Reimagination 2019

In partnership with ACS

Seek out problems first
Meeting market demand is the way to sustainable growth | S3

No mountain too high
Award-winner breaks barriers | S5

Privacy concerns persist
Protect data in a 'smart' world | S7

Focus always on humans
Dream big and imagine the future | S2

Jordan Nguyen, who delivered the keynote address at the Reimagination Summit 2019, says technology takes a second place to humanity. PHOTO: BENNY TANG

AFRGA1 S001

Human touch comes first in importance

Australia is a great place for a start-up.

Mark Eggleton

The world needs to find the "beautiful and positive opportunities within the technologies of today", said the Founder of Psykinetic Jordan Nguyen at the recent Reimagination Summit in Melbourne.

Dr Nguyen was delivering the keynote address at the summit and while acknowledging technology is currently throwing up numerous ethical issues around the use of big data and surveillance as well as other "traumatic issues", he suggested we work to avoid them by always putting humans first.

"It all comes down to our mindset. We need to keep up and embrace the changes of today because we can't exactly stop them happening but we can shift, shape and change them," he said.

For Dr Nguyen, who is an internationally renowned documentary-maker, engineer, futurist and former finalist for the Australian of the Year, the future is all about humanity first and technology second.

"It should never be about the technology but what we can achieve with it," he told the audience.

Humanity's role is to "dream big and take action because we are not limited by our own imagination," he said.

Not being limited by our imagination and being passionate are two of the key drivers that Macquarie Telecom Group chairman Peter James looks for when he invests in local start-ups.

He reckons Australia is one of the best places in the world to start a technology business.

Speaking on a venture capital panel at the summit, Mr James, who is also chairman of drone security company DroneShield as well as aerial imagery specialists Nearmap (whose founder Rob Newman also spoke at the summit) said Australia is a great sandbox for early-stage companies.

"We are a small market but we're early adopters of tech and we have disposable income," Mr James said.

He suggests local entrepreneurs should look to "try your product here, work it out in Australia, perhaps New Zealand and then take it offshore."

"What excites me in the venture capital space are models that can scale globally.

"I like smart technology, a solid business and good people who like the thrill of the chase. What I don't like is hubris," he said.

Moreover, he said Australian companies can not only build their technology here but also harness the world's best talent because Australia is a great place to live.

"Young people from around the world want to come, work and live here," he said.

President of the Australian Computer Society (ACS), Yohan Ramasundara said the Reimagination Summit presents the local technology sector with an opportunity to reflect on its progress and how it's changing.

He's critical of the nation's some-

As the digital landscape changes, our economy needs to evolve.

Yohan Ramasundara, ACS president

times blinkered approach to technology and our continuing reliance on "digging and exporting", which will not sustain the local economy in the long term.

"We need to understand new value creation happens in the digital world and as the technological and digital landscape changes globally, our economy needs to evolve," Mr Ramasundara said.

Importantly, he said government and business should not go about establishing separate digital strategies.

"Digital is not a separate part of the economy. We need to evolve existing business practices and government legislation to fit the digital world."

Commenting on his summit highlights, he said Australia has created many "rock-star" company founders and many of them are starting to come home.

He cited Olivia Humphrey, who founded world-leading film streaming platform for public libraries and universities, Kanopy, who is coming home and has "so much to offer the local tech landscape".

"Dr Jordan Nguyen's speech touched on a convergent world where the physical, digital and biological come together to create amazing opportunities and challenges.

"The big question is whether we have the structures and frameworks set up in our economy to ensure we can derive value from this potential trillion-dollar industry," Ramasundara said.

Helping to set up those frameworks and structures is the ACS itself, which announced its intention to facilitate a new early-stage tech investment fund at the Summit. This comes off the back of acquiring leading accelerator River City Labs in Brisbane from entrepreneur and "Shark Tank" host Steve Baxter last year as well as Startup Catalyst, which takes Australia's best tech talent to start-up hotspots all over the world to meet with the most innovative global tech companies.

In the days leading up to Reimagination, ACS also announced global tech veteran Todd McGregor as Startup Catalyst's new general manager.

He hopes to ensure "we have direct pathways for our best and brightest talent that fosters the growth of our leading Australian tech start up and scaleups on the world stage."

For Ramasundara, "our aim is to grow tall poppies in Australia's tech sector and economy".

"What we showed at the Summit was how we can use human creativity to create technology that solves problems."

