SECRETS & LIES

CHAPTER FOUR

HUMANITY +
THE MACHINE

AN EXPLORATION OF EMERGING
TECH, TRANSFORMATION + TRUST

WPP AUNZ

CONTENTS

WELCOME TO

SECRETS & LIES

NOTE FROM JENS MONSEES
WPP AUNZ CEO

Jen Monsees,
Chief Executive Officer
WPP AUNZ

We're living through the fastest and most exciting period of change in history. While the magnitude of change is sometimes unsettling it's also loaded with opportunity. It will push us to imagine new ways of interacting with our customers and constituents but also to grapple with issues we haven't had to consider before.

So, I'm delighted that the latest chapter of our *Secrets & Lies series – Humanity and the Machine*., is focused on emerging technologies and the relationship with ethics and trust.

This report looks into the commercial, political and societal aspects of how Australians interact with technology. We wanted to understand what they like about tech, what they fear and how they see its role developing in their daily lives. What do brands and governments need to focus on? And how has the pandemic changed our perception of digital technologies?

COVID-19 hadn't entered the lexicon when we started writing this report. The global impact of this deadly virus has been extraordinary but tech has played a vital role in helping us deal with sudden and widespread change. Working and shopping from home, digital classrooms,

livestreamed fitness and Zoom parties are just some of the trends we're experiencing in this new reality. Room to move and a solid internet connection have become our most valuable commodities.

At WPP AUNZ we support many of Australia's leading brands across all industry sectors, from retail to travel and tourism, to technology and automotive, from healthcare and education to government and finance. Regardless of sector, our clients seek our support to help them navigate the change and possibilities of digital transformation.

Our data driven insights help us see, in real time, how Australians behave. It's an incredible advantage in helping brands and governments understand what their customers and citizens want from them. By bringing together the technology and tools, people and ideas, from across our network we have been able to help our clients reshape their customer interactions and digitally enable their products and services.

With this in mind, please enjoy the latest chapter in our *Secrets & Lies series – Humanity and the Machine.*

INTRODUCTION

The steep ascent of digital experience is resetting every aspect of our lives, our economy and our community. This is happening through the lens of analytics, artificial intelligence, blockchain, machine learning, cloud computing, virtual reality and technologies of tomorrow that we can only imagine.

For all the extraordinary benefits and breakthroughs, we're constantly seeking the humanity in tech. How will it help us, protect us, enable us? How will it make life more convenient and enjoyable? How will it provide new services in banking, retail, entertainment, healthcare and government? How will it serve our communities and benefit our families. How should we shape the relationship between humanity and the machine? **Will this tech protect our secrets and expose the lies?**

This report is based on a combination of first and third-party data. First-party data includes research commissioned through YouGov with more than 5,000 Australians aged 18+ in March 2020. This data has been weighted by age, gender and region to reflect the latest ABS population estimates. Third-party data from a range of credible sources, annotated throughout the report where necessary.

The report also features a series of opinion pieces authored by some of Australia's most influential tech leaders. They've considered the role of technology in our society more broadly and, in particular, the critical relationship between technology, ethics and trust. We are very grateful for contributions from:

Dr Matthew Beard, Fellow, The Ethics Centre

Lee Hickin, National Technology Officer, Microsoft Australia

Pip Marlow, Chief Executive Officer, Salesforce Australia & NZ

Dominic Price, Work Futurist, Atlassian

Melanie Silva, VP & Managing Director, Google Australia & NZ
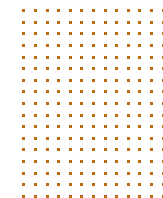
FOR ALL THE EXTRAORDINARY BENEFITS AND BREAKTHROUGHS, WE'RE CONSTANTLY SEEKING THE HUMANITY IN TECH. HOW WILL IT HELP US, PROTECT US, ENABLE US? HOW WILL IT MAKE LIFE MORE CONVENIENT AND ENJOYABLE?

HOW SHOULD WE SHAPE THE RELATIONSHIP BETWEEN HUMANITY AND THE MACHINE? WILL THIS TECH PROTECT OUR SECRETS AND EXPOSE THE LIES?

PART ONE

THE BIG 6 PLAYS
IN EMERGING TECH

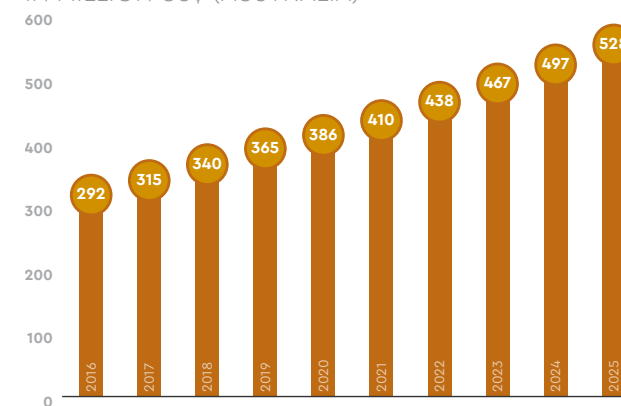# I. ALGORITHMS AND PREDICTIVE TECH SHAPING RETAIL AND BRAND EXPERIENCE

ARTIFICIAL INTELLIGENCE IS ONE OF THE MOST POWERFUL TRENDS IN TODAY'S RETAIL INDUSTRY, WITH ALGORITHMS FAST BECOMING A UBIQUITOUS PART OF OUR LIVES. EVERY ONLINE SEARCH PUTS INTO MOTION A SERIES OF CALCULATIONS THAT SERVE UP EXACTLY WHAT YOU'RE LOOKING FOR. RETAILERS ARE LOOKING FOR NEW WAYS TO APPLY THIS PREDICTIVE TECHNOLOGY THAT WILL IMPROVE CUSTOMER EXPERIENCE AND INCREASE SALES.

But retailers and brands sometimes forget that the voice of the customer is one of the most important data signals in predicting behaviour. All the data in the world will rarely deliver successful outcomes without understanding wants and needs. Data must be brought to life and impact customers on an emotional level. This is the X factor when it comes to predictive modelling. How will customers feel? What emotion will the interaction elicit? Is it the right emotion? Will it lead to an enquiry? A sale? Or will it destroy brand perception?

Even though these algorithms are used every day by brands around the world, more than three in four Australians (77 per cent) don't believe machines can do everything humans can. Companies can predict the **logical** basics of customer needs but are still trying to understand the emotional reasons behind them. This means that the tech still has a long way to go in developing ways to understand how customers *feel and think.*

REVENUE IN THE BUSINESS INTELLIGENCE SOFTWARE MARKET
IN MILLION US$ (AUSTRALIA)

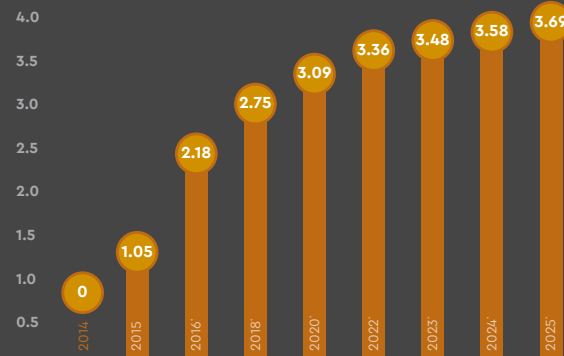| Year	Value
2016	292
2017	315
2018	340
2019	365
2020	386
2021	410
2022	438
2023	467
2024	497
2025	528

Source: Statista, April 2020

THE QUESTION FOR YOUR BRAND IS HOW TO INCLUDE THE WHY RATHER THAN SIMPLY THE WHAT.

NUMBER OF NETFLIX SUBSCRIBERS IN AUSTRALIA AND NEW ZEALAND FROM 2014 TO 2025
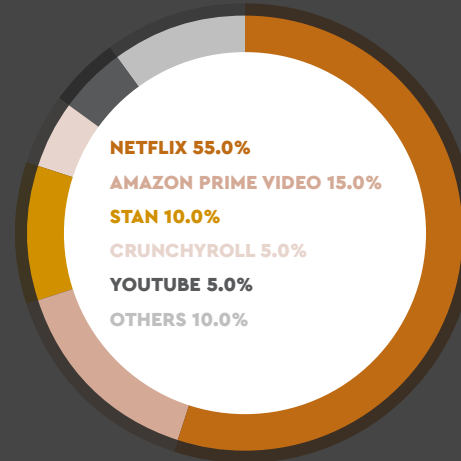IN MILLIONS

Source: Morgan Stanley © Statista 2020
Additional information: Australia; New Zealand; Morgan Stanley; 2014 and 2015; at year end

USAGE SHARE IN THE VIDEO STREAMING (SVOD) MARKET
IN PER CENT (AUSTRALIA)

NETFLIX 55.0%
AMAZON PRIME VIDEO 15.0%
STAN 10.0%
CRUNCHYROLL 5.0%
YOUTUBE 5.0%
OTHERS 10.0%

Source: Statista, based on BeyonData GmbH, Priori Data Gmbh and SimilarWeb, May 2020

CASE STUDY:
NETFLIX

Netflix is one of the most prominent examples of a brand that uses predictive tech to shape its brand experience. With 170 million subscribers, it's a leading light in predictive tech. Netflix knows your past **search and watch** history and this data provides insights into your interests. Netflix then sends suggestions of the next movie or TV series you should watch. But even Netflix and its algorithms have not yet unlocked the **why**. If you're currently watching Season 3 of Ozark, why are you watching this show? Is it because you like any drama series about crime or drug trafficking? Is it because you like this specific story of a middle-class family from Chicago escaping to the Ozarks under duress to run drugs for a Mexican cartel? Or is it because you like the main female character Wendy Bird and how she navigates the crisis brilliantly and grows into a formidable leader? These questions show how little Netflix knows about why its customers choose the shows they watch. The analytics needed to understand these decisions aren't available yet but much of this will be solved in the next 10 years. The question for your brand is how to start broadening the conversation and include the **why rather than simply the what.**

CASE STUDY: AMAZON

Amazon Fresh and Whole Foods, currently available only in the United States, is one of best examples of how algorithms and predictive tech can help improve the retail and brand experience. Amazon is able to understand how customers buy groceries and how suppliers interact with the grocer. If products aren't selling, Amazon can quickly replace them or go back to suppliers asking for new product development. Again, this tech is extraordinarily good at understanding the what. But it is still in its infancy when it comes to understanding the why. Why is it that a customer is more likely to purchase a whole head of lettuce on Friday and more likely to purchase a packet of pre-shredded and washed lettuce on a Tuesday? Is it because the Friday purchase is close to the weekend where it is more likely that the cook has the time to do it themselves and wants the full emotional experience of making a salad from scratch? If this strategic analysis is correct, should this purchase be priced differently? Is there more value in this head of lettuce because it carries with it the emotional weight of preparing a meal with love and care? Again, all of these answers can be found in the why. But this depth of predictive analysis driven by humanity, personality and emotion has yet to be created.
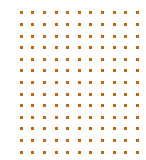
II. CASHLESS AND CONNECTED: SOCIAL COMMERCE, PAYMENTS AND OMNICHANNEL

THE LAST DECADE HAS BROUGHT WITH IT A TOTAL REVOLUTION IN ECOMMERCE. THIS WAVE OF INNOVATION IS BEING DRIVEN ALMOST ENTIRELY BY TECH AND OUR DESIRE FOR IMMEDIATE, REAL-TIME SHOPPING AND PAYMENT SOLUTIONS. WE LOVE TO SHOP AND TRANSACT IN THE MOMENT AND WE INCREASINGLY DEMAND THIS IMMEDIACY.

THE NEW WAVE OF PAYMENT PLATFORMS

Traditional banks are being challenged by the payment solutions innovators. Given that the entire payments market has historically been served to Australians by the banks, these new, innovative non-bank payments providers are causing huge and unprecedented disruption to the payments landscape.
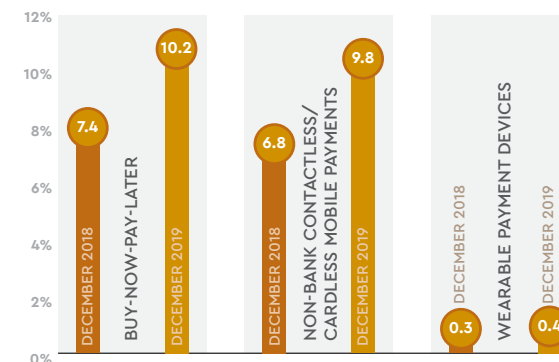
Every major player is stealing market share from the banks. This includes tech giants and the fintech sector. Even merchants have created their own digital payment offers. It's unlikely any one of these rivals will replace Australian banks entirely but what they have done is force them to change their business models.

