

Talking Notes – Marie Johnson
14 June 2018
iAwards - SA



“I would like to Acknowledge that the land we meet on today is the traditional lands for the Kurna [gar-na] people and that we respect for their spiritual relationship with their Country.”

Hon. David Pisoni MP

Minister for Industry and Skills

AIIA Board Director colleagues; Rob Fitzpatrick AIIA CEO; the AIIA South Australian Council; all attendees including a very special welcome for students here tonight.

I also acknowledge the iAwards finalists and the phenomenal effort of the iAwards judges

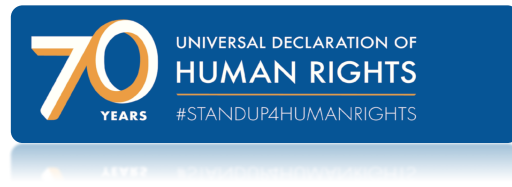
I would like to especially acknowledge the amazing students and their efforts here tonight. Caitlin V – the Strawberry Cyber Safety Project; the Automated Hip Fracture Detection by the University of Adelaide; Project Rubbish – by Murray Bridge High School; and SMART (Student Movement Augmented Reality Timetable) by Murray Bridge High School.

This year, the AIIA celebrates 40 years, and the iAwards 25 years – and the emphasis on skills, innovation and the

digitisation of the economy has intensified. This is a whole of economy and whole of society imperative.

As we celebrate this AIIA 40 year anniversary, I would like to share with you two other anniversaries which connect innovation, human endeavour and human advancement.

The way in which these domains interact is quite profound – and by looking at these anniversaries together – we see both a history and a future of almost boundless commercial, innovation and human rights endeavours.



The Universal Declaration of Human Rights

2018 marks the 70th anniversary of the Universal Declaration of Human Rights.

The Universal Declaration of Human Rights is a milestone document in the history of human rights - the Declaration was proclaimed by the United Nations General Assembly in Paris on 10 December 1948 as a common standard of achievement for all peoples and all nations.

As the Artificial Intelligence (AI) era inexorably unfolds across every dimension of our life, the principles enshrined in the Universal Declaration and the related document *Convention (on the Rights of Persons with Disabilities)* - hold the kernel which can

steer this great innovation in a direction that will benefit all humanity.

“The Convention (on the Rights of Persons with Disabilities)... takes to a new height the movement from viewing persons with disabilities as “objects” ’ of charity, medical treatment and social protection towards viewing persons with disabilities as “subjects” ’ with rights, who are capable of claiming those rights and making decisions for their lives based on their free and informed consent as well as being active members of society.....”

The impact of technology innovation on inclusion and accessibility is well known: - humans have always sought to augment their own capabilities. The UN Convention on the Rights of Persons with Disabilities is remarkable drafting and deeply perceptive, because it pushes innovation into the realms of each person’s individual expression of our shared humanity.

The Convention calls out the right of freedom of expression and opinion, and access to information – including by accepting and facilitating “augmentative and alternative communication” so that people with disability can “receive and impart information and ideas on an equal basis...”.

And barriers come down when innovations become mainstream.

All people experience functional – or situational – disability in different circumstances. Situational disability is a term used to describe a temporary state imposed by a person's current environment that results in an accessibility issue, such as the inability to use one’s hands to operate a phone when driving.

Situational disabilities impact all people universally and there are opportunities and unrealised potential for all people to benefit or leverage technology advancements that were initiated to reduce the impact of physical or cognitive disability.

Take for example closed captioning, originally implemented to assist people with hearing impairments - but a range of forward-looking anti-discrimination and disabilities legislation introduced in the US changed this.

On March 16, 1980, for the first time ever, deaf people across America could turn on their television sets – with a caption decoder – and finally understand what they had been missing on television. The closed-captioned television service caused an overnight sensation. Suddenly, everyone who had been shut out from the world of broadcast media could enjoy television programs along with hearing people.

Today, closed captioning features prominently in public environments and public events, accompanies classroom lectures and web content, and even aids ESL students in learning English.

Another example is SMS, – now pervasive, – but its introduction into Australia was accelerated as a result of the intervention of the Human Rights Commission so that people with hearing impairment and their families could communicate with one another – with the same access opportunities as the general population – as mobile technology and devices became mainstream.

And the impact of AI will be even more profound.

For many people, accessing government and commercial services, including of course healthcare, can range from just plain difficult to frightening and isolating. As a mother and grandmother of family members with disability and chronic health problems, I know this first hand. As a technologist, I also know that AI is not a “tool”, an “enabler” nor a “platform” - it is neither “IT” nor “UX”. Every day we ask, explain, analyse, understand and create.

AI’s role is to help everyone, regardless of capability, to perform these basic communication and cognitive functions with dignity on an equal basis.

Regardless of social status, education or ability, when vulnerable, our humanity yearns for empathy and conversation.

Putting a face onto AI – as we did with Nadia – changes the way in which people and systems interact, through empathetic natural conversations.

For the first time, instead of *people having to adapt to systems* – this was a vision to *have systems adapt to people* and so go some way to achieving the objectives of the Convention.

Digital humans will be integral to healthcare, as companions and coaches for health consumers. Health consumers and people with disability are already asking for their own digital human, and a digital human cardiac coach will be one of these.