Continuous change

Top 10 tech trends for 2020

#	Trend	Description
1	**Hyperautomation**	Application of AI and machine learning to automate processes.
2	**Multiexperience**	The way people interact in the digital world.
3	**Democratisation**	A model to tap into automated experience beyond training.
4	**Human augmentation**	How humans are physically and cognitively augmented by tech.
5	**Transparency and traceability**	Design and application of data privacy and digital ethics.
6	**Empowered edge**	Proliferation of sensors and connecting devices.
7	**Distributed cloud**	Using the internet and remote servers to store and manage data.
8	**Autonomous things**	The use of nearly self-directed tech objects, such as drones.
9	**Practical blockchain**	Using digital records of transactions.
10	**AI security**	Protecting systems powered by artificial intelligence.

SOURCE: GARTNER

Feel-good experience a crucial step to building loyal connections

Mark Eggleton

In our current so-called age of the customer, some of the hardest-to-please customers are millennials as they flit around brands looking for the right experience.

Moreover, one of the more difficult sectors to engage millennials in is superannuation because most financial interactions have been reduced to "tap and go" or skimming through accounts on an app.

Bearing this in mind, several disrupters have emerged trying to engage millennials in super but most of them don't really offer much more than a tech stack and funds index-tracking funds with higher fees.

Founder and CEO of super fund Zuper, Jessica Ellerm, believes while technology is helping young people engage with their superannuation, "what customers care about is how they feel when they experience a product", she said at the Australian Computer Society Reimagination Summit in Melbourne.

"If you start by thinking what widget is going to connect to what, and what tech stack you're going to use, and the security elements, you're not going to

Jessica Ellerm, Suzanne Steele and Brett Roberts agree businesses need to deliver great personalised experiences.

get to the point where you deliver something the customer actually wants."

Ellerm, who previously ran a team at fintech Tyro, says organisations which understand how to empathise with customers beyond the technology will thrive.

"Customers can be quite forgiving [of organisations] if you deliver them something that they feel really great about," she says.

At Zuper, Ellerm's challenge has been trying to engage a younger generation in a product they traditionally wouldn't really think about until they're nearing retirement.

"Most young people have never had an experience with a superannuation company. They might have seen some marketing but there's no market research out there really tracking how millennials engage with super. There is no baseline."

For Ellerm, the key is being a little more creative and thinking about what makes consumers feel good about a product or service rather than just the commodity.

"If they feel they have a personal connection to the brand because it's personalised, you are going to achieve a degree of customer loyalty," she says. "People don't care about the tech because the technology doesn't really feel that different from one brand to another, they care about how it makes them feel."

Ellerm says none of the larger financial institutions really think this way, so she believes there's "a crazy opportunity" out there for a company like Zuper.

On the same panel, the managing director of Adobe ANZ, Suzanne Steele, quoted a statement, often misattributed to the American poet and civil right activist Maya Angelou, to the effect people "often forget what you say, often forget what you did, but never forget how you made them feel".

Steele says delivering seamless personalised experiences that make customers feel good drives massive customer loyalty.

"It delivers huge engagement because in that moment you feel important to that brand, or to that company, or to that bank.

"The statistics are there for themselves that organisations who get this right have much more engaged cus-

Most young people have never had an experience with a superannuation company.

Jessica Ellerm, Zuper

tomers, and are much more profitable," Steele says.

The chief marketing officer of enterprise solutions provider Kinetic IT, Brett Roberts, cites Harley Davidson as an excellent example of a company personalising the customer experience.

While the US bike manufacturer uses technology throughout the customer journey, Roberts says it's all about making the experience more personal and by the time a customer makes the decision to purchase, it becomes "a really engaging and special moment".

"Buying a motorcycle is not something you're doing every day so Harley Davidson really focus on how it makes you feel," Roberts says.

Steele says organisations wanting to deliver great personalised experiences need to bring the digital natives into the room, and talk to them about what great experiences look like.

"It's all about diversity of thought and putting the customer right at the centre of everything. Your whole business strategy is about the customer and delivering for the customer."

Look for problems, make lasting impact

"Build a sustainable, lasting business that is going to have a positive impact on this world" is the advice offered to young tech entrepreneurs by Vicky Lay, who heads up Impact Investing at alternative investment firm Artesian.

Lay says the next generation of smart local start-ups is already heading down that path and they are really keen on making a difference as well as making money and providing investors with solid returns.

Speaking on the sidelines of the Reimagination Summit in Melbourne, Lay says there is more than altruism driving the trend towards diversified investing and the deepening interest in clean energy, food and medical technologies.