Whatever line exists between banks and payments networks is fading. Networks are coming out of the shadow of the payments cycle and building direct relationships with their customers. Visa's

Network Hub Push Provisioning provides access to push capabilities. Customers no longer have to go wallet by wallet, merchant by merchant, or device by device to register and update digital credentials. Instead, this can all be centrally managed through the issuer's mobile app.

Brands like Afterpay have shaken up the market by tapping into the desire for instant gratification. This digital payments service makes it possible to buy something now and pay it off in fortnightly installments. Unlike layby, you'll get the product right away, whether you're shopping online or in-store. And if you play by the rules, you'll pay nothing extra for the service. With roughly six million customers globally, Afterpay has built its success on the almighty power of customer experience. What almost all of these payment platforms have – be it Bolt, Circle, PayPal, Stripe or the dozens of other entrants in the market – is that they understand customers expect simplicity and immediacy. Anything less is unacceptable.

THE WINNERS: DIGITAL PAYMENT SERVICES BEING USED BY AN INCREASING PROPORTION OF AUSTRALIANS

	December 2018	December 2019
BUY-NOW-PAY-LATER	7.4	10.2
NON-BANK CONTACTLESS/CARDLESS MOBILE PAYMENTS	6.8	9.8
WEARABLE PAYMENT DEVICES	0.3	0.4

Source: Roy Morgan Single Source Australia, January 2018 – December 2018, n = 50,853, January 2019 – December 2019, n = 50,422. Base: Australians 14+

More than 50 per cent of consumers now shop contextually. In other words they make purchases during everyday activities and in their natural environment. The need for seamless payment platforms will only grow.

Contextual commerce is a game-changing idea. All merchants will have the capacity to seamlessly plant purchase opportunities into everyday activities and natural environments. If content is king, context is queen. People can buy anything, anytime, anywhere, with the click of a button or simply using their voice. This is what drives the buy buttons rolled out on platforms like Instagram, Pinterest and Facebook.

Rideshare services have built the ultimate customer experience where payment takes place completely in the background. Car companies are partnering with payment networks and merchants to create connected cars. These connected cars are expected to communicate with other connected devices and point-of-sale systems using biometric voice technology to facilitate payments.

WHICH BUY NOW PAY LATER ACCOUNTS DO YOU HAVE?

AFTERPAY	84.06
ZIP PAY	31.50
OPEN PAY	8.41
LAYBUY	8.21
LATITUDE PAY	4.25
OTHER	3.48

0%   20%   40%   60%   80%   100%

Total > 100% as some users have accounts with multiple services
Source: Mozo, Buy Now Pay Later report 2019: Australia's spending habits, regrets and repayment woes

TRANSACTION VALUE IN THE DIGITAL PAYMENTS MARKET
IN MILLION $US (AUSTRALIA)

Total
Mobile POS Payments
Digital Commerce

Year	Value
2017	33,092
2018	38,185
2019	44,988
2020	48,752
2021	60,708
2022	73,843
2023	88,406
2024	105,075
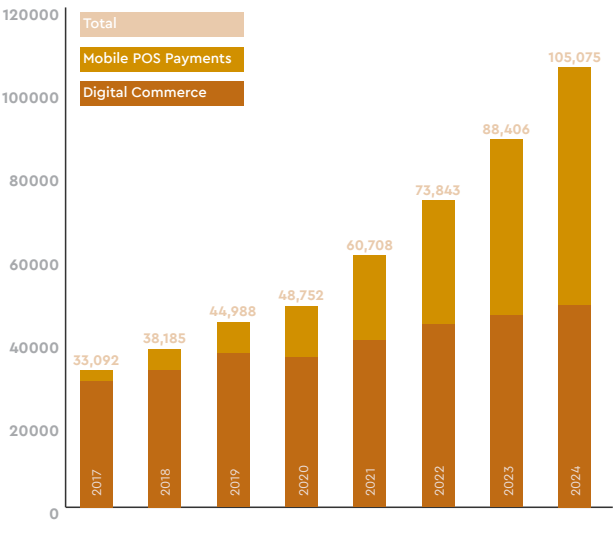
Source: Statista, May 2020

KEY INSIGHTS

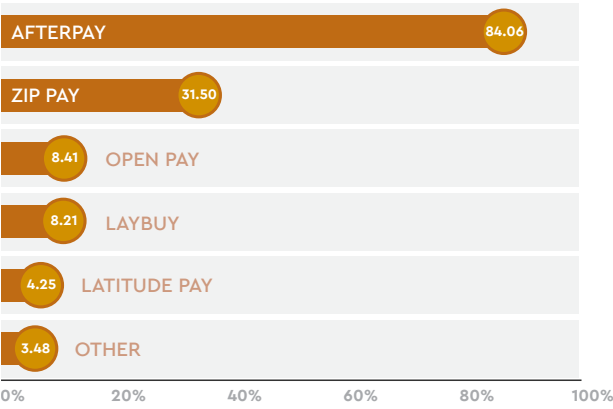## CONTEXTUAL COMMERCE – THE NEW FRONTIER IN PURCHASING

Contextual commerce is a game-changing idea. All merchants will have the capacity to seamlessly plant purchase opportunities into everyday activities and natural environments. More than 60 per cent of Australian consumers expect their brands to be embedded in everyday activities and natural environments. If content is king, context is queen. How is your product or service inserted seamlessly and naturally into consumer's everyday lives to enable an interaction or purchase?

CUSTOMER EXPERIENCE THROUGH VOICE: THE FUTURE OF VOICE FOR PAYMENTS PLATFORMS

The use of devices with voice recognition systems has increased by 140 per cent in the past three years. This tech is currently focused on improving natural language processing and machine learning to make voice payments and conversation commerce more feasible. But the next generation of payment platforms will incorporate voice-tech that can decipher and determine the meaning behind the voice. The emotion of the voice. Does its cadence suggest they're in the mood for a more expensive product? Can they be effortlessly upsold? Is there an urgency that requires more speed and less intervention?

THE NEW FRONTIER FOR VOICE-TECH EXPERTS WILL BE TO UNDERSTAND THE VOICE'S EMOTIONAL CUES AND HOW TO USE THESE EMOTIONS TO CREATE A MORE TAILORED CUSTOMER EXPERIENCE.

KEY INSIGHTS

DECIPHERING THE MEANING IN VOICE

Voice technology has barely scratched the surface. The new frontier will include tech that can decipher the meaning behind the voice. Cadence, mood, intonation – all these emotional cues in the voice will help create a more tailored customer experience. As of 2019, 6 million Australians report having a voice device in their home – more than any other country per capita including the United States. Does your business have a dedicated voice-tech play or strategy?

THE RISE AND RISE OF SOCIAL COMMERCE

Social commerce continues to become more powerful. Facebook, Instagram and Twitter are all selling products and services. Facebook and Instagram have recently rolled out Shops, effectively turning business profiles into storefronts.

Creating a Shop is free. Businesses can simply upload their catalogue, choose the products they want to feature, then customise it with a cover image and accent colours. Visitors can then browse, save and order products.

Facebook has 2.6 billion monthly active users making it the biggest marketplace in the world. This is more than WeChat (1 billion) and Alibaba (775 million) combined. Businesses can be created on the Facebook platform, launching to a massive audience and growing without support from any traditional sales channel. The possibilities are endless.

Approximately 17 million Australians aged 14+ are regular Facebook users. A new brand can launch its business using the Shops platform and sell directly to its audience with minimal wastage and effort. It's the ultimate closed loop where the engine of likes and sales keeps feeding itself inside a virtuous circle.

OMNICHANNEL REDEFINED

Omnichannel refers to the multichannel sales approach that provides the customer with an integrated shopping experience. The customer can be shopping online, via phone or in a physical store and the experience will be seamless. What's more, the brand tone and personality will come to life authentically in each channel to build an overall brand story that demonstrates how each channel to market is perfectly connected.

Customer experience, like technology, is a moving target. The companies that will win are the ones that know they are in it for the long haul.

**CONVENIENCE
CONSISTENCY
RELEVANCE
EMPOWERMENT
ABILITY**

THE IMPORTANCE OF AN AMAZING BRAND EXPERIENCE CAN TURN A CUSTOMER INTO A BRAND ADVOCATE.

THE FIVE KEY FACTORS TO A WINNING OMNICHANNEL CUSTOMER EXPERIENCE

1 CONVENIENCE
Today's consumers are time-strapped, and this means that convenience is not just a benefit – it is a central principle of a strong customer experience.

2 CONSISTENCY
Consistency is vital when building a true omnichannel business, but it is also indispensable to create experiences based on a unified brand presence that consumers can trust.

3 RELEVANCE
The new consumer expects interaction to be real-time, highly personalised, and tailored to buying preferences, transaction history, and user behaviours.

4 EMPOWERMENT
Brands that empower and inform customers to make the best purchasing decisions are creating loyal customers.

5 AGILITY
Agility meand adopting tools and analytics that recognise market changes, buyer behaviour and scalability to enable fast action for opportunities.

POWERFUL CUSTOMER EXPERIENCES ARE NOT JUST ABOUT MAINTAINING CONSISTENCY, RELEVANCE AND CONVENIENCE AT ANY COST. IT IS ABOUT CREATING EQUALLY SEAMLESS CUSTOMER DIALOGUE ACROSS EVERY STAGE OF THE CUSTOMER JOURNEY, FROM PRE-PURCHASE RESEARCH TO POST-SALE TOUCHES.

CASE STUDY: AMAZON

It may have started as Amazon.com in July 1994, but today, it is the gold standard of omnichannel marketing. Amazon currently operates more than 500 physical stores with plans to open many more. The future of retail is omnichannel. No consumer shops exclusively online or in-store. They do both. Any deep and rich customer experience needs to have a firm footing in both worlds. A successful omnichannel strategy connects offline and online worlds. Below is one example of how Amazon does it.

LEVERAGING ONLINE DATA IN-STORE: INTRODUCING AMAZON 4-STAR

The best example of how Amazon leverages online data for physical use is its 4-Star concept. This store is a physical extension of Amazon.com, using unique displays based entirely on customer data.

According to Amazon: "We've designed our stores around our customers – what they're buying and what they're loving. We've used customer ratings, reviews, and sales data from the hundreds of millions of products online to curate our store with features like 'Most Wished For' and 'Frequently Bought Together'." Amazon currently uses three types of customer data:

REVIEWS:

The whole store is filled with items rated 4 stars and above on Amazon.com.

SALES DATA:

Sales data is used to identify top-selling items, keeping inventory turnover high.

CUSTOMER DATA:

Customer data is used to identify and display 'Most Wished For' items.

CASE STUDY: SEPHORA

Beauty retailer Sephora creates an omnichannel experience that connects online purchases with in-store visits. In addition to beauty workshops and complimentary makeovers, customers can use in-store tablets to access their 'Beauty Bag' account while shopping. This account allows them to look up item details and virtually try products using digital software. If they like a product, they can add it to a wish list and purchase the entire list using the app. Sephora understands that its shoppers have a variety of options to choose from when they walk into one of its stores. By integrating the Beauty Bag with its in-store communication channel, Sephora is able to help customers narrow their options and keep track of products that they intend to purchase.

III. ARTIFICIAL INTELLIGENCE FOR RETAIL, HEALTHCARE AND EGOVERNMENT

AT ITS MOST BASIC, AI IS THE ABILITY OF A MACHINE TO THINK AND LEARN. THE PURPOSE OF THE MACHINE IS TO MIMIC HUMAN INTELLIGENCE. THE COMPUTER HAS TO LEARN HOW TO RESPOND TO CERTAIN ACTIONS, USING ALGORITHMS AND HISTORICAL DATA TO CREATE A PROPENSITY MODEL. PROPENSITY MODELS THEN START MAKING PREDICTIONS. THIS MEANS THAT THE SUCCESS OF AI IS BASED ON ACCURATE PREDICTIONS OF HUMAN BEHAVIOUR.

But humans aren't always predictable. In fact, anthropologists are starting to believe that as the world becomes less secure and less predictable itself, people are behaving in ways that are less obvious and less traditional. The world's best thinkers are currently debating how COVID-19 might change the social structures and norms of western society. What matters and what doesn't? Will a mass awakening to our own mortality force real change?

This again takes us to the why as opposed to the what in analysing human behaviour. Despite so much progress in the science of decision making, chaos and uncertainty remain. The valuable human insight will become the critical ingredient in brand success.

