CHECK AGAINST DELIVERY

Annual Sir Edward "Weary" Dunlop Asialink Lecture
November 30, 2016

INTRODUCTION

Good evening and thank you to Asialink for inviting me to speak tonight.

Having lived in three different countries in the region and with my role, at Telstra I am pleased to speak tonight on two topics about which I am very passionate – Asia and Technology.

The "Weary" Dunlop Asialink Lecture is a very special occasion.

It is a tremendous privilege to be speaking at an event named after such a great Australian.

It is a particular honour during this Spirit of ANZAC centenary period.

Weary Dunlop was a great leader through some of the darkest times of the Second World War.

He was also a great leader in better times after the war and whose legacy includes fostering a deeper understanding of Australia's place in the world and especially our place in Asia.

I know we are all familiar with Weary's story.

So tonight I also wanted to share the story of another hero.

Telstra or the Post Master General as it was until the 1990's, has been a part of Australia's fabric for more than 100 years. Indeed many of our employees served in both the first and second world wars.

One of those was Staff Sergeant Ted Cawthron from Five Dock here in Sydney.

Ted was a radio mechanic with the PMG when the second world war was declared in 1939.

He served as a signaller, fighting in the very bitter guerrilla campaign against the Japanese in Timor.

Ted was captured in February 1942. He ended up on the Thai-Burma railway alongside Weary Dunlop, and thousands of other Allied prisoners of war.

The conditions, as we all know, were appalling.

And yet despite this, and the knowledge that he faced certain execution if discovered, he built a short-wave radio receiver out of scavenged materials. The aerial was a short piece of copper wire hidden in a length of bamboo.

Ironically same type of copper wire that today still provides so many in Australia with access to the internet.

He hid the radio beneath the false bottom of an old coffee tin and powered it by batteries smuggled in by friendly Thais.

While primitive, the radio meant Ted could tune in to some of the regular broadcasts of the day - including Radio Australia - and pick up news from the outside world.

He would pass this news on to Weary Dunlop who, in turn, would quietly share it with the men under his care.

None of us can possibly imagine what being able to receive news from the outside world would have meant to those prisoners.

As well as malnutrition, maltreatment and disease, the men were, as Weary Dunlop put it, engaged in a war against disintegration from within by the helplessness and futility of life in prison.

News from the outside world via Ted's coffee tin radio would have undoubtedly been a lifeline for many.

Ted Cawthron came back to work at the PMG when the war ended. However, he had suffered greatly from his wartime experiences and sadly died a few years after being repatriated.

The thing that strikes me about people like Ted Cawthron and Weary Dunlop are that their achievements often combine an incredible strength of character, a personal commitment to helping others, and a sense for the bigger picture.

For Weary Dunlop in particular, what made him so extraordinary was his advocacy for international cooperation in the decades that followed the War, and his capacity for compassion and forgiveness.

He saw many opportunities and enormous potential in Asia and, in many ways, we now live in the world he imagined.

As is often said, we are living in the Asian Century.

Asia has changed dramatically since the war and is today a dynamic and exciting region.

Tonight I would like to take a look at Asia through a lens with which many of you may not be familiar with. The lens of telecommunications infrastructure.

Because telecommunications infrastructure plays a central role in the development of the region.

It is fundamental to support the innovative new technologies that are being developed and that will underpin the future growth of Asia.

I would also like to discuss Telstra's role in this, because Telstra provides much of the infrastructure that currently connects Asia with itself and the rest of the world, particularly Australia.

Telstra has been in Asia for more than 60 years and today we own and operate more than 30% of all submarine lit optical fibre in the region.

At a practical level this means we account for about one 3rd of all data traffic including internet traffic, between countries in the region and with Australia.

Over the last 60 years we have seen dramatic change.

A perspective on a changing Asia

At the end of the Second World War much of Asia – like much of Europe – lay in ruins.

The old colonial order was crumbling.