"We don't have these in our portfolio because we think they're great but because they're a group of challenges that need solving and, therefore, need innovation to tackle them," she says.

"You go where the problem is and you look for demand."

Lay co-founded Zookal, a Silicon Valley venture-backed edtech start-up, and has served on the boards of numerous non-profit organisations. She was listed on Forbes Asia 30 under 30 list in 2017.

She says Artesian is Australia's largest and most active venture capital provider, making around 200 investments a year, and has around $650 million in funds under management.

Her advice for young entrepreneurs looking for funding is to start by "leaving your ego at the door".

She mentions the standard 10-slide deck that lays out the problem, solution, market size, opportunity and business model but also suggests being prepared with questions and answers before potential investors even ask.

"Time and speed and getting to the answers quickly are important, plus let the investor drive the questioning and have your slides ready, either in your full deck or in your appendices, to be able to answer whatever they want in whatever order they want," Lay says.

"It's also very important to know your investor, because it's very different pitching to a VC compared to a family office or a high net worth individual."

She says wealthy individuals or family offices often want to spend time getting to know you and finding more about your personal story.

"I've had pitches where I've spent most of my time talking about larger philosophical discussions with the investor before spending the last 10 per cent of that conversation talking about the deal itself.

"Conversely, VCs have a mandate, there's rules around what they can and can't do."

At Reimagination, Lay was joined on a Venture Capital panel by a number of local start-up luminaries, including Steve Baxter from Transition Level Investments, Dr Michelle Deaker from OneVentures and the chairman of Macquarie Telecom, Peter James.

Baxter agrees entrepreneurs looking for capital really need to know their audience. "Research and understand what their hot buttons are, understand what they have invested in before and, make a positive impression. Bad impressions are easy to make," he says.

For Deaker, it's about understanding investors are time poor and see a lot of pitches. She says you don't walk in with 60 slides and start at the beginning and try to present your whole business.

"Just come in and tell us exactly what the problem that you're solving is, why is it important and the size of the potential market as well as about your tech.

"You have a limited amount of time so use it well to get our attention and be prepared for a lot of questions."

Macquarie's Peter James agrees: "You have three or four minutes to make an impact and after that people's attention starts to wane so be very crisp, practise, and answer those four or five questions about your technology and importantly, be authentic."

And according to Baxter, it's extremely important not to over-promise or embellish the truth around your product because "if you lie, we will find out and we will hate you".

Vicky Lay of Artesian: "Leave your ego at the door." PHOTO: JESSE MARLOW

> You have a limited amount of time so use it well to get our attention.
>
> Michelle Deaker, OneVentures

S4 | **Special Report** | **Reimagination 2019**

Tuesday 17 December 2019
The Australian Financial Review
www.afr.com
AFR

Digital Disruptors Awards | **Special Report** | S5

Australia must adopt a global view on growth

Crisis mode As a nation, we need strategic vision to face digital challenges.

Ian Grayson

Australia risks becoming little more than a passive consumer of technology and a nation with only limited means to drive economic growth in the coming years, a panel of industry experts has warned.

Speaking at the recent ACS Reimagination Thought Leaders' summit, the panel discussed the steps required to avoid this fate and place the country on a firm path to sustainable prosperity.

Panel members agreed that maintaining a "business-as-usual" approach was risky and would prevent Australia from competing effectively at a global level.

"The first thing we have to recognise is that we have an existential crisis," Richard White, chief executive and founder of logistics company WiseTech Global, told event delegates.

"When you look at employment and automation in mining, we cannot rely on it to employ future generations.

"The growth industries around the world are largely centred around technology and the conversion of an analogue economy into a digital economy. As Australians, we are either going to be consumers (of technology), and therefore welfare recipients, or we are going to be producers (of technology) and therefore the owners. It's a very binary choice."

Fellow panellist and president of professional services firm GHD Digital, Kumar Parakala, agreed, saying technology has always been changing the way business is conducted; however, it has only recently become an existential crisis.

"The people who are working in the industry don't understand it," he says.

"When you speak with traditional investors, they are still thinking about mining, services and banking, but that is not where any of the growth is," he says.

"All the growth is in technology.

"As a society, we have to recognise that the future of our country is not shifting more iron ore. I'm not saying we shouldn't do it, but we must turn our attention to the education of our younger generation. We need to build a powerful future innovation capability from what is currently a very, very small part of our economy."

Panellists also discussed how the rules of doing business were changing and why many Australian companies needed to rethink their strategic approach.