The sectors most likely to benefit from AI are retail, healthcare and eGovernment. Our WPP AUNZ brands are showing how these categories will be transformed through advanced AI scenarios.

RETAIL + HEALTHCARE

DINNER DOCTOR

Maintaining a healthy lifestyle is a priority for many people and what we eat plays a major role in wellbeing. Fresh food delivery has become a very competitive market and it's difficult to stand out from the crowd. But what if technology was used to monitor and match individual needs? For customers wearing a biotech patch, meal plans could then be delivered based on real-time or ongoing changes in the body including vitamin, mineral and cholesterol levels.

RETAIL + HEALTHCARE

UBER EATS PLAN

Food delivery and fitness tracking have been two of the most popular smartphone uses during the COVID-19 pandemic. So what if AI used the biometric data being gathered by our handsets to tailor meal suggestions according to levels of activity? Calorie-drenched takeaways are off the menu on lazy days but more indulgent selections become available as daily step counts increase.

RETAIL

SUPERMARKET VIRTUAL BROWSER

COVID-19 has seen a surge in online shopping. Imagine if the convenience and safety of online shopping could be combined with the familiarity of a favourite grocery store. An augmented reality app would let consumers visit a virtual supermarket, providing contactless payment and unique floorplans to upgrade the online shopping experience for those too vulnerable or not in the mood to leave home. Choices would be displayed in their usual aisles with accurate stock-level information, while brands have the opportunity to offer free samples, recipe tips and cooking demos.

AI + EGOVERNMENT

FATIGUE-ALERT

In Australia, it's estimated that 20 per cent of road fatalities are caused by driver fatigue. But what if navigation apps could communicate driving data with highway road signs? Then a road sign could ask a specific driver to take a break when it gets a notification that they've been driving for more than two hours without stopping. It might not be how people dream of seeing their name up in lights, but it might just save lives.
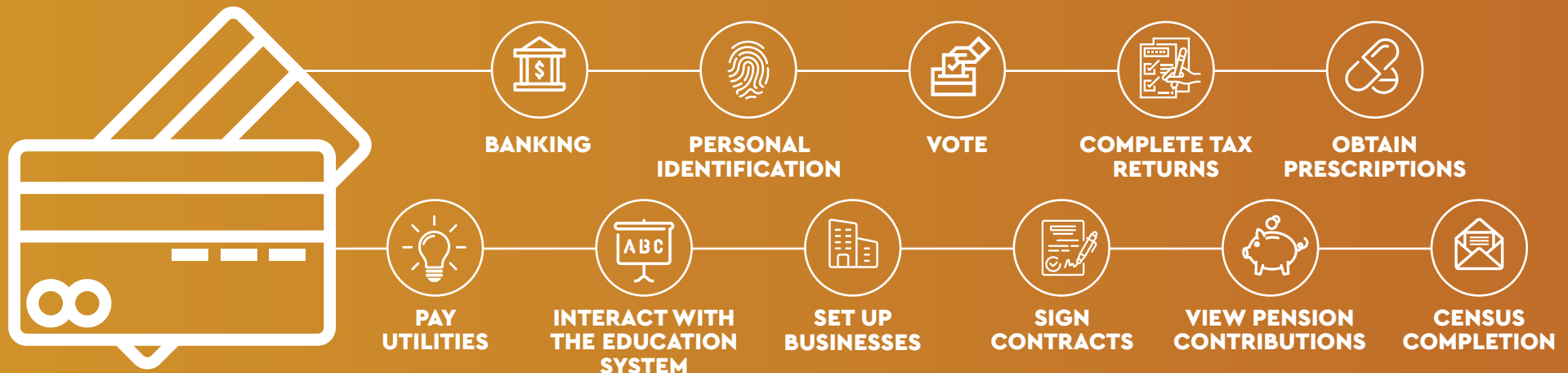
EGOVERNMENT OF THE FUTURE

Governments around the world are exploring AI to improve service experience and citizen engagement. The Office of State Revenue in Queensland was one of the world's first government agencies to use AI to predict tax fraud and payment irregularities. The reinforcement of checks and balances, transparency and accountability, fiscal oversight and prudence are all essential elements of managing the public purse.

Tech that can isolate fraud, and find the people who are committing that fraud, is good for the citizenry and good for accountability. Those that might seek to defraud government agencies would very quickly understand that success is limited. This is a text book example of 'tech for good'.

One of the most advanced e-government systems can be found in Estonia, where 99 per cent of all public services are offered digitally. Estonia has created a tech ecosystem where almost every service can be fulfilled inside its digital infrastructure. Education, business trademarks and licensing, contract execution, census completion, fulfillment of medical prescriptions, tax returns, payment of utilities and voting are all available now or currently being digitised.

Much like South Korea's ability to lead the charge globally into fibre optics (as a consequence of having little to no legacy copper wire infrastructure), countries like Estonia have been able to build tech infrastructure without being hamstrung by ageing digital networks.

HOW GOVERNMENTS AROUND THE WORLD ARE INCORPORATING AI

BANKING

PERSONAL IDENTIFICATION

VOTE

COMPLETE TAX RETURNS

OBTAIN PRESCRIPTIONS

PAY UTILITIES

INTERACT WITH THE EDUCATION SYSTEM

SET UP BUSINESSES

SIGN CONTRACTS

VIEW PENSION CONTRIBUTIONS

CENSUS COMPLETION

The great advantage of tech is that with the right strategy, the right infrastructure choices and the right implementation, businesses can make up ground quickly and efficiently.

Governments around the world are also using AI to meet sustainability goals. In one example, smart waste management systems including trash sensors are powering garbage truck fleets.

The government of Berlin uses AI to identify potentially fraudulent health bills submitted by civil servants. The system looks for anomalies including bills that are significantly higher than comparable cases. Ten million cases from the past four years served as training data for the system, which flags suspicious cases for further inquiry by human case workers.

KEY INSIGHTS

FROM RED TAPE TO SOCIAL COHESION

eGovernment is the potential answer to creating a more cohesive and meaningful experience between government and its citizens. As long as the experience is both useful and seamless, it will remove much of the drudgery and red tape for citizens. Almost two thirds (63 per cent) of Australians want a single mobile app that gives them access to multiple government agencies, but Australians still need to be reassured as to data security and privacy.

BUILDING INCLUSIVE AI MUST BE INTENTIONAL

PIP MARLOW
Chief Executive Officer,
Salesforce Australia and New Zealand

We're living in an era where trust is front and centre of every aspect of our business, technology, and daily lives. It's why people buy certain brands and elect governments — and, even a matter of a business failing or succeeding. And with Artificial Intelligence (AI) increasingly underpinning much of the way we connect with our customers, it's more important than ever to put trust, diversity, and inclusion at the heart of how we build AI.

Design flaws that reproduce systemic biases have long-term and far-reaching consequences for individuals and society. These biases impact education and employment prospects, access to finance, and how people are treated by legal or welfare systems. In fact, a study by the Australian Council of Learned Academies found that 79 per cent of Australians want AI to be designed ethically. But, the question of the hour doesn't seem to be 'why?', but more 'how?'

Now, one thing that I think is important to point out is that AI is not sentient; it's merely a tool and is morally neutral. AI is neither good nor bad. This means we need to design it to include everyone, including being incredibly intentional about building systems that treat all people fairly regardless of their age, culture, gender, race or sexuality. And that requires greater diversity of thought at every stage in the process, from the teams that design these systems to the authorities who oversee their use.

The concept of fair treatment is complex because it's subjective. Which is why lawmakers and regulators need to take a nuanced approach when dealing with the many different AI applications across different industries. They must distinguish between regulating the technology and how it's applied to different public and private sector users.

It's not enough to comply with the law – the technology industry and the broader business community must also play an active role to identify where laws are unfair and to take active measures where regulation doesn't yet exist. We've recently seen companies including Amazon, IBM and Microsoft decide to stop sales of facial recognition technology to law enforcement agencies due to concerns that the use of this technology breaches civil rights.

This is the positive path forward – industries working collaboratively with lawmakers and regulators to understand what's most beneficial to consumers and citizens, by creating a framework that's designed to remove bias, and building trust. This collaborative approach is critical if we're to ensure broad inclusion at scale.

The responsibility to ensure our technology is inclusive isn't just a tagline at Salesforce. It's central to our purpose. And it's that intentional culture of trust and transparency around our technology that attracted me to the business. Like culture, this is not set and forget. It needs to be actively worked on across all levels of the business.

This is why we've established a global Office of Ethical and Humane Use to work across policy, law, product and ethics to offer guidance and provide tools that ensure the ethical and humane use of technology within our organisation and ecosystem of customers and partners. We're working alongside leading businesses like Australia Post to build AI into marketing processes, working from the ground up to work out how AI enhances customer understanding. This in turn leads to the development of better products and services. Our role as Salesforce isn't just to deliver the technological capabilities of AI. We're working with our customers and partners to intentionally design a future in which everybody is treated equally and has the same opportunity to succeed.

AI holds a mirror to humanity like no technology before it. We're all accountable for ensuring that our best face is reflected. That means hiring diverse engineering and design teams. It means building systems that reflect different customer perspectives, experiences, genders, races, cultures and age groups. And it means curating bias out of training data to mitigate negative effects.

The first step is to address bias issues by actively designing inclusion into AI systems and the datasets being fed into them. Australia has fallen behind some of our neighbours including Singapore, which already has an AI advisory council working closely with industry and government, but there's still time for us to emerge as a leader. We must seize that opportunity and take responsibility, because if not us, then who?

IV. VIRTUAL + AUGMENTED REALITY IN ENTERTAINMENT, GAMING AND BRAND EXPERIENCE
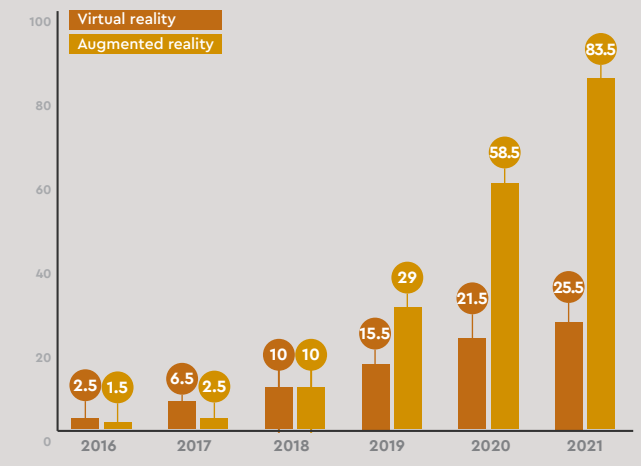
VR APPEARS IN SCIENCE, MEDICINE, EDUCATION AND TOURISM BUT ITS BIGGEST IMPACT HAS BEEN IN ENTERTAINMENT AND GAMING. THIS TECH IS BUILT TO DELIVER THE QUINTESSENTIAL BRAND EXPERIENCE. WHEN IT COMES TO BRAND EXPRESSION AND THAT ELUSIVE FULFILMENT OF BRAND PROMISE, VR IS ARGUABLY THE MOST EXCITING OF ALL THE TECHNOLOGIES AVAILABLE TO BRANDS.

In a virtual world, it doesn't matter how old you are, what skills you have, or the job your hold – anyone can experience virtual reality. Those who dream of being a professional footballer can become Salah or Ronaldo. People in wheelchairs can experience what it feels like to jump out of a plane. There's no health risk. No barrier to entry.

As VR entertainment continues to grow, we're seeing parks, arcades and virtual reality rooms grow in popularity. VR-themed spaces give consumers a large selection of simulators to fly and race in one central place. VR equipment provides access to high-quality games, movies or virtual tours. It's now possible to stand at the top of the Eiffel Tower or walk on the moon without leaving the living room.

The global virtual reality gaming and entertainment market is projected to top $US70 billion by 2026.

AUGMENTED REALITY MARKET TO REACH $US83.5B BY 2021

Virtual reality
Augmented reality

| Year	Virtual reality	Augmented reality
2016	2.5	1.5
2017	6.5	2.5
2018	10	10
2019	15.5	29
2020	21.5	58.5
2021	25.5	83.5

Source: BCG, IDC survey

KEY INSIGHTS

VIRTUAL REALITY – ESCAPISM OR OUR NEW REALITY?

VR is built for gaming and entertainment. In a virtual world it doesn't matter how old you are. There's no health risk. No barrier to entry. VR had only scratched the surface in allowing people to escape the limitations of daily life. I in 3 Australian households owns a virtual reality headset and eSports viewership rose to almost 50 per cent in the last 12 months. Australians are embracing the technology and want more. How can travel, tourism and entertainment use this tech to deliver virtual experiences that feel real?

