessibility is affordability.

Because if customers cannot afford, or are unwilling to pay for high-speed broadband, then nations will miss out on the benefits of rolling out this crucial infrastructure.

Thankfully in Australia, we have seen a correlation between the rollout of the network and declines, in real terms, of the cost of telecommunication services.

Earlier this year we commissioned Alpha Beta for another piece of research to compare retail pricing in real terms and found that in a study of almost 4600 broadband plans from 22 countries, Australia was the seventh most affordable market.

The report also found that since 2000, Australia's cost of living has risen 63 per cent, while telecommunications prices fell 6 per cent.

We have seen a steep fall in telecommunications prices in the last five years, since the rollout of NBN gathered pace, and compares against a 224 per cent increase in electricity prices and a 134 per cent increase in the price of healthcare.

This drop in the relative cost of telecommunication services over the last decade has also mirrored a period where usage of broadband has soared in Australia.

For example, in 2009 a typical broadband plan in Australia was capped at 45 gigabytes and if you went over this you paid extra.

Today, the average NBN customer consumes more than 255 GB of data in a month which shows that thanks to this network, fixed-line broadband services today cost significantly less — and deliver very substantially more — than 10 years ago.

So why should we care so much about speeds, and access and affordability when we talk about broadband networks?

I know many like to hold tight to the ‘Field-of-Dreams’ approach to fast broadband infrastructure – the “if you build it, they will come” mentality.

But for us at nbn, we believe in a more active approach, one that combines the needs of the individual with the needs of the nation.

And to meet those needs, you need to strike a balance between speed, access and affordability.

We passionately care about this achieving this balance, because better access to affordable, high-speed broadband is what powers the benefits that nbn can deliver to every individual, every business, every industry in Australia.

And in fact, we're already seeing the impact of what we are doing.

The Connecting Australia research we commissioned earlier this year demonstrates the impact that the nbn network has already had by making huge social and economic differences to the lives of Australians.

The report – which was also conducted by Alpha Beta - found that by the end of the roll-out, the NBN access network is expected to be contributing more than \$10 billion a year to the Australian economy.

We also know from this research that in nbn-connected areas the rate of growth in digital economy jobs is outpacing the national average by a factor of five, and that the number of self-employed women in these regions is growing at a rate 20 times faster than in non nbn-connected areas.

Further, it is estimated there could be up to 93,000 additional self-employed people by 2021 thanks to the nbn.

nbn is also helping to grow more businesses - estimated up to 80,000 by 2021 - and it's helping a new generation of entrepreneurs launch new services and businesses.

And in terms of fulfilling a promise made when the nbn was first introduced – I am pleased to say that we provide specific products and service offerings for businesses of all sizes - from your startup to your enterprise business.

This is already seeding community benefits in terms of increasing choice and competition in the market, as well as ensuring that business customers get the support they need to run and grow. This is essential as we are assisting those who choose to start their own business and create jobs, the backbone of our economy.

These economic and social benefits are set to increase in coming decades as the full potential of a completed nbn is unleashed on our nation.

Seeing these impacts of connectivity and fast broadband play out in the real world is why we remain energised by the work we do at nbn.

Although we know too well the challenges of rolling out universal, high-speed connectivity to a nation, we also know the social and economic returns that it enables, are worth it.

There of course remains much work we must do as we move towards completion of the build over the next year.

But while the build may soon come to a finish, our belief in the power of this network to make real economic and social change, will not.

Because this is not just a network of pits, pipes, electronics and cables that connect homes and businesses to the internet – it is the backbone of our digital economy.

It's a creator of jobs, an enabler of better healthcare and education, and the vital link between remote and metropolitan Australia that keeps this nation connected to itself and the world.

I believe that nations are at their best when their economies are strong and society is fair. I'm proud to say that broadband networks like nbn are playing a critical role in making that a reality.

Thank you.