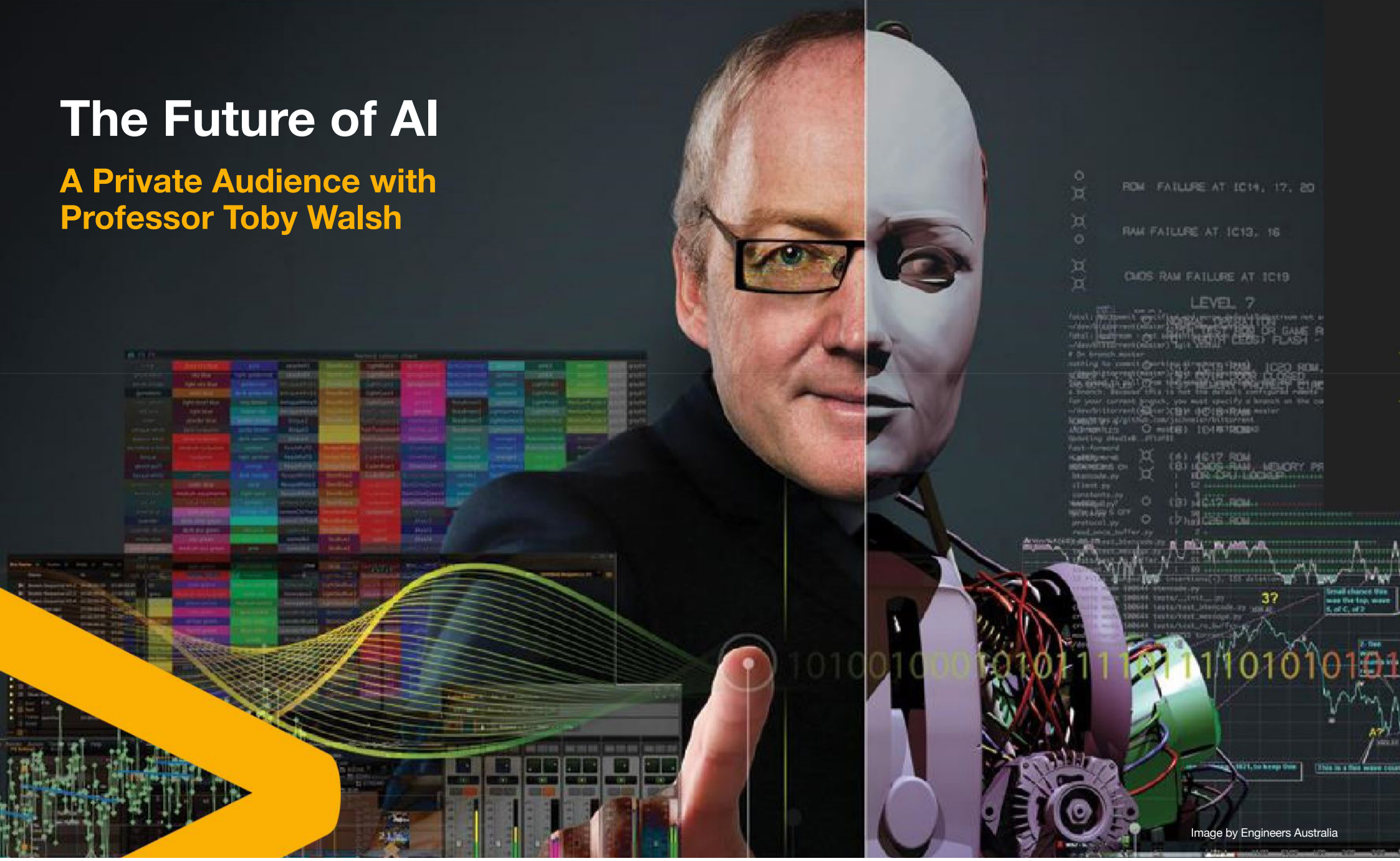
The Future of AI

A Private Audience with Professor Toby Walsh



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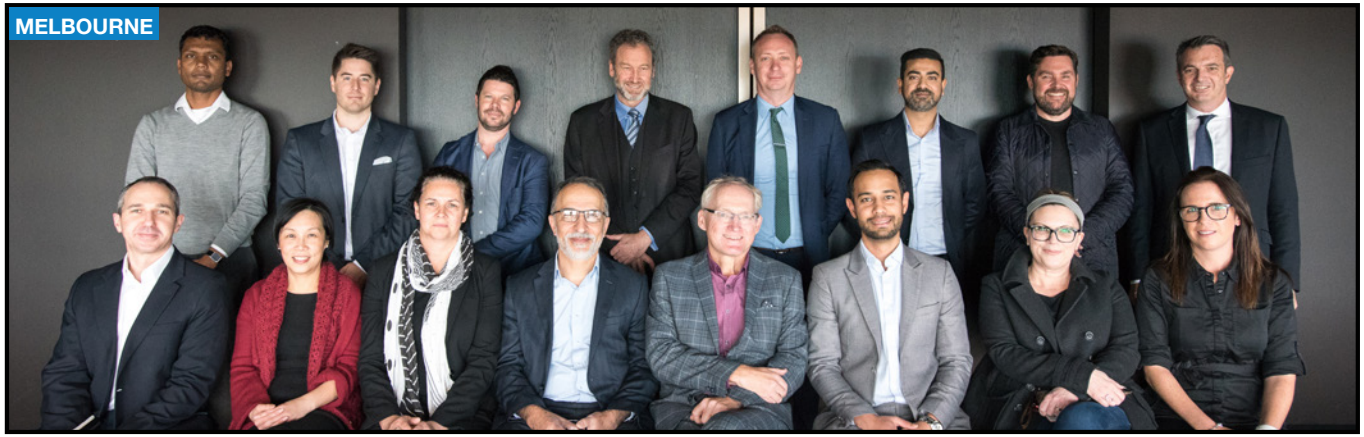
Australia's very own AI 'rock star', Professor Toby Walsh, met with leading CIOs and senior decision makers in Sydney and Melbourne to discuss how AI is better than the new oil–opening competitive opportunities for organisations seeking to creating forward-thinking revenue streams.



Top row (left to right): Sandeep Subbareddy, Regional IT Director APAC, Brightstar Logistics; Andrew Underwood, Chief Technology Officer, HPC & Artificial Intelligence, Dell Technologies; Scott Douglas, Head of Digital and Technology, Findex; Philip Roe, Chief Information Officer, Catholic Education Victoria; Andrew Ridley, ANZ Communications Service Provider Industry Development Manager, Intel; Rohan Khanna, General Manager,Technology, Projects & Innovation, Probe Group; Andrew Hehir, Chief Information Officer, Randstad; Mark Fioretto, Senior Vice President and Managing Director Enterprise, ANZ, Dell Technologies. **Bottom row (left to right):** Peter Lane, Chief Information Officer, Department of Jobs, Precincts and Regions; Helen Tran, Data and Digital Group Executive Officer, Bureau of Meteorology; Andrea Bell, Chief Information, EBOS Group Limited; Sharam Hekmat, Chief Information Officer, IOOF; Professor Toby Walsh, UNSW and Data61; Andre D'Cruz, General Manager, IT Service Delivery, The Salvation Army; Mariela Millington, Chief Information Officer, APAC, Brightstar Logistics; Alison Te Hira, Marketing Manager, Infrastructure Solutions Group, Dell Technologies.

With so much written in recent years regarding the rise of artificial intelligence (AI) as a business tool, it can be difficult to distinguish fact from fantasy. But while the technology is still a long way from maturity, many examples have emerged of AI delivering tangible benefits to businesses today – provided they can find the skills and knowhow needed to deploy it appropriately.