ESPORT MARKET REVENUE WORLDWIDE FROM 2012 TO 2022
IN MILLIONS $US
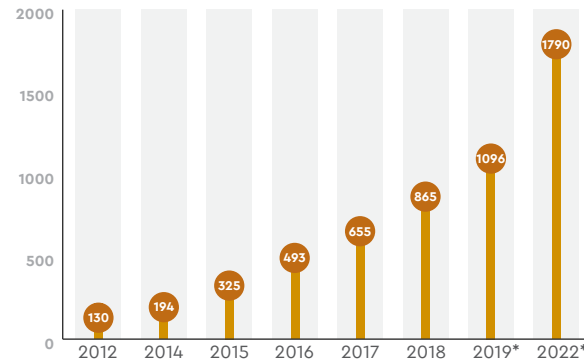
Source: BCG, IDC survey

VR will become one of the jewels in the tech crown for brands and organisations. It's designed to play with our senses and to bring us into any world we can imagine. Brands will use it to deliver customer experiences that no words could describe.

Imagine showing a consumer how it feels to be in Maui, sipping a cocktail on a beautiful beach with the sound of waves lapping against the shore and the faint scent of coconut oil in the air. Or how it feels to take a high-speed bend on the racing line in a Formula 1 car.

Fox Sports recently broadcast the Australian Supercars All Stars Eseries. This clever response to COVID-19 saw the motorsport industry pivot its entire model to maintain fan interest and give them a taste of excitement, with real-world drivers competing on virtual tracks.

Supercars recruited every single driver to participate, replicating the real event in great detail and even establishing an incident review bunker. Broadcasting on Fox Sports, with a simulcast on Twitch for gamers, made it feel authentic. It was the fifth most watched program on subscription TV, convincing Fox Sports to extend the coverage.

Software developers are focused on making apps that support virtual reality, with smartphones helping to capture 3D content. The main component of VR is the super wide-angle lenses, enabling users to explore a virtual world. The VR headset allows smartphone sensors to track head movement, giving a realistic three-dimensional view of spaces.

As VR develops it will bring much more transformation in the gaming and entertainment industry. Gaming has always been at the forefront of tech advances. R&D in optical devices including optical trackers, beacon trackers, pattern recognition, laser ranging, mechanical trackers and 3D input devices have all significantly expanded the VR marketplace.

Other industries will continue to benefit from these advances in VR and, while many applications are still embryonic, the potential is enormous. Creating immersive learning experiences for the education sector; virtual fitting rooms for fashion retailers, prototyping product innovations, and new mental health treatments are just a few of the ways VR is shaping our experiences.

USING TECHNOLOGY TO REACH OUR FULL POTENTIAL

LEE HICKIN
National Technology Officer
Microsoft

IT WILL ALWAYS BE IMPORTANT TO HAVE PEOPLE AS PART OF THE DECISION-MAKING PROCESS. THE QUESTION SOMETIMES IS WHETHER WE SHOULD DO SOMETHING, NOT WHETHER WE COULD. AI SYSTEMS ARE INQUISITIVE BY NATURE AND WON'T ASK THAT QUESTION.

The idea of machines augmenting what we do has been around for 100 years or more. We've always been fascinated by it, but it's more prominent now as, globally, we've seen rapid acceleration of the building blocks that underpin it. Examples are popping up in all aspects of our lives as the technology become cheaper to access and ubiquitous in nature.

The people and companies at the forefront of this work to support human endeavour with technologies like artificial intelligence (AI) are trying to deliver the next evolutionary leap, the next industrial revolution. Like any step change in the human experience, it is as much about the change in the technology as it is a change in the human adaptability to leverage that technology. The ethical questions around these developments have also been around for a long time. Technologists, law makers and others have been discussing the relationship between humanity and machines ever

since Isaac Asimov introduced his three laws of robotics in 1942.

Improved access to data and computing at scale have been the most important developments in recent years. Technologies like image and speech recognition are now good enough that we can use them in a variety of real-world scenarios that now allow a far broader range of society to have input into how we design services. For too long the keyboard and mouse have been barriers to entry for many people, with AI that can perceive and understand the visual and aural world, everyone who has an idea or contribution to the future can now participate. That creates opportunities for government and other providers to engage with members of the community who were previously out of reach.

And this access opens up opportunities everywhere you look from education and healthcare to

manufacturing and retail. Machines help us sift through huge volumes of data more quickly and accurately, which in turn improves the quality and speed of decisions. But most importantly, people are still ultimately making those decisions. Artificial Intelligence is not challenging the knowledge of clinicians, engineers and other subject matter experts in society. It's just helping them understand problems more clearly.

But it's in the data that the core ethical issues arise – data bias, data definition and the misuse of data in secondary and tertiary systems. That's why it's always important to understand why a dataset was created before trying to interpret it, and to make sure datasets are treated in the manner and time in which they were collated. Historical data often reflect historical prejudices and this can be masked if not considered and accounted for early on. I'm a firm believer in open data sharing, it has so much potential to solve important problems in

areas like healthcare, environmental science and other areas of global importance. But the same data used to improve patient care for example – might also be of great interest to insurance companies in determining premiums. AI is a tool that can be used for good or bad.

To this end, we have a movement in the industry proposing that every dataset should have a datasheet explaining why and when it was captured, how it was normalised and how it should be used. Anything outside of that is open to risk.

It will always be important to have people as part of the decision-making process. In the words of Dr Malcolm from Jurassic Park: "Your scientists were so preoccupied with whether or not they could, they didn't stop to think if they should." As human's we need to keep the humanity in the technology and ask questions that take into account the risk of consequences in any AI solution that impacts people's lives. AI systems are inquisitive by nature and will seek to find probability, but will never question the ethics of such an outcome.

We have guidelines, process and standards in place at Microsoft to ensure no individual in our business is making these decisions alone, and that decisions can't be made by anyone with a commercial interest in the outcome. We have think tanks in different countries around the world that input into ethical decisions. And we have groups of people outside of the business including ethicists, scientists and anthropologists who consider the human and societal impact of technology changes.

Those developing technology need to provide thought leadership but ultimately, policy should be the responsibility of government. Legislation often moves slower than innovation but that's how it should be. We shouldn't want laws to keep pace with technological development because they need to be considered. Governments need to make regulatory decisions for the good of citizens. It's not a case of saying we should or shouldn't have facial recognition technology, for example. It's about deciding what the technology should and shouldn't be used for.

Getting the balance right between humanity and machines will mean future generations feel empowered to follow their chosen path in making a valuable contribution to society. That they're building and creating rather than just servicing and monitoring technology. AI will create career paths for my children that I can't imagine in the same way that my father could never have expected that I would choose to work in information technology.

Digital transformation has been accelerated by COVID-19. New ways of providing services have spun up almost overnight, not necessarily as a replacement for traditional services but definitely offering alternatives. Just look at how doctors can reach patients who are remote or too vulnerable to travel thanks to telehealth. The willingness to share data across geopolitical borders has been incredible to see during the pandemic. It would serve us all well to retain this heightened spirit of collaboration.
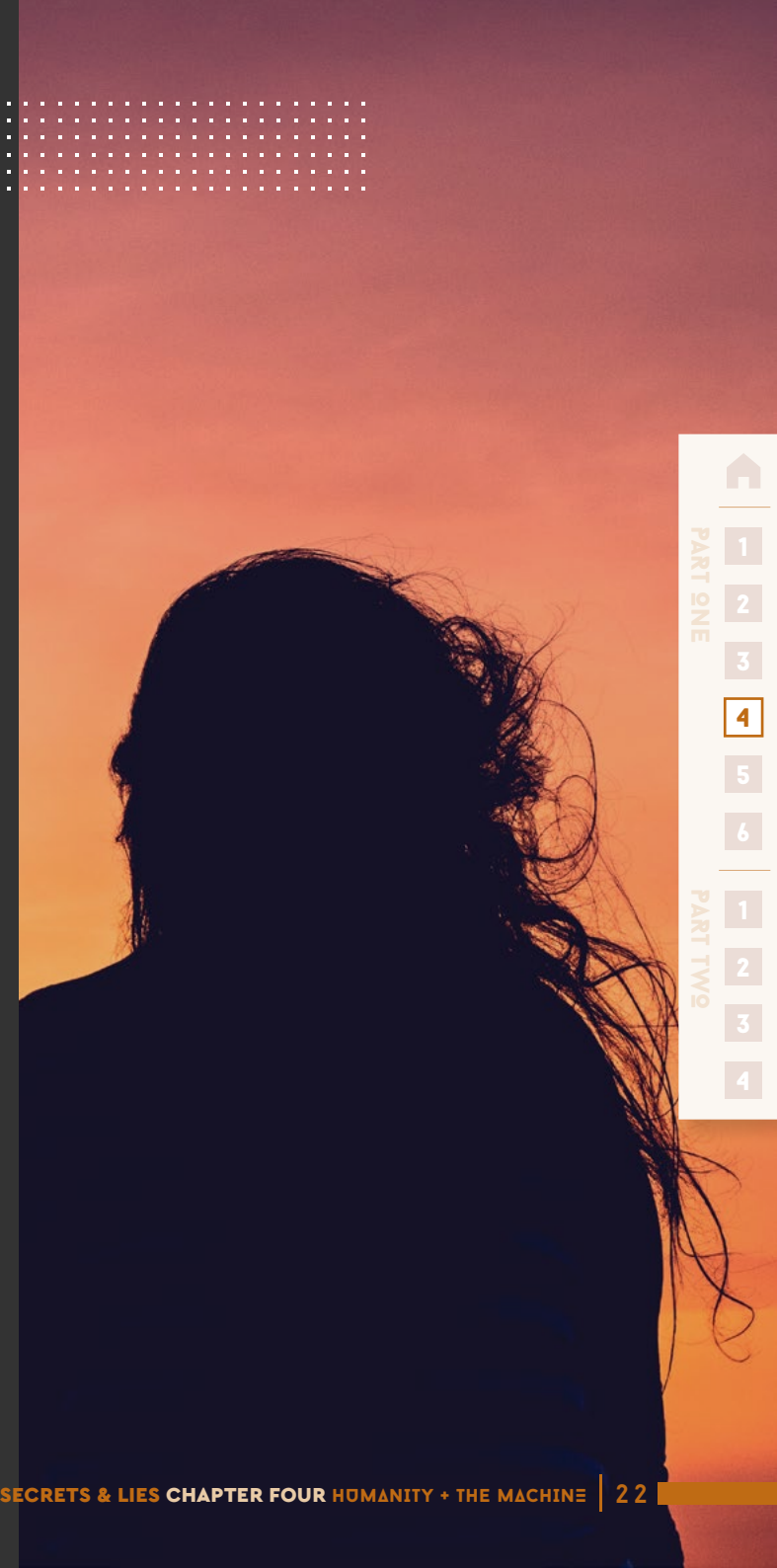
VR WILL BECOME ONE OF THE JEWELS IN THE TECH CROWN. IT'S DESIGNED TO PLAY WITH OUR SENSES AND TO BRING US INTO ANY WORLD WE CAN IMAGINE. BRANDS WILL USE IT TO DELIVER CUSTOMER EXPERIENCES NO WORDS COULD DESCRIBE.

INVENTION

E-∇R

Most homes are not equipped with the right furniture to support an eight-hour working day. So how convenient would it be to take a photograph and scan it into a virtual reality app that assesses the space and makes suggestions? A furniture maker could partner with an ergonomic designer to offer affordable, fashionable, work-friendly pieces. Customers would be able to see how the furniture looks in their home through the app before having their favourite pieces delivered.

FENG SHUI-∇R

DIY tasks helped many people fill time during lockdown. But think of the possibilities if virtual reality was built into the online shopping experience. An app extension could assess a living space based on Feng Shui principles, creating a desired look based around your wants and needs. Suggested furnishings and furniture arrangements are carefully selected by orientation, shape and symmetry, which can be purchased in-app, delivered and installed according to the plan.

V. 5G AS THE MISSING LINK FOR AUSTRALIA'S ECONOMY

MUCH OF THE DELIVERY OF THE TECH THAT WE'VE DISCUSSED IN THIS REPORT RELIES ON AUSTRALIA'S ABILITY TO DELIVER A ROBUST 5G NETWORK. SO FAR THIS IS ONLY AVAILABLE IN SELECTED AREAS AND COVERAGE IS LIMITED.

The latest *Mobile Nation* report from the Australian Mobile Telecommunications Association (AMTA) estimates that the productivity benefits of 5G mobile telecommunications will be worth $65 billion to the Australian economy by 2023 – equivalent to 3.1 per cent of GDP.