Bridget Loudon, founder and chief executive of recruitment firm Expert360, says that in the past, there had been very clear lines defining the category in which a company operated. However now, thanks to rapid advances in technology, those lines are blurred.

"This has a couple of significant ramifications," she says.

"First, companies that once were seen as competitors could now become your strongest allies. At the same time, businesses that you would never have thought of as competitors are suddenly competing with you."

Recognising this environment, and in an effort to foster a new generation of technology-focused start-up companies in Australia, the ACS used the Reimagination summit to launch a new digital technology investment fund.

ACS president Yohan Ramasundara said the fund would be established with a $5 million investment from his organisation before calling on other investors to become involved.
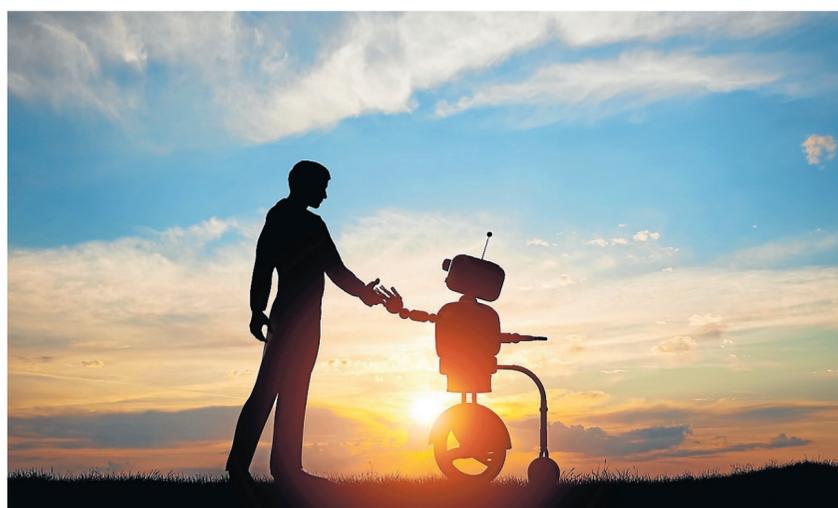
He told delegates that research conducted by the ACS had found that an estimated 97 per cent of Australian start-ups either moved overseas or failed to commercialise and scale.

Difficulties attracting investment were highlighted as a common cause.

The new fund is designed to help overcome this problem.

global, and for globalisation, we need a global mindset."

White says it is vital for Australians to look beyond the mining sector, which has been responsible for a significant proportion of economic growth for years.

> **We have to recognise that the future of our country is not shifting more iron ore.**
> Kumar Parakala, GHD Digital

"The biggest challenge is that technologists who are setting up digital transformation solutions around the world are themselves getting disrupted and they can't stop this."

Parakala says several countries have taken a long-term view and invested in policy and attracted investment, but Australia is not one of them.

"We don't have a strategic vision. We have a good government right now, but technology is not a priority and we haven't been strategically planning. There are some very good companies in Australia, but we are a small nation. For us to be successful, we need to be truly

Bridget Loudon

Kumar Parakala says technologists are themselves getting disrupted.

Artificial intelligence is rapidly advancing and being adopted by companies, which must ensure this has no unintended consequences.

Companies need to use AI with care

Cyber security

Ian Grayson

Of all the technology-related issues facing Australian management boards, the most important is the usage and impact of artificial intelligence (AI). With exponential advances in its capabilities and rapid adoption by companies, ensuring its use has no unintended consequences has become vital.

Speaking at the recent ACS Reimagination Thought Leaders' summit, a panel of senior board members expressed excitement and concern about the growing power and implications of AI.

"The role of the board is one of oversight, and oversight of AI is much more important than any other technology," says Mary-Ann Williams, director of the UTS Innovation and Enterprise Research Lab.

"There have been a lot of breakthroughs during the past decade [and] it is important to understand the types of insights that AI can provide and the impact this might have on privacy and security. You need to ask questions such as whether there is any harm for our customers, do we need their consent, and is there any bias involved that might translate into legal issues."

Wendy Stops, non-executive director at Commonwealth Bank and Coles Group, agrees, saying boards must educate themselves on the many issues that widespread AI adoption will create.

"When AI goes into the machine learning space, it opens up a range of issues

Wendy Stops

such as biases and privacy," she says. "Boards have to be switched on to this and be able to ask the right questions."

Williams says a significant proportion of the challenges caused by AI usage within companies is the technology is far from transparent. "Even the people who build it don't really know why it does what it does," she says. "The board is critical. If it is successful in understanding AI, developing strategies for it, and integrating it into mainstream business strategy, the payoff is huge."