It is my hope that very soon, my grandsons with dyslexia and communication disabilities, can interact with a digital human AI reading coach whenever and wherever they want: a life-long learning companion to build their confidence, stimulate their

imaginations and unlock their immense potential. And perhaps a near future where every student will have their own digital human coach on their own mobile device, which will literally change the face of education for everyone everywhere.

Previously, only the wealthy had the means to access a private personalised reading coach. The digital human reading coach concept democratises this access for all.

Where AI differs from previous technology shifts and accessibility innovations, is that it exponentially changes outcomes and directions in human endeavour.

In many ways, AI becomes a human right for the era ahead - because without this - the gulf between the life outcomes of the supremely wealthy and the marginalised will further fracture and deepen.

Apollo 50 Year Anniversary

From October 2018 through December 2022, NASA will mark the 50th anniversary of the Apollo Program that landed a dozen Americans on the moon between July 1969 and December 1972.

Who remembers July 1969? For those not old enough, go look at the NASA website and soak up what's there.

How many kids wrote to Neil Armstrong, inspired by his magnificent achievement. I did - and I got a reply - sent to me in a big orange NASA package - delivered by the mailman to our house in the western suburbs of Sydney. I got relentlessly stirred by the kids in the street for putting the Apollo 11 mission patch on my school jumper - but it didn't matter - I knew even then, I

had received something very special. I had a letter and an autographed photograph from Neil Armstrong, which is mounted behind protective glass in my office. All up I have six original autographs from these amazing adventurers.

I have visited the Kennedy Space Centre twice – and spent many days there. I was lucky to be there and see the launch of the Final Launch Atlantis STS 135 8 July 2011. It truly is a magnificent spectacle - and even kilometres away, you can feel the roar of the engines in your chest. Forget going to Disneyland...

And we have all seen that iconic front-on photograph of astronaut Buzz Aldrin on the moon - an image of sheer vulnerability and isolation - a human augmented and supported by technologies that did not exist a few short years earlier. It is remarkable to think that – 50 years after that photo - Buzz Aldrin is one of the drivers behind the Mars goal.

In fact, when Kennedy made his moonshot statement in 1961, just eight short years earlier, his advisors told him that the technology and the materials did not exist to make this happen.

And this image is the epitome of human centred design - or concurrent engineering - and yet some people would have us believe that human centred design is a recent trend to do with apps and websites.

How do you design something that has never been designed before?

One of the things I saw at the Kennedy Space Centre, was an actual exoskeleton-type suit Extravehicular Mobility Unit (EMU)

that astronauts wear on space walks and fixing things on the International Space Station. Not too dissimilar from an exoskeleton now being used by paraplegics to help them to walk - and the AIIA had a presentation in this last year. And exoskeletons used by workers in industrial settings on assembly lines.

So the assumptions about disability, human limitation and augmentation are very contextual – look beyond the assumptions.

When I was working on Nadia, there was a young guy working with us - he had cerebral palsy, very severely impacted, arms and legs restrained in his wheelchair. But this impressive young man was such a renowned expert in the use of the Apple Switch - which was mounted on the head rest of his wheelchair - which he controlled with movements of his head. He was doing work with NASA - astronauts fully suited up have limited movement of their hands, and NASA was looking how Christopher used and adapted the Switch.

And I'm not at all glossing over the tragedy and loss of life. NASA and the space program provide hard lessons in culture, risk, decision making and what happens when design is compromised. Read about the Challenger disaster – not enough people read this stuff.

So what has space travel ever done for me?

Since 1976, NASA's *Spinoff* publication has documented the stories of more than 2,000 spinoff technologies – here's just a few...

TV Satellite Dish, Medical Imaging (Cat Scans), Telescopes (that look for cancer), Vision Screening Systems, Ear Thermometer, Fire Fighter Equipment and Suits, Smoke Detectors, Cordless Tools, Aerodynamic Wheels, Thermal Gloves and Boots, Space Pens (That write upside down), Shock Absorbing Helmets, Ski Boots, Failsafe Flashlight, Invisible Braces for Teeth, Joystick Controllers, Advanced Plastics, Enriched Baby Food, Better Cardiac Pacemakers, Protective Paints, Scratch-resistant Glasses

So there's more space in your life than you think!

The Apollo Program – an 11-year series of 33 spaceflights including six that reached the lunar surface – all up, the collective effort of 400,000 people. And people in Australia.

Today, NASA is working to return astronauts to the Moon to test technologies and techniques for the next giant leaps – challenging missions to Mars and other destinations in deep space.

And the rocket fuel for the next giant leap, is AI.

Skills

Some closing thoughts on skills and learning.

There is something to be said for a compelling vision and an optimistic forward view, to fuel the appetite for learning and challenging. For the students here tonight, your appetite for learning and challenging should never stop – mine never has!

There is no way I could ever have imagined running a personality design workshop for a digital human – a “digital human personality designer” I don’t think is in any curriculum. And nor should it be.

The next moon shot is artificial intelligence. Read about it, learn about it technically, and from a human design and societal perspective.

This is an amazing occasion to celebrate the phenomenal contributions of the AIIA to the technology direction in Australia, and when seen together with the Apollo and Human Rights anniversaries, we can get a sense of the boundless opportunities ahead.

To quote a NZ colleague - the CEO of FaceMe Danny Tomsett:

“Leadership is an ability to deliver a future that people don’t (yet) know they need.”

END