The mobile sector is already a significant contributor to the Australian economy, supporting nearly $23 billion of our national output. But 5G will create a gradual transition to a more networked and connected society. It will change the way Australians interact with the world and provide greater productivity benefits by streamlining businesses and transforming services to drive Australia's economy forward.

The 5G specification states that individual users should see a minimum download speed of 100Mbps. That's the fastest NBN speed as a minimum. 5G will allow more devices to connect to the network at the same time. With smartphone growth close to saturation, this next-generation network will open up new developments in autonomous cars, connected machinery and many other 'smart' devices.

The potential of 5G is limitless. We're talking about the ability for a surgeon to operate on a patient thousands of kilometres away using a virtual reality headset and a robot. Healthcare professionals would be able to see body scans in real time, examining patients remotely and saving lives.

There are so many examples of its application. Imagine your water heater has stopped working in the dead of winter and the idea of a freezing cold shower is beyond comprehension. Instead of getting a heating engineer around to your home, you talk to one via your smart glasses and they show you exactly what to do to diagnose and fix the problem. Or what about a smart toothbrush that lets you know that you've got a cold so you can cancel plans to attend a meeting and avoid infecting others.
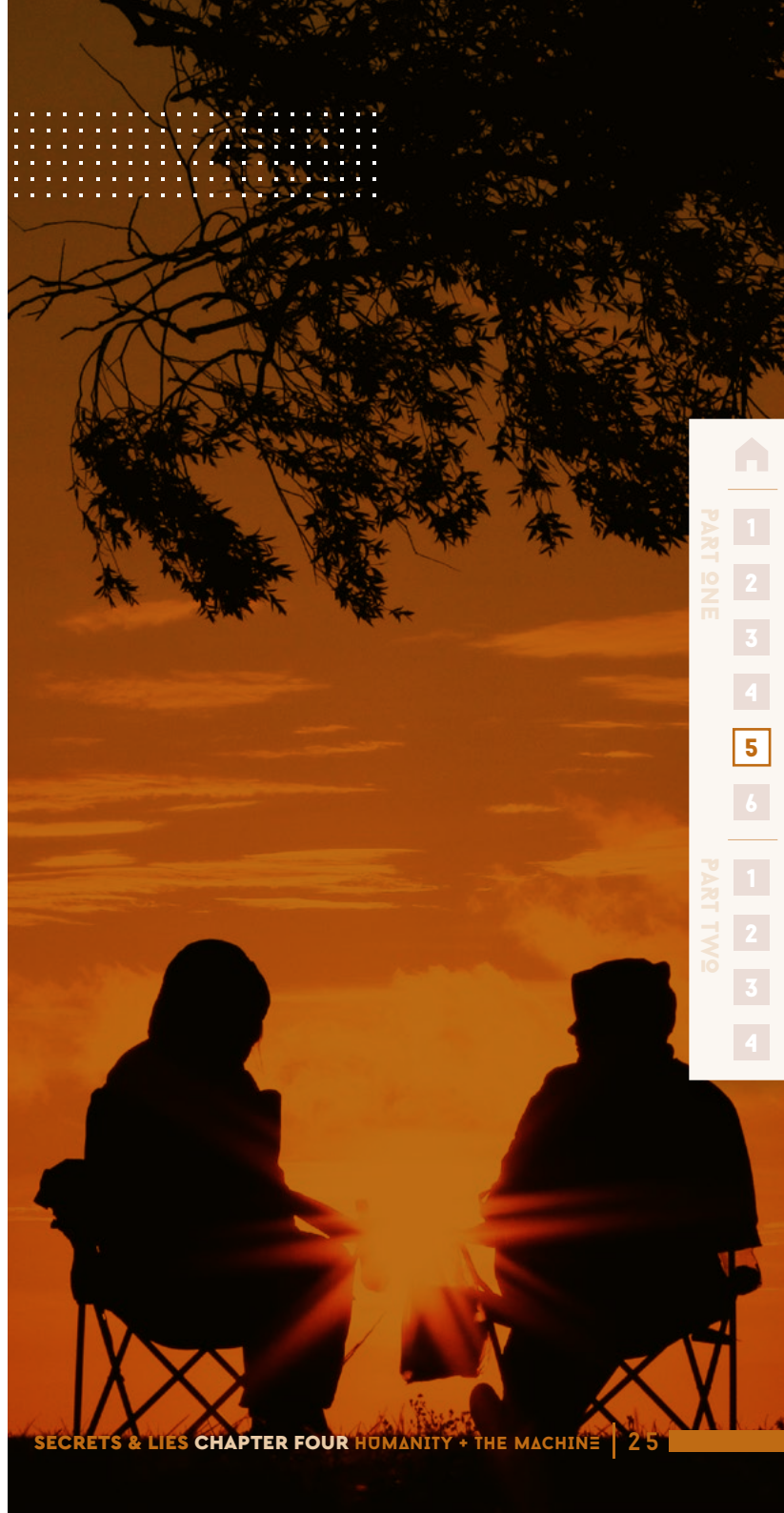
The big one is self-driving cars. Your car will access information from the cloud giving it data on the position of all the other cars on the road and what they're doing. It will be able to read the road signs as it approaches them, slowing automatically when advised of congestion ahead. In this environment, a machine's speed of reaction could be the difference between a close call and a trip to the emergency ward.

Smart homes and cities will be accelerated by 5G. Smart home appliances already commercially available include lights, home security, energy conservation devices and kitchen appliances. Smart ovens will preheat themselves when you start a recipe and smart dishwashers will adjust their settings based on what you've cooked.

Further down the line, we can expect to see smart food packaging, smart clothing and even smart furniture. A smart shoe might tell you when your soles have worn down. A smart chair might help you sit in the best position to get back support and avoid a trip to the physiotherapist.

Smart city technologies will control traffic lights, street lights, power and water supply, all from the cloud. Road sensors will monitor traffic flow, relay this information to cars in real time and even adjust traffic light behaviour to help ease congestion. Street lights will turn on when they sense motion then dim again when all is quiet to conserve energy. Sensors monitoring air quality will track pollution and help with the early detection of bushfires. All of this is only possible with 5G.

KEY INSIGHTS

I WANT IT SMART, FAST AND NOW

The impact of 5G technology across every industry and global economy will be profound. It is predicted to generate $US13.2 trillion of economic output and 22.3 million jobs globally. A faster, smarter, more seamless, more connected and reliable user experience is the promise for consumers and businesses. What is your organisation doing to get ready for the opportunities this bandwidth and speed presents? Where will the customer journey be transformed through the power of immediacy and immersive experiences? Those that are slow to the startline will miss the competitive advantage that 5G speeds offer.

VI. THE MIND-BENDING FRONTIER OF TOMORROW'S TECH

THE TECH THAT AWAITS US OVER THE HORIZON IS AS THRILLING AS IT IS ASTONISHING. THE BEST SCIENTIFIC MINDS OF OUR GENERATION WORK AT INSTITUTIONS LIKE DEFENSE ADVANCED RESEARCH PROJECTS AGENCY (DARPA).

For 60 years, DARPA has held to a singular and enduring mission – to make pivotal investments in breakthrough technologies for national security. The genesis of that mission dates back to the launch of Sputnik in 1957, and a commitment by the United States that, from that time forward, it would be the initiator and not the victim of strategic technological surprises.

Working with innovators inside and outside of government, DARPA has repeatedly delivered on dreaming up revolutionary concepts and turning them into practical realities. The ultimate results have included not only game-changing military capabilities such as precision weapons and stealth technology, but also such icons of modern civilian society such as the internet, automated voice recognition and global positioning system receivers small enough to embed in consumer devices.

Of the many things on the DARPA drawing board, perhaps the most interesting is Gait Biometric Technology. Gait patterns examine the way an individual walks, saunters, swaggers, or sashays. The hypothesis is that someone's gait could be as telling as a psychological profile. How a person walks, stands, adjusts their shoulders and tilts their head could hold the secret to how they think, feel or vote. It could also determine how they choose brands.

Though this technology is over the far horizon, one day future generations might live in a world where market research and segmentation is a very distant memory. Your gait is all that's required for brands to target you and give you the ultimate customer experience.

KEY INSIGHTS

TECH IN HARMONY WITH HUMANITY

As your organisation starts to explore the next generation of tech, it should also consider how these could be embraced by your audiences. How could you use them to improve lives without compromising on data privacy and security? This holds the key to bringing humanity and the machine together in perfect harmony.

PART TWO

TRUST, TRUTH
+ TRANSPARENCY

HUMANITY + THE MACHINE

With such monumental change occurring across every industry and aspect of life, and with technology both driving and enabling so much of this change, what better time to take a fresh look at our relationship with tech?

What ethical questions do we need to answer as tech becomes ever-more embedded into our personal and professional lives?

Are we right to trust its presence in our homes as much as we do?

How could our lives be improved by tech as 'home' becomes a standard workplace?

What should tech learn from the human element of this remote working experiment?

Will the bond between humanity and the machine be strengthened by these experiences?
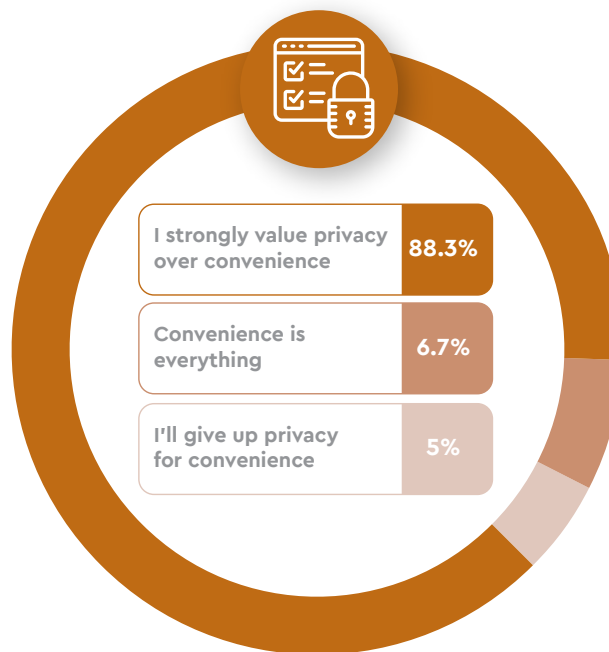
I. THE DELICATE DANCE BETWEEN CONVENIENCE AND PRIVACY

Google's first privacy policy in 1999 was about 600 words. Two decades later, this document has ballooned into a 4,000-word essay capturing the complexities of web regulation. The terms and conditions for iTunes now runs to 7,200 words and Facebook now has more privacy policies than you can count on both hands.

This begs an obvious question: How many of us read these terms and conditions? Only 15 per cent of Australians claim to 'always' or 'often' read terms and conditions when signing up for online services. More than half 'rarely' or 'never' read them (Roy Morgan, July 2018). This is not to say that Australians don't care about privacy. They do. More than ever.
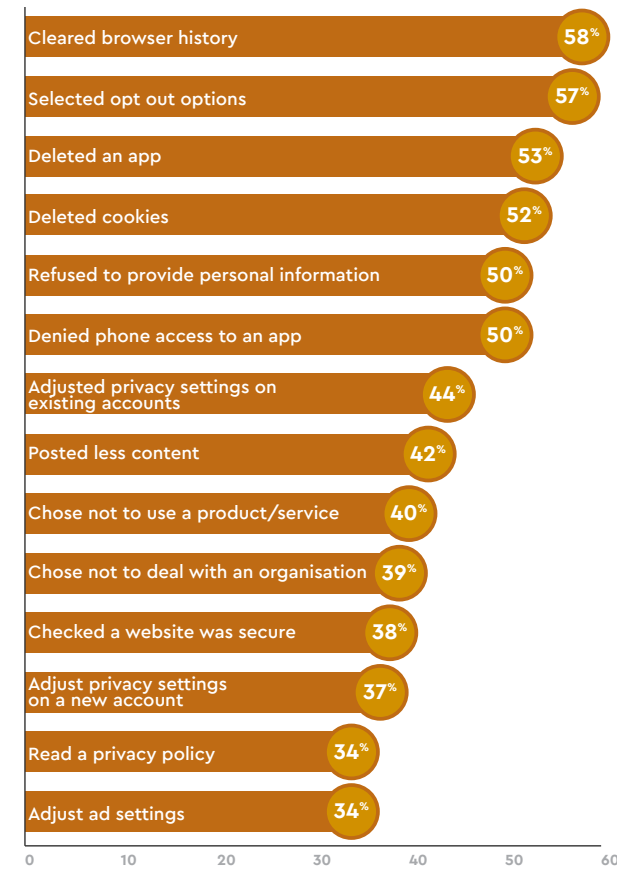
An in-depth Roy Morgan study into Australian attitudes towards online privacy has revealed huge concerns around how personal data is used. Almost 90 per cent say it's unacceptable for companies to collect personal financial data, scrape the contents of messages or emails, or to collect health and medical data for the purpose of tailoring consumer offers. Less than five per cent think these practices are acceptable.