The practical application of AI provided the core topic for a series of roundtable discussions conducted by Dell Technologies and 6 Degrees Media in Sydney and Melbourne in June, 2019. The roundtables featured the University of NSW's Scientia Professor of Artificial Intelligence and Research Lead at CSIRO's Data61, Professor Toby Walsh, as guest of honour, along with Dell Technologies regional Chief Technology Officer for High Performance Computing and Artificial Intelligence, Andrew Underwood. Together, they joined a group of Chief Information Officers (CIOs) and other senior leaders to discuss subjects ranging

Top row (left to right): Mark Fioretto, Senior Vice President and Managing Director Enterprise, ANZ, Dell Technologies; Dominic Carroll, Director of Technology, Business Partners, Group IT, Optus; Bora Arslan, Chief Analytics Officer, IAG; Brett Lenthall, Head of Technology; Crestone Wealth Management; Chris King, Vice President of Data, BI and Analytics APAC, Accor Plus; John Khoury, Chief Information Officer, Allied Pinnacle; Craig McGrory, Group General Manager Digital Transformation, CIMIC; Andrew Hall, Vice President and Co-Head of Chief Technology Office, Deutsche Bank. **Bottom row (left to right):** Ramesh Narasimhan, Senior Executive, Systems Engineering, Dell EMC; Andrew Underwood, Chief Technology Officer, HPC & Artificial Intelligence, Dell Technologies; Abhi Kadian, Head of Robotics and Automation, Westpac; Kirsty McKay, Group Manager, Digital Transformation, Coates Hire; Professor Toby Walsh, UNSW and Data61; Oliver Jeanson, Head of Digital and Innovation, Westpac; Amar Hunjan, Chief Information Officer and Chief Digital Officer, The Compass Group; Dan Chesterman, Chief Information Officer, ASX; Andrew Bartsos, Senior Director, Information Technology, SAS Institute.

from in-market examples of AI implementations, the skills shortages faced by the industry and how to tackle some of the broader challenges that AI poses.

The truth behind the hype

AI has been the focus of Walsh's professional life, and he described the current era as the most exciting time to be involved in the field due to the progress being made in applying AI to real-world problems. He did, however, caution that interest in AI had probably reached the peak of its hype cycle – meaning an inevitable wave of disillusionment was coming. He said this should not dissuade organisations from developing AI capabilities and use cases.

"When I look at what the most innovative companies can do today with AI and machine learning, if we were just to spread that expertise, we could have a huge impact on businesses and government," Walsh says.

"Even if we stopped making any advances on the speed of our machines, and we just implemented what we can do today more widely, there's a huge amount that we could do in so many businesses that would improve what they do."

As to why AI is currently experiencing so much interest, Walsh said this was being fuelled by advances in the factors that make AI successful – compute power, data availability, and the algorithms that bring them to life.

"If you don't have computer power on your desk, you have it in the cloud, and you can power up as many cycles as you need to do things that we just dreamt about doing ten years ago," Walsh said. "There is some truth to that saying that 'data is the new oil'. Data is actually better than oil. Oil you can only use once, and it's gone. Data can be used for many different purposes. It doesn't get consumed. But like a lot of things, data needs to be refined."

Better than the new oil

Walsh went on to describe how access to data would be one of the key determinants as to which organisations succeeded or fell behind in an AI-driven world.

"Machine learning does require a lot of data, and as you go down your AI journey that's often going to be your starting point in terms of the questions you should ask," Walsh said. "Are we collecting the right data? Is the data in a form that we can use? Is it clean enough? If not, what should we be doing in our business to collect the right data so we can make better decisions?

"Without data we can't make better decisions. We can't learn. We can't optimise. We can't do any of these

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> ***– Andrew Underwood, Dell Technologies***

things unless we have good data about our operations, about our customers and about our business."

But when large volumes of suitable data are combined with better algorithms and backed by the overall vast inflow of funding into AI technology, that can translate to significant opportunities for businesses. "If you're not taking advantage of it, your competitors will be," Walsh said. "So, it's something that every business needs to be thinking about. A few years back you had to be asking what your mobile plan was. Now you need to be thinking about what your AI plan is."