> **When AI goes into the machine learning space, it opens up a range of issues.**
> Wendy Stops, Commonwealth Bank and Coles Group

Asked to nominate other technology-related issues for boards, panel members pointed to a range including security and the ability to withstand cyber attacks.

"Cyber security is really at the top of the list," says David Attenborough, managing director and chief executive at betting company Tabcorp. "This is because any company is under permanent attack from different directions and you need to be

protecting your customers, your networks and employees from those attacks."

"The other major issue that keeps me awake at night is the resilience of networks because we have multiple systems supporting a massive retail network and a big digital network. On big days, such as the Melbourne Cup, if you have a system that goes down, it is incredibly expensive, disruptive and reputationally damaging."

The panellists stressed that Australian businesses must be more than simply technology consumers.

To achieve long-term growth, it is vital to deploy new technologies to underpin sustained and far-reaching innovation.

"The board wants to see a pipeline of ideas," says Stops. "They want to know the company is constantly thinking about new ways to do things."

She says innovation has to be a mindset right across an organisation. "The usual approach within a lot of companies has been to carve off a group and call it an innovation team … this is not creating an innovation culture – it's just putting some smart people in a corner."

Stops warns, however, that it's important how innovation and new ideas are handled. Care needs to be taken it doesn't get caught up in traditional multi-layers of approval that can lead to a good idea dying before it can be fully developed.

"The board should be keen to make sure there is a way in which those ideas can move through the organisation quite quickly," she says.

"Also, there is a need to create a culture in which it is OK to fail."

Women overcome barriers to follow their dreams

Recognition Mentor a tireless champion of diversity and equality.

Jonathan Porter

"If you can see her, you can be her."

That is the advice of Sheryl Frame, winner of the ICT Professional of the Year award at the 2019 ACS Digital Disruptor Awards, for women considering becoming industry movers and shakers.

Frame is borrowing from the slogan of Women in Technology WA, an organisation that strives tirelessly to champion diversity and equality for women in tech.

"No mountain is too high to climb – there will always be obstacles in any path, but with the right determination and strength, you can succeed at anything. Or to quote WITWA's slogan for 2019, 'if you can see her, you can be her'," the mentor, role model, company director and commercialisation adviser tells *The Australian Financial Review*.

She says she is "honoured and humbled" by the award.

"This award is an amazing recognition of a long career in IT – one that has seen so much change in the industry, and has enabled me to work across many different countries and continents," says Frame, who has started four IT-related companies on two continents.

"When I started my career, IT was a totally male-dominated industry. Sadly, although some progress has been made, there is still the need for organisations like Women in Technology WA to ensure that young women are encouraged into

STEM/technology careers, and that we offer support and encouragement to women in the workforce in the technology sector."

She says salaries still reflect a great disparity between men and women.

"WITWA's Techtrails program was founded as an excursion program into schools to showcase careers and role models to year 9 and 10 students, promoting science and technology. Our patron, Professor Lyn Beazley (previously the chief scientist of WA), has been a rampant supporter for many years."

Frame is passionate about helping others, especially female founders, and ensuring that women are empowered to follow their dreams and dismiss perceived barriers. "I am also active on the board of SBE Australia, a program started by Kay Koplovitz as SpringBoard in the US. The program assists female founders and female-led businesses with new and novel technology to raise capital and expand into overseas markets.

"It is hard to believe that in this day and age, women still face more challenges than their male counterparts in raising capital. Over the years we have had many successes, and being a mentor with both SBE Australia and the other organisations with which I am involved has enabled me to share my own experiences and to 'pay it forward'."

She says one of the biggest challenges of her work is the sluggish pace of com-

Winners of 2019

ICT Professional of the Year Sheryl Frame	**Service Transformation for the Digital Consumer – Government** University of Western Australia
CXO Disruptor of the Year Vinay Samuel	**Service Transformation for the Digital Consumer – Corporate** Myriota
Best New Tech Platform Sentient Hubs	**Young ICT Professional of the year (Female)** Monique Alvis (Cap Gemini)
Skills Transformation (large teams) Edith Cowan University	**Young ICT Professional of the year (Male)** Jeremiah Mannings (Cap Gemini)
Skills Transformation (medium teams) DXC Dandelion	**ICT Educator of the Year** Yenni Tim (UNSW)
Skills Transformation (small teams) OnePath Life UTS	**ICT Student of the Year** Marina Geldard (University of Tasmania)
Service Transformation Digital Consumer – Not for Profit Alannah & Madeline Foundation	

Sheryl Frame: No mountain is too high.

mercialising the great ideas that our innovators come up with in Australia.