PUBLIC ATTITUDES TOWARDS PRIVACY AND CONVENIENCE WHEN IT COMES TO PERSONAL DATA IN AUSTRALIA IN 2018

I strongly value privacy over convenience	88.3%
Convenience is everything	6.7%
I'll give up privacy for convenience	5%

Australia; October to December 2018; 2,000 respondents; 20 to 55 years; Online survey
Source: Privacy Australia © Statista 2020

MOST COMMON ACTIONS UNDERTAKEN TO PROTECT DATA ON THE INTERNET IN AUSTRALIA AS OF AUGUST 2018

Action	%
Cleared browser history	58%
Selected opt out options	57%
Deleted an app	53%
Deleted cookies	52%
Refused to provide personal information	50%
Denied phone access to an app	50%
Adjusted privacy settings on existing accounts	44%
Posted less content	42%
Chose not to use a product/service	40%
Chose not to deal with an organisation	39%
Checked a website was secure	38%
Adjust privacy settings on a new account	37%
Read a privacy policy	34%
Adjust ad settings	34%

Australia; ACCC; Roy Morgan ; July to August 2018; 4,308 respondents; 18 years and older; Online panel
Source: ACCC; Roy Morgan © Statista 2020

Asked for their views about organisations sharing with third parties, 80 per cent of Australians would never want photos of children and family made available. This was higher than any other type of data or information. At least 70 per cent would never want their mobile phone number, contacts, messages, financial details or medical information shared.

But we also know that almost three in four Australians expect personalised service from the brands they interact with (Acquia, Nov 2019). This creates a delicate dance between convenience and privacy for most Australians when they go online.

Not all privacy is considered equal and yet many brands try to enforce a blanket rule with their privacy policy. The rule here is to be guided by the type of information.

Health data is out but innocuous data like which detergent brand somebody buys is in.

When convenience comes at the cost of privacy, consumers are sometimes willing to pay that price. There's still a disconnect between people's stated privacy concerns and their privacy choices when faced with inconvenience. Throw in an incentive like a competition to win an exotic holiday and many consumers will opt into data collection.

The onus is currently on consumers to protect themselves. For privacy and security, they're expected to disable default settings or read through lengthy and complex disclaimers to determine what corporations are doing with the data they collect. You'd need a law degree to understand some of them.

THERE'S STILL A DISCONNECT BETWEEN PEOPLE'S STATED PRIVACY CONCERNS AND THEIR PRIVACY CHOICES WHEN FACED WITH INCONVENIENCE

90%
say it's unacceptable for companies to collect personal financial, health and medical data data for the purpose of tailoring consumer offers

<5%
Think these practices are acceptable.

When it comes to reading terms and conditions to sign up for online services

ONLY
15% 'always' or 'often' read them

MORE THAN HALF
50% 'rarely' or 'never' read them

70%
would never want their mobile phone number, contacts, messages, financial details or medical information shared.

80%
of Australians would never want photos of children and family shared with third parties

KEY INSIGHTS

THE IDEAL FUTURE OF PRIVACY: PRIVACY BY DESIGN

Not all privacy is considered equal by Australians and yet many brands try to enforce a blanket rule with their privacy policy. As an example, health data is sacred but benign data can easily be traded for convenience. In truth only 15 per cent of Australians claim to 'always' or 'often' read terms and conditions when signing up for online services. More than 50 per cent 'rarely' or 'never' read them.

If privacy is treated as a function of regulatory compliance, most brands will do the bare minimum. But if businesses start thinking of privacy as a competitive advantage it becomes a much more nuanced issue. Companies like Apple have already started to do that. This next decade will see a more considered approach to privacy. Brands will find a way to make sure that convenience doesn't come at a cost. Does your organisation have a nuanced position? If not, isn't it time to get one?

THE VALUE OF UNDERSTANDING THE MAGIC

DR MATTHEW BEARD
Fellow,
The Ethics Centre

'Any sufficiently advanced technology', wrote British sci-fi author Arthur C Clarke, 'is indistinguishable from magic'.

We *live* in the era of advanced technology. Not only that, but the advanced technology is, well, advancing – and doing so at such a rate that the 'Fourth Industrial Revolution', declared by The World Economic Forum only four years ago, is now feeling like a redundant term.

In an age like this, Clarke's comment feels prescient. The difference between magic and technology, he suggests, is whether we can understand it. And plenty of us can't. Today, the gap between those who understand technology and those who don't continues to widen, and the group who do understand technology continues to shrink as a result of growing complexity.

It really does feel like some of the things we're seeing developed are magical. And when magic is working to make our lives better, our first instinct is to be amazed and grateful.

That's good for technology companies. Which is why many technology companies have worked hard to develop a kind of mythology around Silicon Valley. For those outside the tech bubble, major tech companies have come to be seen as cultural meccas. They frequently rank among the best places to work with offices full of free snacks, nap stations and video games. They're often progressive and outspoken on social issues and seen to employ the smartest people on the planet to build amazing things that most of us will never understand.

Of course, we *could* understand them. And we should. But we often don't.

In 2018, Mark Zuckerberg faced US Congress Committee questions regarding Facebook and privacy. He was asked zingers like: 'How do you make money if Facebook is free?'
'Senator, we sell ads,' he replied, chuckling.

One of the political leaders of the nation responsible for regulating Silicon Valley couldn't get his head around Facebook's basic business model. That's why it's a good time to meditate on Clarke's quote and its implications for trust and ethics.

There are two major reasons for this. The first point has been widely made with regard to the tech giants. If we can't understand something, we need to trust the people who do understand it to make the right decisions. We become beholden to their power.

The second reason, which receives less attention, is because seeing technology as magical leads us to the mistaken belief that it will be a miracle cure for all our problems. It won't. The tech giants can be a useful *part* of a solution, but only if we understand their role and their limitations.

As a thought experiment, imagine how much time has been wasted around the world by people searching for the perfect app to make them more productive. Instead of taking the time to develop time management skills, or re-evaluate a life that's simply too full, we look for a technological fix for a non-technical problem. We've become accustomed to believing 'there's an app for that!' regardless of the question.

SEEING TECHNOLOGY AS MAGICAL LEADS US TO THE MISTAKEN BELIEF THAT IT WILL BE A MIRACLE CURE FOR ALL OUR PROBLEMS. IT WON'T. THE TECH GIANTS CAN BE A USEFUL PART OF A SOLUTION, BUT ONLY IF WE UNDERSTAND THEIR ROLE AND THEIR LIMITATIONS.

There's a place for apps to help free up our time. However, the best productivity app isn't going to solve problems of overwork and burnout. Those are the products of a much larger system of economics, social values around work and the drive for perfection. Not only can technology not solve these problems, but by giving it too significant a role, it can actually make matters worse.

That's because technology *isn't* magical. It's built by people whose beliefs, motivations and goals are the product of the same world we want them to fix. This means the technology they build is often encoded with the very same assumptions, values and beliefs we want them to fight against. It's been built to treat the symptoms of a problem, but in doing so, it's infected with the same underlying disease.

Clarke was right to suggest technology can appear to us as magical. But in doing so, it distracts us from the real magic that can be found in our humanity. The ancient Greek philosophers believed technology should *reveal* the world, not change it. Perhaps that's what we need – technology that shows us what we're capable of rather than technology that does it all for us.

II. SECRETS & LIES: OUR LIFE ONLINE
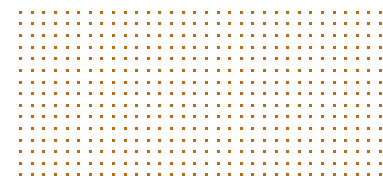
75%
struggle to separate fact from fiction with online information

68%
no longer trust what they read online

50%
increase in traffic to the world's most reputable mastheads

### FACT VS FICTION IN A FAKE NEWS WORLD

Australians are accepting less and challenging more of the information they read online. Most agree that we should question more of what we're told (91 per cent) and that people don't question what they read online as much as they should (86 per cent).

The credibility of online information is at stake for many Australians, with 75 per cent saying they struggle to separate fact from fiction because much of the content found online is manipulated. Almost as many (68 per cent) no longer trust what they read online.

In a world reshaped by COVID-19, trusted news sources have become more critical than ever. The world's most reputable mastheads and global health organisations have all seen online traffic soar. ABC News reported 15 million unique readers in March, up from 9.9 million in February. Guardian Australia's traffic more than doubled in March.

With so many people accessing news through social media and news aggregators, these platforms are also beginning to acknowledge the responsibility they have to ensure people are steered towards credible sources. Facebook's news ecosystem quality score is now influencing the quality of news appearing in newsfeeds, demonstrating tech's ability to address trust concerns.

Spurious news sources are being shunned and Australians are demanding more accurate reporting. One unforeseen upside of COVID-19 may well be the demand for accurate, impartial news. **Exposing the lies has become a serious industry.** We've seen the rise of factchecking websites like Truth-O-Meter, PolitiTruth, FactCheck.org, TruthorFiction.com, HoaxSlayer and FullFact.org. Once the great distributor of all news, no matter how questionable, tech is now helping us to question the nature of news and validate its origin.
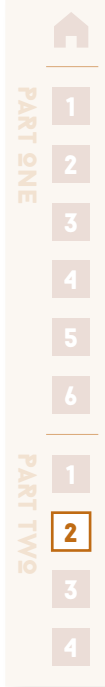
FACEBOOK'S NEWS ECOSYSTEM QUALITY SCORE IS NOW INFLUENCING THE QUALITY OF NEWS APPEARING IN NEWSFEEDS, DEMONSTRATING TECH'S ABILITY TO ADDRESS TRUST CONCERNS.

46%
of Australians believe
there's no room for
online debate

48%
fear expressing their
honest views online

47%
fear asking questions
that reveal their
opinion

53%
feel forced to pick a
side on every major
societal issue
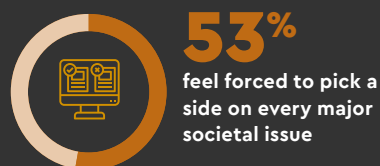
TECH'S ROLE IN THE CONTEST OF IDEAS

The last decade has also seen an alarming rise in partisan politics and entrenched positions on almost every topic of public debate. Liberal versus conservative, religious versus secular, and globalisation versus nationalism to name just a few.

According to our research, almost half of Australians believe there's no room for online debate (46 per cent) and fear expressing their honest views online (48 per cent) or asking questions that reveal their opinions (47 per cent). More than half (53 per cent) feel forced to pick a side on every major societal issue from climate change to immigration.

The sign of a great democracy lies in its ability to encourage debate of an issue along the entire political continuum. This means acknowledging a person whose words make your blood boil and respecting their right to have an opinion even when it's in direct opposition of yours.

Tech should enable this kind of open debate, allowing people to change their minds as they delve further into issues. We rarely see people evolve their opinions as they learn more but there's an opportunity for tech to help people see the grey, evolving their thinking without fear of retribution. Being a 'flip-flopper' is seen as a weakness in politics and business. How refreshing would it be if changing your mind were seen as a sign of strength? A sign of being more concerned with the merits of an argument than presenting an entrenched position.

Where is the tech platform that tracks a person's breadth of reading and understanding around an issue? That's an innovation the world would welcome with open arms.

Our research also shows that three in four Australians (77 per cent) agree that tension between opposing ideas will help produce a better solution, while 62 per cent say being more rebellious leads to the best solutions. More than three quarters (77 per cent) of Australians agree that flaws and imperfections are often the best part of a person.

This presents an opportunity for astute brands, organisations or tech platforms to build a space where we can debate issues with intelligence and compassion. Where every opinion is welcomed and we can respectfully disagree. It also allows people to change their minds along the way, be persuaded by a thoughtful argument or admit that they need to learn more about an issue. The brand or company that backs this kind of tech for good endeavour will unlock one of the great opportunities Australians are seeking right now.

DEBATE DELIVERY

Debate of current affairs is heavily focused on a single issue during COVID-19 as people concentrate on getting through the crisis. But imagine if a pizza box could bring Australians together to debate other important social, political and economic topics. This would see a QR code printed on the front of the box, directing customers to join a lively but respectful discussion. Partnering with a panel TV series would spark further debate, with hashtags taking the issue to an even wider audience. The opinion that gets the most love wins a free pizza.