AI in action

Walsh described how our ability to collect and analyse data using AI was creating a phenomenal number of use cases that were waiting to be explored, from more effective routing of trucking fleets to better managing the power consumption of commercial buildings. He outlined several examples of AI in production today, including a set of algorithms that are helping Coca Cola better stock its vending machines, and an artificially intelligent legal assistant called Aiiira.

"You can sit down in front of this chatbot that understands law," Walsh said. "They've got it in a shopping centre in Darwin and its actually providing cheap, effective legal advice to people."

Dell Technologies' Underwood also told of numerous examples of AI being used in business, including a project at Mastercard which was helping to reduce the US$37 billion in credit card fraud that takes place each year.

"Every 60 minutes they process 160 million transactions," Underwood said. "What they have been able to do is train an algorithm to identify the patterns that exist within a fraudulent transaction. They have an algorithm that within a single second can apply 1.9 billion mathematical rules to determine the probability of fraud versus a non-fraudulent transaction and then shut down that transaction within that same second. If we were to rely

on human beings to come to that conclusion in a single second, it would take a lot more than 1.9 billion human beings." He cited another example of a customer that uses AI in its call centre to analyse customers' voice tones and mannerisms and uses these patterns as a security measure to ensure their voices cannot be impersonated.

Big thinking for smaller businesses

Underwood stressed, however, that AI was not simply the tool of large organisations and described how a Korean tour company operator was using a machine learning algorithm on its website to track and predict visitors' behaviour.

"As the consumer navigates the website, the algorithm learns, based on behaviour of the past people who didn't buy," Underwood said. "Just in the first quarter that they've had this into production they've had a 400 per cent increase in revenue. This is purely from being able to do basic things like identifying customers' propensity to buy."

Underwood said Dell Technologies had also worked with a 30-person company in Queensland to train an algorithm to detect an invasive weed on farms, and then use a drone to automatically map infestations.

"By using these drones and imagery, they can tell the farmer where to go and apply pesticides," Underwood said. "It's about providing a service that the farmer would actually not be able to provide because he or she would have tens of thousands of hectors to monitor, and they can't monitor that themselves.

"We are seeing start-ups using AI in the computer vision space, and we certainly see small to medium enterprises using it in customer service."

Delegates at the lunch gatherings also shared their experiences of investigating the potential for AI to solve business problems, such as preventing safety incidents on a warehouse floor using machine vision, based on a concept that had already been applied to great effect in the mining sector. Another example described the use of AI for managing compliance in the provision of financial advice, and for analysing and routing customer email to expedite outcomes. Another ambitious program was seeking to investigate the use of AI to predict education outcomes for secondary students.

Growing AI skills

While the benefits of AI are tangible, the ability to implement them remains limited, thanks in part to a shortage of people with suitable expertise, with Walsh telling of a PwC study that suggested there were only 10,000 people in the world with a PhD in AI.

"There's maybe an order of magnitude of more people who are working that know how to use the technology, but it's still a technology that requires some expertise," Walsh said. "You need to start investing in the people. The easiest way that you're going to get the expertise to be able to transform your business with AI is if you grow that capability yourself."

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Thankfully, significant resources already existed to upskill people in AI, including numerous standard and online courses. Meanwhile, Dell Technologies launched its AI Experience Zones this year in Sydney, Seoul, Tokyo, Bangalore and Singapore. The immersive, state-of-the-art AI Experience Zones are dedicated spaces providing CIOs, partners and their teams hands-on access to data science tools and knowledge sharing to kick-start AI initiatives including design, installation, maintenance and, most importantly, measuring and delivering tangible business outcomes for their organisations.

Many of skills requirements revolve around the ability to manipulate and interpret data, but Walsh added that teams would also be wise to invest in the soft skills that machines struggled to replicate.

"These are the things that can actually distinguish your business – those relationship skills and emotional intelligence," Walsh said. "That's not going to be automated any time soon."

Backing AI with vision

Underwood agreed the barriers to AI adoption were not entirely related to technical skills. He said it was incumbent upon leaders to educate themselves and understand how AI was changing their competitive landscape.