"In all my voluntary roles and my role as a commercialisation adviser, I have seen some amazing state-of-the-art technologies.

Unfortunately, Australia still ranks 31st in the OECD countries in terms of commercialising its innovations – on par with Mexico, Russia and Mali.

"Conversely, we rank in the top 10 in terms of R&D, so we have a way to go in terms of converting the research into successful, sustainable businesses."

The rewards for being a disruptor are immense, she says. "I couldn't wish for a better role. Seeing emerging technologies first-hand, working with research organisations as well as individual entrepreneurs means that I learn something new each day, and no two days are ever the same."

Held at the Melbourne Convention and Exhibition Centre, the annual awards celebrate the achievements of individual ICT professionals and service transformations across key award categories.

Learning attitude has to become a way of life for all

Education and training

Ian Grayson

Australian businesses need to boost their investment in employee education and training or risk falling behind in a rapidly evolving global market, according to an industry expert.

Technologies such as artificial intelligence (AI) and robotics are already resulting in a shift in required skillsets.

Any failure to reskill workers will lead to a drop in competitiveness and a reduction in economic growth.

Founder and chief executive of bioinformatics company Emotiv, Tan Le, says companies need to recognise lifelong learning has become a crucial part

Tan Le

of business operations, and investments in this area will pay big dividends.

Speaking on the sidelines of the ACS Reimagination Thought Leaders' summit, Le points to countries such as China where comprehensive strategies have been put in place to raise workforce skill levels.

Le says that, as well as constant workplace training, more attention needs to be given to the skills being taught at all levels of the education system.

Students must understand that the knowledge they gain while at school and

university will not be sufficient to guide them through their entire career.

"Lifelong learning begins well before an individual enters the workplace and there needs to be greater investment in teaching science, technology, engineering and mathematics skills," she says.

Le points to countries such as China where a multi-decade education program and a determination to become a global leader in technology design and creation is paying significant dividends.

"Australia can learn from this and understand what we need to do to be in the list of top countries. It's not about having a five-year plan – it's about having a 20-year plan. At the moment we are leaving so much on the table and I wish that we could do more."

Le says while most young Australians tend to be enthusiastic consumers of technology, far fewer see themselves having a role in creating it.

"The future will belong to those who are building new technology," she says.

Her company, Emotiv, is focused on improving the education process by gaining insights into how individuals respond to learning materials. It has developed a platform that uses a purpose-built headset incorporating EEG capabilities to monitor electrical activity in the brain.

"We can determine whether a person is paying attention or whether the learning materials are too challenging and therefore not being effective," says Le. "You can then dynamically adjust the learning modality to better suit the individual."

ACS DIGITAL DISRUPTORS AWARDS

ACS Congratulates the 2019 Winners

Individual Awards

ICT Professional of the Year
Sheryl Frame
SBE Australia & EDICT
International Consultants

Young ICT Professional of the Year – Female
Monique Alvis
Cap Gemini Applied Innovation Exchange

CXO Disruptor of the Year
Vinay Samuel
Zetaris

ICT Student of the Year
Marina Geldard
University of Tasmania

Young ICT Professional of the Year – Male
Jeremiah Mannings
Cap Gemini

ICT Educator of the Year
Yenni Tim
University of New South Wales

Team/Project Awards

Service Transformation for the Digital Consumer

Corporate
Myriota

NOISY GUTS PTY LTD
Government
Noisy Guts,
University of Western Australia

Alannah & Madeline Foundation
Not for Profit/NGO
Alannah & Madeline
Foundation

Skills Transformation of Work Teams

UTS OnePath
Small (under 20)
University of Technology
Sydney | OnePath Life

DXC.technology
Medium (21 – 200)
DXC Dandelion Program

ECU EDITH COWAN UNIVERSITY AUSTRALIA
Large (200+)
Edith Cowan University

Best New Startup Platform

Sentient Hubs
Sentient Hubs

View the full list of finalists at **reimagination.acs.org.au/disruptors**

VICTORIA State Government   VERTIV   agl   GHD digital   kinetic IT   AMD

Privacy a growing concern

Security Personal data must be protected in a world of 'smart' things.