SHARE SAFE

The online safety and privacy of children is one of our biggest concerns as a society, and it's difficult to manage on easily accessible social platforms. Who are they talking to and being influenced by? What are they watching and listening to? Now imagine an app that rewards children with pocket money for sharing their social media movements. They stay out of harm's way and cash is deposited into linked bank accounts.

CAREER PT

Educational achievement and raw skill never stand alone. Employers expect candidates to bring both. A simple app that integrates data from brain training, LinkedIn and university profiles could provide tailored programs helping people to get job fit. Prospects compare expertise and experience against specific job requirements from an educational and cognitive context. The platform acts as a mentor, pushing them a step further into a new career.

VERIFIED EXPERT

What if an academic panel was charged with awarding a 'verified expert' trust-mark in the fields of science and medicine? This would only be given to those people who fulfil a rigorous set of criteria based on academic study, peer-reviewed papers, credible endorsements and relevant employment. AI sorts the credible from the questionable. The trust-mark becomes an easily identifiable reference they use in social media activity, blogs and forums, creating a trusted source for news organisations. This would marginalise inaccurate climate science, anti-vaxxers and those who propose injecting disinfectant as a cure for COVID-19.

KEY INSIGHTS

IS IT TIME FOR AN ETHICAL SCORECARD?

Will we see a new tech development scorecard that incorporates all tech advances as well as the positive effects it can leave on humanity, ethics and trust? Is your company developing and judging its emerging tech alongside the considerations of ethics and trust?

DOES TECH NEED A TRAFFIC COP? IS ETHICS KEEPING UP?

Australians recognise the benefits of tech but believe big tech companies need more oversight. Most Australians (82 per cent) agree that tech has benefitted humankind, while 75 per cent say it has greatly improved their life. However, 80 per cent want more oversight on the ethical questions around new tech.

Tech is seen as hugely beneficial when the benefit it delivers outweighs a perceived privacy breach. As we were writing this report, the Australian Government launched the COVIDSafe app. This uses Bluetooth to trace every person recently in contact with a mobile phone owner who has tested positive for coronavirus in the previous few weeks.

This government app is solely about slowing the spread of COVID-19. It's focused on saving lives. This makes the tech extremely valuable and (for at least 40 per cent of the population) permissible. Ethical tech, or ethtech, may well become an established catchphrase in a post-coronavirus world.

82% of Australians agree that tech has benefitted humankind

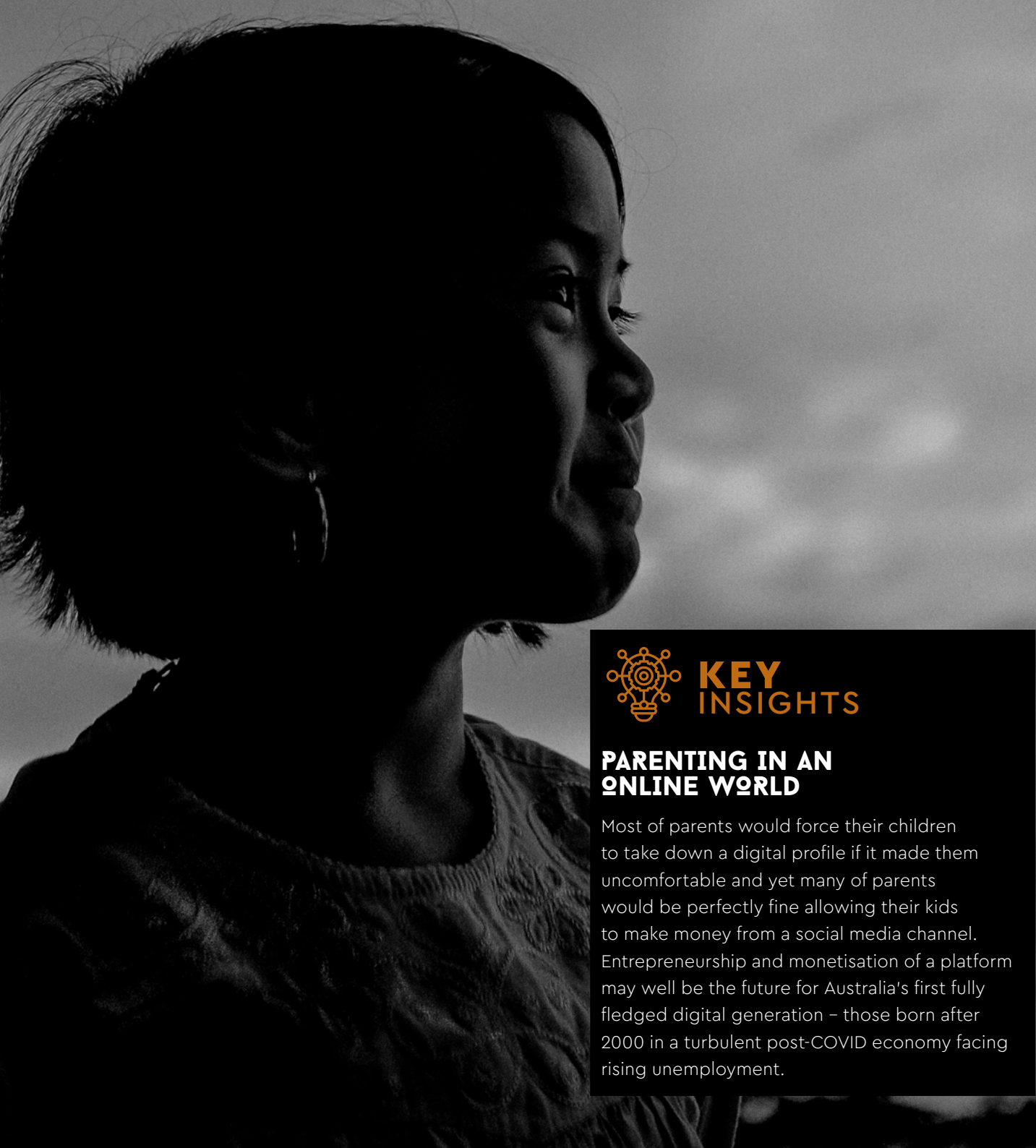**75%** say it has greatly improved their life

80% want more oversight on the ethical questions around tech

66% don't trust the big tech companies

63% feel anxious about how quickly new tech is changing our lives

THE KIDS ARE ONLINE: CONTROL VS CAPITALISM

When it comes to kids, parents worry greatly about their children's online behaviour and believe they should vet the profiles they create. Most Australian parents (83 per cent) would force their child to delete a digital profile that makes them uncomfortable.

Almost two-thirds (63 per cent) mistakenly believe that they own their child's digital footprint until they turn 18. Understanding ownership of social media content is murky at best with little knowledge of the rights issues regarding online content. When taking up a free service from Google, Facebook or any of the tech platforms, users allow the platform to access, aggregate and analyse the data they generate through interacting with content. Users own their data and can remove it at any time. What most users don't understand is the value of data points in helping advertisers reach their target audiences.

KEY INSIGHTS

PARENTING IN AN ONLINE WORLD

Most of parents would force their children to take down a digital profile if it made them uncomfortable and yet many of parents would be perfectly fine allowing their kids to make money from a social media channel. Entrepreneurship and monetisation of a platform may well be the future for Australia's first fully fledged digital generation – those born after 2000 in a turbulent post-COVID economy facing rising unemployment.

83% would force their child to delete a digital profile that makes them uncomfortable

63% believe they own their child's digital footprint until they are 18

More than half of Australian parents (59 per cent) would be fine with their child making money from an Instagram, YouTube or other social media channel. Does this reveal a double standard? Is capitalism the real question here? If the social media channel leads to money, does it reduce the nervousness parents feel in relation to the child's digital footprint?

Will we see more parents encouraging entrepreneurial kids to take advantage of financial opportunities afforded by social media as we head into a recession? With unemployment on the rise and job security increasingly a fantasy, will we see a generation seriously monetise these tech platforms for the first time?

59%
would be fine with their child making money from social media

88%
believe they should be able to remove something they've posted online
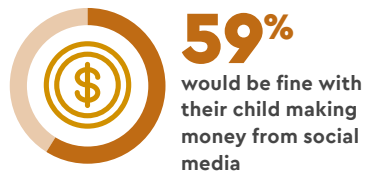
A large majority of Australians (88 per cent) believe they should be allowed to remove something they've posted online if they later come to regret it. This is understandable when one poorly judged post can follow someone around for the rest of their life.

This is one of the most interesting themes to consider. With the questionable judgement of youth, and the propensity to document every moment of their lives, our young people may need this protection most.

Is it time to discuss the possibility of a Second Chance Act that gives people 24 hours to remove their post, comment or photo without fear of it resurfacing in the future and causing them embarrassment or harm? If they miss this 24-hour window, which is enough time to recognise an error of judgement, the content sticks. Could Australia lead the way in the development of this digital ethics framework? A stay of digital execution would benefit everyone because we're all fallible and flawed. Could this legislation and related advances in tech protect the secrets that should stay private?

III. WILL MACHINES MAKE US REDUNDANT?

The great machine takeover has been a sci-fi Hollywood plotline for decades, tapping into the fears and anxieties of tech making humans redundant that actually began with the industrial revolution. And while it's true that each new wave of technology has changed and reshaped jobs and skills requirements for centuries, humans have, overall, demonstrated a resilience and adaptability to find new roles, and develop new expertise, in our increasingly tech-powered workplaces.

And yet, anxiety about the impact of technology on jobs is still there. Almost half of Australians (45 per cent) worry that machines will make them redundant despite 77 per cent not believing that machines can do everything humans do. With machines becoming more human-like than ever before, how real is this fear? Could automation and artificial intelligence really take over and make us mere mortals redundant?

THE ANSWER TO THIS, LIKE MOST OF LIFE'S BIG, COMPLEX QUESTIONS WILL BE BOTH YES AND NO.

Economics nearly always wins. When machines can do tasks faster, cheaper and more reliably than humans, the moral argument of protecting existing jobs will quickly get drowned out by the sounds of progress. You only need to look at agricultural changes in the past century. Automation and productivity improvements slashed a whole sector of jobs while enabling us to produce more food than ever. Similarly, with self-driving vehicles set to cause massive disruption to transportation across all sectors over the next decade, we will see a huge upheaval in traditional driving jobs. So technology certainly makes jobs redundant, but not necessarily humans, which is an important distinction.

As machines improve, tech amplifies the importance of our ingenuity, judgement, empathy and creativity. Our ability to both reason and imagine. The human desire (and economic need) to be productive will find new applications for human endeavour as it has always done. The out-of-work farmers of the last century could hardly have imagined jobs in programming, analytics and social influencing. Our seemingly insatiable desire to consume, explore and create will continue to inspire people to spend their hard-earned wages in new ways spawning new products, services and industries along the way, suggesting that, in fact, invention is the mother of necessity. Most Australians (84 per cent) believe that tech will never replace creativity, suggesting that the ideas economy has great potential as a driver of new employment opportunities.

45%
worry that machines will make them redundant

84%
agree tech will never replace creativity or imagination

77%
don't believe that machines can do everything humans do

This belief in the power of humanity to reinvent is not of great comfort to those immediately facing redundancies due to increased automation in assembly lines or driverless mining vehicles. With skills shortages in so many sectors, the responsibility to support the development of skills of the future is a shared one. And with the robots getting smarter, it isn't just low-skilled jobs facing threats. The incentive to automate is perhaps even more significant with the higher cost of white collar labour. Government, private sector employers and educational institutions have an opportunity to drive our economy and improve society. Could education in fact become an even more important sector in Australia's economy where we export our IP and skills to the world? Could Australia steal a greater share of the global ideas economy?

Only
30%
believe that machines and data are more reliable for decision-making than humans

79%
worry that tech is reducing resilience

75%
believe that we've lost the art of asking the right questions

A ATLASSIAN

HOW TO INCREASE JOB SECURITY IN AN UNCERTAIN WORLD

DOM PRICE
Work Futurist, Atlassian

We often hear people say that job security is a thing of the past. But those comments are usually based on the stable nature of employment in previous generations. Although gold watches marking 25 years of service are now a rarity, I prefer to think the nature of job security has simply changed.

We're living through a period of transformation where technology plays an increasingly important part in most aspects of our personal and professional lives. This is causing disruption across all industries and forcing us to think about the future of work. Our focus should be on preparing ourselves for change, and being nimble enough to evolve as the world around us changes.

Historically, evidence shows that technology has created more jobs than it's taken away, but that statistic almost hides the disruption and change.