The British pulled out of India in 1947 - creating two countries in India and Pakistan – and left Malaysia, Burma and Sri Lanka shortly afterwards.

The Dutch were forced out of Indonesia and the French from Vietnam.

Change on that scale created many points of contrast and many different outcomes.

In 1953 China's population was 580 million. By 2000 it had doubled and today stands at 1.3 billion and it has transformed from an agrarian society to an industrial powerhouse.

Contrast that with the Philippines where population growth has not been paralleled by economic growth.

The Philippines shortly after the war was positioned to become perhaps the most powerful nation in the region but failed to capitalise on that opportunity.

South Korea in contrast was among the world's poorest nations in the 1950's - today it is the most wired country in the world and home to companies like Samsung, LG, Hyundai and Kia.

However, the change we have seen in Asia in the last 50 years is nothing compared the change we are going to see in the future underpinned by strong economic growth.

Current projections show the Asian middle class doubling by 2030 to more than 1.2 billion households.

China and India will see another 330 million and 170 million new middle class households respectively, as populations continue to shift from subsistence living to people and families with serious discretionary spending power.

However, future growth in the region is not guaranteed. As economies shift from agrarian to industrial and services, technology will become increasingly important.

By no longer being able to rely on cheap labour, productivity and efficiency will become critical and this is where technology will need to play a key role.

Telecommunications sits at the heart of technology innovation.

There is virtually no technology innovation occurring today that is not fundamentally dependent on connection – cloud computing, internet banking, autonomous driving, uber, precision farming and many more innovations that are yet come.

It is convergence between telecommunications and technology that is facilitating the rapid acceleration in innovation and transforming every sector, every market, every business and every organisation.

It is fundamentally changing the way we all work and live. But without connection none of it works and therefore Asia is significantly dependent on the development of telecommunications.

Today almost half of all internet users in the world are in the Asia Pacific region. Hundreds of millions of people creating and consuming new digital products and services.

However, unlike the western world, much of Asia missed out on the first wave of fixed telecommunications infrastructure because frankly it was unaffordable. Much of the mobile infrastructure is also still 2G and 3G based with no or limited data transmission capacity.

Until recently therefore Asia has not benefitted from connectivity to the extent we have.

Many people in Asia are today still connecting to the Internet for the very first time, and many of them are doing so from a mobile device rather than from a desktop.

In fact most people in Asia will probably never use a desktop.

Of the 63 million new mobile subscriptions added across the world in the first quarter of 2016, four of the top five countries were in Asia and included India, Myanmar, Indonesia and Pakistan.

In fact mobile telecommunications is playing a key role in providing key infrastructure for many industries in Asia.

Take banking as an example. No longer is it necessary to build a branch network which has been an inhibitor to economic development in Indonesia, when you can put mobile banking in the hands of 100’s of millions of people via an App.

In fact amazingly the smartphone was launched less than 10 years ago when Steve Jobs presented the first iPhone.

Latest estimates indicate Asia Pacific will account for more than half of all smartphone to be sold between 2015 and 2021.

China alone will add 210 million mobile subscribers in that time.

4G is still relatively under penetrated in the region but the roll out is accelerating.

And as the next generation of 5G technologies enter the market Asian countries including South Korea, Japan and China are expected to sit alongside Australia and the US as the predominant users by 2021.

5G of course will underpin the Internet of Things; billions of sensors that will connect everything from farm machinery to aircraft engines, from domestic appliances to the cars we drive.

Again Asia is expected to have the most number of IoT connected devices, rising to more than 5 billion by 2021.

What will drive future connectivity

Despite these advances, future growth across Asia is still dependent on closing the gap between the demand for connectivity and the ability to provide the infrastructure that enables it.

While the number of connected people and things across the region continues to grow, it is sobering to consider more than 2 billion people in Asia are still not yet connected.