Mark Eggleton

Australia is leading the world in taking a first step towards developing a global standard for personal data privacy and cyber security and it's something that is "absolutely needed", says the New South Wales chief data scientist Ian Opperman.

Opperman is the lead author of the Australian Computer Society's Privacy-Preserving Data Sharing Frameworks report which grew out of discussions Australia took to the joint technical committee of the International Organisation for Standardisation and the International Electrotechnical Commission or JTC-1.

The report comes at a time when huge amounts of our personal data are linked to numerous services and devices and an increasing number of Australians start to fret about the level of surveillance they're under.

In Shoshana Zuboff's book *The Age of Surveillance Capitalism*, she refers to the creeping world of "smart" things such as lighting and thermostats as the "Big Other" where the idea of a private sanctuary no longer holds.

She argues the privilege of sanctuary has been with us since humanity's earliest days and it's enshrined in many of our laws and informs a large part of our beliefs. In the book she calls for stronger protections than Europe's General Data Protection Regulation (GDPR).

Bearing this in mind, JTC-1 has been wrestling with the challenge of preserving privacy in the data age for over four years, according to Opperman. The committee's purpose is to develop, maintain and promote standards in the fields of information technology and Information and Communications Technology.

He acknowledges privacy concerns are a huge issue for government and business because as organisations try to build out and improve products and services, they continually ask for more data.

"It's a problem for smart cities and for smart electricity, smart lighting as well as for artificial intelligence, information governance and databases – it's a problem for everybody," Opperman says.

Though a great deal of data about an individual is non-identifiable, such as how public transport is used by unidentified individuals, at what point does linking lots of non-identifiable information together become personally identifiable?

Huge amounts of our personal information are increasingly linked to services and devices in our connected world.
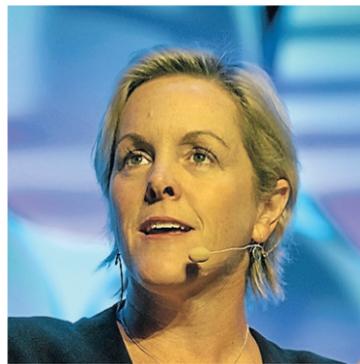
Facing the issue: Summit panellists Ian Opperman and Dayle Stevens.

"We need to have a measure, or thresholds, for how much personal information can be used so a person doesn't become identifiable and if we can do that we can largely take the privacy argument off the table or we can build risk frameworks around privacy that outline the personal information factor an organisation can have," Opperman says.

He says the standards would only be the starting point as they don't address the concerns around the sensitivities associated with data-driven insights and decisions.

"It's the base level of data collection before any analytics or activity takes place," he says.

"What we're trying to do is work out a measure for personal information and a robust enough measure that we can tell where we are on the 'creepy line' and take the appropriate precautions."

For Opperman, the world needs to look at the terminology around personal information versus personally identifiable information and seek clarity around the use of those two terms.

"They are quite different concepts – personal information is something like an individual's hair or eye colour, whereas personally identifiable means it's you."

Opperman was speaking to *The Australian Financial Review* at the ACS Reimagination Summit in Melbourne where he appeared on a panel examining data as a business enabler.

Fellow panellist and chief data officer at AGL, Dayle Stevens, says the big challenge for AGL is building data capability. It's getting people to understand data capabilities while also main-

> We need a measure, or thresholds, for how much personal data can be used.
>
> Ian Opperman,
> NSW chief data scientist

taining a "high level of data governance around privacy and security and all of the controls you need around that".

"How do you protect customers' data rights while also becoming more efficient and effective as well as discovering new lines of business as well?"

Stevens says many organisations have been good at building trust around customer interactions over the last decade but understanding how to best utilise data while maintaining trust is not "just a challenge, it's the new big necessary thing to do".

Organisations might have an infinite amount of data at their fingertips but it's not of much use if they don't know how to use it or if it's not the right sort. Part of her job is to point out an organisation doesn't need a lot of data, "we can work with tiny amounts of data so we can work out what's important".

"Then we can build something and that is all done by people," she says. "The real benefits come from the actions taken by people and that requires ensuring you have the right culture in an organisation and people understand data capabilities."

Failures are part of the process of innovation

Young winners

Jonathan Porter

The winners of the ACS's Young ICT Professional of the Year Awards say it's all about ensuring you "back yourself" and they are "humbled" by their awards.

In a rare coincidence, both winners Monique Alvis and Jeremiah Mannings work for the same company, global consultancy Capgemini.