IN A FUTURE WHERE TEAMS ARE LIKELY MORE DISTRIBUTED, TECHNOLOGY WILL HELP US CONNECT AND COLLABORATE ON A GLOBAL SCALE.

New jobs often require new skills, capabilities, and competencies to be successful. And change can sometimes be sudden and unexpected. There are millions of people around the world who can testify to that right now thanks to COVID-19, and the large-scale impact on humans and humanity.

Hundreds of thousands of Australians suddenly lost their jobs, with many more asked to stay home in an attempt to help flatten the curve. It's been a social experiment on a scale we couldn't have imagined just a few months ago but it's fair to assume that how we work will never be the same. Some people will be keen to get back to the office but others won't. Employers are likely to be much more relaxed about where people work having been through this experience. But similarly, there's probably many leaders who have struggled with trust, visibility, and confidence that work is actually getting done.

In a future where teams are likely more distributed, technology will help us connect and collaborate on a global scale. It will help us find creative ways to solve problems involving the brightest minds from around the world. It will help maintain the values and evolve the culture that defines our businesses. But the ever-shifting relationship between humanity and the machine will also continue to see some tasks and roles disappear as more processes get automated. Historically, humans have been the operators of machinery, but the 4th industrial revolution sees technology as our peer and equal. This brings me back to job security.

While some factors are beyond our control as entire industries are reshaped, there are plenty of ways to improve job security by reframing as "career longevity". Let's not view it as securing and staying in the same job, but instead having a long, purposeful and engaging career. This starts by unlearning behaviours that are no longer useful and replacing them with ones that enhance careers. It means embracing change and being more human. Not competing with the robots, but instead finding the thing that makes humans valuable, and doing more of that.

More than anything else, the future of job security lies in a commitment to lifelong learning and the continuous development of new skills. If there's one safe way to frame thinking around skills development, it's that soft skills like communication, collaboration and problem-solving help people adapt to change and stay in control of career trajectory. They are also uniquely human traits that are much harder to replicate at scale in technology. This is true at every level of an organisation.

As people adapt and learn new skills, they're also expecting more from their employers. They want to work for businesses that share their world view and show a commitment to major issues like climate change. Return On Action – a PwC report commissioned by Atlassian and published in March, prior to the lockdown – found that Australians are most concerned about the environment (55 per cent), economic factors (47 per cent), and health and wellbeing (45 per cent). Almost one-third (31 per cent) would quit their job if their company's actions didn't align with their values.

As we emerge from the COVID-19 pandemic, businesses will be judged on how they've responded., how they've treated their people and how they've contributed more broadly to the recovery effort. Those that are judged favourably will have stronger bonds with their people and be more attractive as a prospective employer. It's times like this when businesses earn the trust to lead through change.

IV . HUMANITY AND ITS ENDURING ROLE IN TECH

DESPITE THE GREAT BENEFITS DELIVERED BY TECH, AUSTRALIANS ARE CAUTIOUS ABOUT THE DEVELOPMENT AND INNOVATION OF NEW TECH THAT SQUEEZES OUT THE HUMAN FACTOR. MOST (81 PER CENT) BELIEVE THAT TECH COMPANIES SHOULD BE REQUIRED TO MEET CRITERIA PROVING NEW INNOVATIONS WILL BENEFIT SOCIETY AS A WHOLE RATHER THAN SIMPLY DELIVERING GREATER PROFITS.

A similar proportion (80 per cent) believe that there should be more oversight on the ethical questions around new technologies, with 68 per cent saying that the best tech helps people remain human and authentic.

The COVID-19 pandemic has brought out the best in tech and flattened generational differences around perceived benefits to society. One unintended but positive consequence of this crisis is that the humanity of tech has revealed itself. The tech powering video calls would be nothing without the faces and emotions behind the connections. It only works if people want to share their stories.

This is a new gold standard of tech that will power the next wave of development. Will we see a new development scorecard that incorporates humanity, ethics and trust? This would mean we never had another situation where ethical considerations weren't included at the start of the development process.

We're entering a new tech age. An age where morality and ethics will shape tech development rather than being considered as an afterthought. This will sit at the centre of any new tech platform, which will be shaped by its impact on the people it serves.

68%
say that the best tech helps people remain human and authentic.

81%
believe tech companies should have to prove new innovations will benefit society and not just improve profits.

KEY INSIGHTS

CHIEF TECH GAZERS – THE EMERGING ROLES

Who in your organisation is keeping an eye on the distant tech horizon and meeting with the inventors of this tech to get a jump on the competition? Seizing early opportunities has the ability to transform your business and and help it overtake your competition. Equally, will we see Chief Ethical Officers sit along side Chief Technology Officers in organisations of the future?

TECH AS A FORCE FOR GOOD

MELANIE SILVA
VP & Managing Director,
Google Australia & New Zealand

In August last year I had the pleasure of welcoming school kids from across New South Wales to the Game Changer Challenge at our Google Sydney office. They were tasked with solving a problem: How might we humanise technology?

Needless to say, the kids blew us all away with their ideas! This generation – which has grown up with technology – saw a huge role for how technology could solve real human problems. The winning primary school project was Alstonville Public School's Empathy Bot U Deserve (EMBUD), which aimed to help people with sensory disorders lead more fulfilling lives. You can see their pitch here.

These kids saw something that we've all started to see much more clearly as COVID-19 has disrupted every part of our daily life, society and the economy. The virus has displaced jobs, stunted global economic growth, and limited our movements.

But at the same time, it has put a spotlight on the essential and positive role technology plays in how we live, learn, work and interact.

Technology has enabled critical health information to be shared instantly and widely with everyone who needs it. It's meant that even as classrooms have closed, learning has continued. It's meant that the small to medium businesses most severely affected have been able to pivot, adapt and shift business models faster, keeping the economic engine ticking. These are things that simply wouldn't have been possible just 20 years ago.

When I think about our work at Google, it's driven by a desire to be helpful in the moments that matter for our users, customers and the community – whether it's helping some find the information they need through Search, getting from A to B with Maps, or working with our partners to develop digital skills and help businesses evolve and grow.

During COVID-19, that mission has taken on a renewed focus, as we work to help people and businesses get through these uncertain and challenging times. And as we begin to recover and rebuild, we have to make sure that we build on these foundations so that technology plays an even more positive role in our future.

OUR CHALLENGE AS A COMMUNITY IS TO SOLVE OUR BIGGEST PROBLEMS COLLECTIVELY. TECHNOLOGY ISN'T A SUBSTITUTE FOR HUMAN INGENUITY – IT'S AN ENABLER OF HUMAN POTENTIAL, AND IT'S HOW WE IMAGINE IT, DEVELOP IT AND USE IT THAT MATTERS MOST.

We need to continue investing in digital skills and education so more people can take advantage of the opportunities that technology creates. We have to collaborate to unlock the benefits of artificial intelligence in areas like healthcare and environmental protection. And we have to harness digital tools and platforms including cloud to help Aussie businesses win new customers, grow into new markets and operate more efficiently.

Technology will continue to improve our lives in countless ways and across areas as diverse as our economy, education, health and the environment. But of course, technology isn't always perfect, and technology alone can't and shouldn't be the solution for every problem.

Our challenge as a community is to solve our biggest problems collectively. Technology isn't a substitute for human ingenuity – it's an enabler of human potential, and it's how we imagine it, develop it and use it that matters most.

So let's learn a lesson from the students at Alstonville Public. When we humanise tech – when we use it to improve lives, solve problems and create opportunity – there's no limit to what we can achieve. Combine the passion and energy of those kids with accelerating advances in technology and I'm confident it only gets better from here.

AUTHOR

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Rose Herceg
Chief Strategy Officer,
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Rose has built a career as one of Australia's most respected futurists and social forecasters.

As Chief Strategy Officer, Rose consults to WPP AUNZ clients across its 50 operating companies on emerging trends, business strategy and innovation.

CONTRIBUTER BIOS

DR MATTHEW BEARD
Fellow, The Ethics Centre

Matt is a moral philosopher with a background in applied and military ethics. In 2018, he co-authored Ethical by Design: Principles for Good Technology. Matt has taught philosophy and ethics at university for several years, and has been extensively published in academic journals, book chapters and is a sought after speaker at both national and international conferences. In 2016, Matt won the Australasian Association of Philosophy prize for media engagement, recognising his "prolific contribution to public philosophy". He is a columnist with New Philosopher magazine and ABC Life, and a podcaster on the ABC's Short & Curly program, an award-winning children's ethics podcast.

LEE HICKIN
National Technology Officer, Microsoft Australia

Lee has over 27 years' experience in the IT industry working across a variety of roles and technologies. Lee has worked in Asia, the UK and Australia with a passion for innovation and leading-edge technologies such as AI and autonomous devices. He has been a CISSP certified security architect with RSA Security and Tivoli, leading the IOT business development team across APAC with Amazon Web Services and most recently the CTO for Microsoft Australia.

As the CTO, Lee helps customers and Governments on their journey of digital transformation through cloud technologies; focusing on the adoption of intelligent cloud services such as AI and machine learning underpinned by the need for cultural transformation, digital strategy and responsible AI.

Lee is passionate about the positive potential for artificial intelligence to build an inclusive and bright future and is a regular speaker on cloud technology, innovation culture and driving digital transformation.

PIP MARLOW
Chief Executive Officer, Salesforce Australia & NZ

Pip is responsible for ensuring Salesforce delivers on its values of trust, customer success, innovation and equality.

Prior to Salesforce, Pip was CEO Customer Marketplace at Suncorp, where she was responsible for driving customer focus into all aspects of Suncorp's business including strategy, customer care, partnerships and innovative solutions that add value for customers. Prior to joining Suncorp in 2016, Pip was at Microsoft for 21 years where she held a number of roles in Australia and the US. This culminated in her role as the Managing Director of Microsoft Australia for 6 years.

Pip is also a non-executive director of Rugby Australia (ARU), sits on the Vice-Chancellor's Advisory Board at UTS, is a member of Chief Executive Women (CEW), and is an Executive Ally for Pride Diversity. She is a passionate advocate for flexible and diverse workplaces that empower people. Born and raised in New Zealand, Pip lives in Sydney with her Scottish husband and her two American born daughters, Sophie and Lucy.

CONTRIBUTER BIOS

DOMINIC PRICE
Work Futurist, Atlassian

Born to Joy in the harsh Manchester Winter of 77, Dominic has a career that has reached far and wide through Europe, US and Asia PAC. Dom is now the resident work futurist at Atlassian. He is passionate about discovering healthy, effective collaboration patterns that allow teams to do the best work of their lives – because a fool with a tool is still a fool. Dom has responsibilities spanning 7 global R&D centres, and is the in house "Team Doctor" helping Atlassian scale by being ruthlessly efficient and effective, with one eye on the future. Dom helped pioneer Atlassian's Team Playbook and has personally run hundreds of sessions with teams globally.

He has previously been the GM Program Management for a global gaming company and a Director of Deloitte.

Dom is proud to work at Atlassian, the home of the most intelligent t-shirt wearers in business.

A keen traveller, Dom has traversed over 50 countries so far, but after 15 years on these shores, he calls Australia home.

MELANIE SILVA
VP, Managing Director for Google Australia and New Zealand, a role she took up in October 2018. She is based in Sydney.

Mel has been with Google for more than 12 years and has held a number of senior leadership positions in Australia and APAC, most recently as Managing Director, Go to Market Strategy & Operations, Google APAC, based in Singapore.

Prior to Google, she worked as General Manager at Fairfax Digital's Direct Access and she has an extensive product and marketing background in Financial Services from companies such as Citibank, ING Direct and AMP. She holds a Bachelor of Economics degree from Macquarie University, Diploma of Financial Planning and Diploma of Interactive and Direct Marketing from the Institute of Direct Marketing in the United Kingdom.

She is a karaoke fan, amazing wife and mother of two.

SECRETS &LIES

ABOUT THIS REPORT

'Secrets & Lies: Humanity and the Machine' is based on research commissioned by WPP AUNZ and conducted by YouGov. The Australian research comprised a quantitative survey of 5000 people aged 18 and over. The survey was conducted online with fieldwork taking place in March 2020. The sample was designed to ensure accurate age, gender and location representation. This report has also been supplemented by third party research and referenced where necessary.
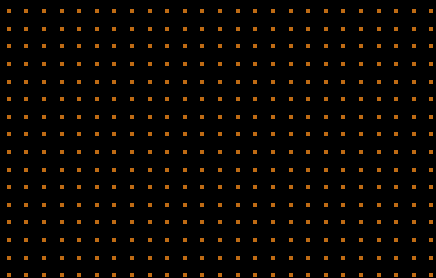
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