"Leaders don't yet understand the impact of AI within their specific industry, or what their competitors are doing, or what their board or leadership team might expect of them from an artificial intelligence perspective," Underwood said.

He said it was essential for leaders to understand what was possible from AI, in order to set realistic expectations of what it could deliver. Failing to move quickly, however, could lead to them learning this through observing the actions of their competitors. While Underwood acknowledged that companies such as Amazon and Netflix were often held up as the poster children for AI usage today, he stressed it was not just the high-growth startups that were benefitting from the technology.

"I've seen customers that are literally hundreds of years old put a business plan around artificial intelligence," Underwood said. "They'll start by putting together a business plan on how they can tackle the 'low hanging fruit' – operational problems and business problems – that they see within their organisation that can be tackled with artificial intelligence."

While AI was often described as having revolutionary properties, Underwood stressed that when diving into an AI project, it remained important to implement the same goals and measurement processes that would apply to any IT project. "There's always a level of autonomy that's needed for innovation, but it needs to have a level of oversight from the IT leaders," he said.

Another question that required resolution ahead of an AI implementation was that of which function should own the project. While AI was often viewed as employing a technology skillset, Underwood said

its outcomes most often applied directly to business processes. One attendee described how their organisation had taken the perspective that AI would be a focus for the business overall.

"It's not just a technology question. This is an enterprise discussion and we need to treat it that way to extract the value, but also do it right."

Predicting an AI-driven future

The group also discussed the impact that AI would have on jobs. Walsh said AI should be viewed as an opportunity to augment people's performance, rather than replacing them, as it would be many years before machines could relate to people the way other people do. Hence, their role would often remain in support of people – especially for customer engagements, where they help to ensure consistency of service.

Walsh stressed that it was also important that the growth of AI does not inadvertently create new problems, as might occur when systems were created on biased data. He said the means to avoiding this outcome was to ensure the teams creating algorithms were comprised of people from different backgrounds who would bring a broader range of perspectives to the process to create more ethically balanced outcomes. "We can give rise to the smartest algorithms, but they have another no common-sense understanding," Walsh said. "Humans look at things and say, 'oh wait a second – that just doesn't add up!'"

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Underwood stressed it was important to apply the appropriate levels of governance with AI products, including robust policies for how data could be accessed and used. This also included ensuring that data sets were complete and unbiased in their composition.

"Data management can be an absolutely critical to ensuring that you're not letting your customer data or your collected machine data fall into the wrong hands," Underwood said. "But also, you have to ask that question of what data do you have? How are you going to use that data? Where are you going to store it? And who's going to access it? And you need to then ask that final question, what data am I missing?

"Treat it as a business project and as something that needs to have a level of oversight and governance from the business to understand what the business outcome you're trying to achieve is. Then ensure that the data scientists and the IT department have the tools, the technologies, and the processes in place to be able to help that data science team or third-party systems integrator to be able to achieve that outcome."

Powering positive outcomes

Along with the benefits of AI, the group also discussed the concern that the rise of AI would inevitably lead to the loss of skills amongst people when those tasks were handed off to machines. The key question was whether the gains of using AI to boost human productivity would outweigh the inevitable losses.

Another key consideration was the perceived threat to people's privacy as more and more of our lives were recorded as data, especially when that data was used for a variety of tasks that we might otherwise have been unaware of.

"I suspect corporations are going to be divided into those that protect people's data and those that don't," Walsh said. "And those corporations that do will survive longer. The point about implementing AI is it's not just about technology, it's about the values of your corporation."

Walsh suggested that AI might ultimately be the tool that sets our minds at ease on this front, as it could lead to the creation of systems that worked to protect our interests by safeguarding or brokering the use of our personal data.

Ultimately, Walsh said that the combination of machines and people working together could benefit all parties. Just as the creation of robotic *Go* and chess masters had raised the level of skills in those games amongst humans by providing more challenging opponents, so too, AI could raise human capabilities in other fields.

"My hope is this will apply not just to *Go* or chess, but to other aspects of our lives and how we run the planet," Walsh said.

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