"To me, this award is a culmination of a number of years of challenging, but rewarding and exciting work, pushing the status quo and most importantly, being surrounded, supported and inspired by amazing colleagues, leaders, mentors and a wider network of friends, family and peers," says the consulting behemoth's Innovation and Design Lead Alvis.

"It's also recognition of not needing to follow a linear or traditional career path and in general, not fitting into a box that is a generic role or matching the stereotypes of what a technology leader looks like."

Alvis says she has been lucky to have had leaders throughout her career who "have not pigeonholed me, but rather helped me embrace and grow my strengths. I owe a lot of my success to them".

Monique Alvis

After graduating from QUT in Brisbane, with a Bachelor of Information Technology, majoring in Software Engineering and Bachelor of Fine Arts, majoring in Interactive and Visual Design, Alvis started her career with an internship at the Australian Bureau of Statistics, followed by working in techno-

Jeremiah Mannings

logy and design research at QUT and Fraunhofer, Germany's CSIRO.

"Working in innovation involves being comfortable being uncomfortable, seeing failure as learning, and being totally OK with ambiguity and the unknown," she says.

"It can be hard and frustrating at times, but we often reassure ourselves by saying, 'trust the process'."

Alvis's advice to people considering becoming a young disruptor: "Surround yourself with great people, embrace every opportunity that comes your way and choose the path less travelled."

Alvis's co-winner Managing Data Scientist Jeremiah Mannings, meanwhile, leads an AI Strategy Advisory team at Capgemini Invent and is a co-founder of Evolved Projects. He recently designed an advanced document classifier for a government agency that automates the document checking process, drastically decreasing processing time.

He has also created the future state data science architecture and AI roadmap for a leading Australian bank. Jeremiah has been involved in several multi-million-dollar enterprise-grade projects, designing and implementing AI at scale. Strategies and approaches designed by Mannings are utilised in projects globally.

Mannings' advice to the young disruptors who will follow in his footsteps? "Never be afraid to give it a go."

Press the right buttons on machine learning

Seeing the positives … Jordan Nguyen.

Ethics

Ian Grayson

Australia cannot let fears about artificial intelligence (AI) and its potential for harm mask the vast opportunities the technology has to offer.

ACS Reimagination Thought Leaders' summit keynote speaker and founder of technology firm Psykinetic, Dr Jordan Nguyen, says AI is often portrayed as a negative force, but it's important to understand the value it can deliver.

"We've had warnings from leading industry experts and movies and, often, those warnings are justifiable," he says. "Every major technology that we have has dark sides and ethical issues, but there are also always positive opportunities in it. It comes down to how we choose to use it."

Nguyen says AI can be challenging for people to fully understand because it's a category that contains many different types.

"You can't paint it with a single brush. There are some areas that are going to be quite challenging and it is those that people tend to associate with the term.

"However, just because a particular AI has been built to, for example, master a game, doesn't mean it is suddenly going to make decisions to take over the human race."

Nguyen also acknowledges that people have concerns about the potential for AI to cause widespread job losses as it automates tasks that previously have required a human.

"While there will be job losses, there will also be new opportunities created as a result of its use," he says. "When it comes to jobs, it's important to consider which ones will be affected and what alternatives there are for those involved in the change.

"Everything comes with balance and we need to see both sides of the story."

REIMAGINATION'19
THOUGHT LEADERS' SUMMIT
Amazing Humans, Epic Tech

4 December | MCEC, Melbourne

Information Technology (IT) is the greatest general-purpose technology invented by mankind. Almost every aspect of life and business continues to be redefined by IT.

IT is more than a tool for profit. Mankind can use IT to reach for the stars and leverage IT to drive global reforms. Wisely led and managed well, IT creates endless and exciting possibilities.

Humanity can now imagine that one day we could use the resources of infinite space and restore our finite Earth. This is an exciting vision to unite a planet.

Australia's prosperity rides on quarrying coal and iron ore. Demand for coal will decline, high prices for iron ore cannot be guaranteed and automation dwindles our quarry workforce. We need to reimagine what will generate our future income if we are to maintain current living standards.

The global digital landscape is evolving and consolidating rapidly; and economies and business models must evolve too. Even the Westphalian system of nation-states may be waning. We must rethink how we live together and run our economy.

We must reimagine our smart-future, socialise and codify a long-term vision and build and deliver practical plans to make it our new reality.

The time to pivot our economy and embrace tomorrow – is now.

Yohan Ramasundara
President, ACS

Get more information on ACS' newly announced early stage tech investment fund.
Send your EOI to **fundpledge@acs.org.au**