While network operators continue to invest heavily, the reality is the gap to demand will continue to grow unless more innovative solutions can be developed.

The good news is there may be some options for cheaper and broader coverage in the future albeit unlikely to provide the

data volumes and speeds we experience today. Nonetheless they are interesting areas of research.

Anybody who has followed the work of Elon Musk would know that as well electric cars, interplanetary exploration, and supersonic rail transportation, Elon's SpaceX company has filed a request with the US Federal Communications Commission to encircle the planet with telecommunication satellites.

SpaceX is just one of several companies exploring the potential for low orbital satellites to be used to create affordable access to the internet anywhere on earth.

The early estimates were that it would need 180 satellites to encircle the planet. The SpaceX plan now calls for 4,000!

What makes these satellites interesting is that they are relatively low cost because they are light weight, manufactured at scale and cheaper to launch into a lower orbit.

The other advantage for SpaceX of course, is that they also make the rockets needed to get them into space.

A second rapidly emerging technology is the use of drones.

At Telstra we already use drones, and we have a number of qualified drone pilots on the team.

Our network includes more than 8000 mobile network sites around the country, in terrain that varies from densely populated cities to remote corners of the outback.

Our technicians regularly inspect each and every tower.

But now, instead of using the usual ‘cherry-picker’ or rigging, our teams use connected camera equipped drones to get the job done.

Google is one of several companies developing high altitude drones, which can cruise near the edge of the earth’s atmosphere and provide cheap, omnipresent internet connectivity.

Some of these drones are capable of flying at nearly twice the altitude of commercial aircraft and stay aloft for more than three years.

A third technology being developed is the use of balloons.

We have been working with Google on their Project Loon where high flying helium filled balloons that circle the globe on stratospheric winds beam internet to remote regions.

The balloons carry antennas that can beam signals to homes and phones 20km below.

Web-connected base stations bounce signals up to the balloons and the signals hop forward from one balloon to the next.

Each balloon transmits internet signals down to an area more than twice the size of Canberra.

All of these technologies are now being trialled or are in limited operation and have the potential to transform the future making affordable access to basic internet services available to every person in the world.

Most importantly they can potentially provide connectivity to remote and developing countries where traditional infrastructure is unaffordable.

Telstra is engaged in research into all of these technologies

What does this mean for Telstra

However, this is about the future, so let me bring it back to today.

Telstra already provides much of the infrastructure that underpins Asia's connectivity within the region and to the rest of the world, particularly Australia.

Our network reach means we are playing a direct role in the rapid growth of digital technology in the region and in creating a myriad of opportunities for Australia and Australia businesses.

We have had a long history in Asia, operating in the region for more than half a century.

In 1995 the first ever commercial mobile call in India was made on a Telstra built network.

In the 1990s we built the first international network connecting Vietnam to the outside world and in the process trained more than 2000 network engineers and technicians as part of an arrangement with the Vietnam Telecommunications Group.

In the lead up to the Beijing Olympics we acted as expert telecommunications advisors to the Chinese Government.

Today our focus is on providing enterprise services – cloud computing, managed security and unified communications and the underpinning international connectivity across the region through our submarine cable network.

We have more than 2,500 Telstra employees in Asia.

Last year we completed the acquisition of Pacnet, an Asian based operator of submarine cables and data centres.

The acquisition doubled our customer base in Asia, brought in more than 1000 new employees and significantly expanded our reach.

We now have more than 380,000 kilometres of subsea cable including 46,000km between Asia and the US.

Telstra's submarine cable network is the largest privately-owned cable network in Asia.

We also operate the largest integrated data centre footprint in Asia Pacific, with 29 interconnected data centres across 17 Asian cities.

Telstra PBS, our joint venture in China, is the largest foreign joint venture telecom provider by revenue with IPVPN, internet data centre, internet access and multiparty-communication licenses in mainland China.

And finally we operate the region's largest satellite earth station.

With opportunity comes risk

With opportunity however, comes risk.

One of the critical risks that must be managed by every organisation today, in Asia and elsewhere, is cyber security. This is particularly the case in our business. We get to see the scale of cyber activity every day and it is frightening.

Connectivity provides many great benefits to society and the economy.

But better connectivity also means that barriers to crime, espionage and protest have lowered, and even mistakes can happen at a pace and at a scale that is unprecedented.

The actors in a cyber world are no different to those in the physical world.

They include state-sponsored criminal activities and ideologically motivated activism.

They include individuals seeking fame or fortune and issue-motivated groups looking to disrupt to make a protest point.

They include organised crime syndicates looking for profit.

And they include nation states trying to gain tactical or strategic advantage or, in some cases, acquire intellectual property.

Many of you here today would be aware of the breach of Sony's network in 2014. This was the result of a well-organised hack at the hands of European Criminal gangs allegedly hired by the North Koreans.

The hackers remained undetected on Sony's network for over 5 months.

Sony last control over 38 million files, personal staff information, and 5,000 company emails. As a direct consequence Sony failed to file its quarterly financial results on time.

In the immediate aftermath, Sony was also forced to process many transactions manually because more than half of all its systems were wiped clean by the hackers.

Another notable security breach happened earlier this year with the infiltration of the SWIFT banking network.

Banks rely on this network to guarantee the authenticity of orders to make payments from customers' accounts.

In February this year, the Bangladesh Central Bank was hacked and the attackers obtained the bank's SWIFT access codes and sent authenticated but fraudulent requests to transfer funds.

The hackers attempted to obtain almost $1billion over a number of transfer requests. Ultimately they were successful in moving approximately $81million to a bank in the Philippines. It

was then moved to casinos and casino agents – and much of it is still missing.

In the end, cyber espionage is still espionage, cyber crime is still crime and hactivism is just activism.

And cyber risk is just risk – but it is a risk that has to be managed.

Telstra had a firsthand experience of cyber risk in Asia when we acquired Pacnet.

A week before the acquisition closed a very hard to detect inactive malware was injected into Pacnet's corporate IT network by an unauthorised third party.

We identified it on completion and took immediate action to shutdown that part of the network. We then sent a team of Telstra security experts to Hong Kong to address the issue and kept Pacnet's customers and other key stakeholders abreast of what had occurred.

We have no evidence that information was stolen from the network but it demonstrates the criticality of continually

assessing and reassessing best practice in operations and governance.

However, Cyber risks can of course potentially play a more significant role in world events.

In the grand scheme of things these incidents and their consequences are relatively minor if expensive and potentially embarrassing for those affected.

A lot has changed in Asia since the second world war but tensions still exist whether it is nuclear sabre rattling between India and Pakistan, the militarisation of the South China Sea, North Korea or sovereignty over Taiwan. Cyber risk adds a whole new dimension to these conflicts.

But let finish on a more positive note.

I am optimist. In fact I like to describe myself as a technology optimist.

Technology innovation is accelerating. It is providing amazing opportunities in all walks of life.

It is the single biggest productivity opportunity across the globe.

It has the capacity to lift the standard of living for everybody.

Nowhere is this more the case than in Asia.

Conclusion

One of the countless tributes paid to Weary Dunlop when he died in July 1993 was from a fellow Prisoner Of War, former Federal MP Tom Uren.

Tom said “Weary Dunlop continued to grow as a human being all his life”.

It was comment that called out Weary Dunlop’s openness to change and his incredible eye to the future and to Asia.

His ideas are just as relevant today.

We too must continue to be open to change and opportunity in Asia, to expand our thinking and evolve our strengths with an eye to the future.

The next phase of Asia’s growth in going to be technology driven and this provides significant opportunities for Australian businesses and Australia.

So we must continue to build strong relationships with our Asian neighbours – through investment, collaboration and partnerships because the future is ours to make.

Thank you.

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