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6D.AI – A Private Audience with Toby Walsh

Artificial intelligence has captured the attention of technology leaders around the world thanks to its ability to solve complex challenges and deliver new capabilities. However, many organisations are yet to explore that potential, let alone create strategies to unlock AI's benefits.
As a global leader in the development of AI, **Professor Toby Walsh** has helped numerous organisations understand the realities of AI.

He joined with Amazon Web Services' (AWS) AI business development lead **Simon Johnston** to discuss these benefits at an executive roundtable hosted by 6 Degrees Media.

Top (left to right): Simon Johnston, AI Business Development lead, A/NZ, AWS; Professor Toby Walsh, Laureate Fellow & Scientia Professor of Artificial Intelligence, UNSW and Brad Howarth, Journalist/Moderator

Artificial intelligence (AI) has significant potential to enhance business processes and unlock new opportunities, but its rapid development and inherent complexity has meant many organisations are yet to investigate its possibilities.

According to the globally renowned AI expert and UNSW Scientia Professor Toby Walsh, AI has proven its efficacy in taking on mundane and repetitive tasks, freeing humans to take on more meaningful work.

Walsh said the ability for AI to do specific things well – and especially those things that people won't or can't do – is one of the great gifts that it brings to organisations that choose to incorporate it into their business strategies.

He also advised that while AI had taken great strides in recent years, it was still many decades at least from challenging the role of humans in more complex tasks – such as technology leadership.

"AIs are not adaptable and flexible or creative like people, who can think more strategically," Walsh said.

"So as a CIO, AI means hopefully you'll be spending more of your time doing strategic stuff and thinking about where the business is going, what the technologies are that you should be investing in, and what the skills are that you should be training your people in."

Walsh said there were many roles whose complexities would preclude AI from taking on a significant component of the workload.

"We need to play to our strengths," Walsh said. "If you're a CIO, you are first of all a people person. That emotional intelligence, that social intelligence, is something machines don't have, and it's not clear they will ever have it. We're uniquely advantaged, because we're humans, so we can reflect."

Where Walsh said AI shined was through using its scale and speed to perform tasks that were never possible before, such as utilising facial recognition software to scan online images to find evidence of human trafficking – a task that would be well beyond the capabilities of any group of humans.

However, he cautioned that the rapid evolution of AI's capabilities would place greater pressure on some roles that were previously the domain of humans, as was happening in graphic design, thanks to the rapid emergence of generative AI platforms.

"I've worked in the field for 40 years and things are happening at an ever-faster rate now," Walsh said.

"We can now do a lot of graphic design automatically with machines, and that wasn't something we could do even six months ago. On the plus side, that means graphic design is more accessible, and more people can access the sorts of things that previously quite an expensive graphic designer would do."

Walsh suggested it would be at least another 40 years before AI achieved the same cognitive capabilities as people, based on the assessment of 300 experts he polled for one of his books.

However, he said this was an estimate only, because with compute power doubling every two years, and the number of people working in the field also doubling at a similar rate, progress was likely to accelerate.

Real-World Benefits

The rapid evolution of AI is also translating into greater numbers of beneficial use cases and becoming a foundation for organisational transformation.

According to the AI Business Development Lead at Amazon Web Services (AWS), Simon Johnston, Amazon itself was a strong example of the benefits of AI adoption, with AI having been a critical enabler of the company's growth.

"Amazon is a machine learning business, and has been for 20-plus years, and you can see that under its umbrella of technology," Johnston said. "If we didn't have technologies, we wouldn't be able to scale machine learning in the cloud."

Johnston said this heritage meant AWS was well placed to bring the benefits of AI to customers around the world. He cited the example of Brisbane-based home delivery food company Domino's, where AWS was helping to apply machine learning to the task of preparing pizzas faster.

"They wanted to have pizza deliveries be picked up in three minutes and be delivered in under 10 minutes," Johnston said. "To do that, they have to predict what pizzas are required, and make the pizzas before they've actually been ordered. That's a really good example of taking information and making a business much better from a supply chain to customer experience perspective."

Johnston said what made the Domino's example truly exciting however was how cloud technologies enabled it to be replicated easily anywhere in the world.

Similarly, he said embedding AI applications and capabilities into the Amazon cloud was making them more accessible, meaning businesses today could benefit from AI-based services even if they themselves lacked AI skills.

"If you want computer vision capabilities, if you want the ability to transcribe, if you want to build and translate into multiple languages, these are all here," Johnston said. "Big businesses from BMW through to startups and even Tinder are using these AI services."

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From Vision to Practice

Despite AI’s apparent benefits, attendees highlighted numerous ways in which its adoption was challenged by the real-world scenarios they faced. Critical amongst these was the challenge of integrating AI into environments that included legacy technologies.

“How do you bring the legacy systems up to be able to work with all this new tech?” one attendee asked. “The new tech is the stuff that’s going to be the game changer, but you can’t connect to it.”

Another attendee raised the question of whether the ease at which AI technology was now being propagated would lead to it being adopted for unethical practices.

According to Johnston this placed security, risk and responsibility pressures on companies. For AWS security is job zero. Beyond security, data privacy and correct MLOps guardrails in place are critical.

Attendees also discussed the pressure they faced to introduce AI as an incentive when attracting new talent, as younger workers were much more interested in working on newer concepts over legacy technologies.

“Generation Alpha is very, very comfortable with this technology - they’re more connected and they’re more willing to take risks,” one attendee said.

“These are the employees coming into our organisation, and they’re also our customers, so the business needs to move faster to try and prepare for that.”

According to Johnston, these challenges in the adoption of AI often flowed from organisational culture. “Amazon had to learn from necessity how to codify innovation in its own way, so we have quite a strong culture of innovation,” he said.

He said AWS today worked closely with customers to share these cultural learnings, to help them integrate AI technology into their organisation’s strategy, people, and processes.

“There’s no shortage of AI proof-of-concepts sitting in the graveyard gathering dust, because people just said, ‘oh I want to do some AI’,” Johnston said.

“We want to avoid that and think about it from a business perspective. What’s the return on investment? What’s the mechanisms you can use within your organisation to help you on that journey to embrace the technology.”

Johnston said this practical approach was critical for helping clients develop and implement AI strategies, and for evolving from using AI to solve simple challenges with low rewards, to deploying it in more significant and difficult scenarios.

“Most customers will start with a tactical piece,” Johnston said. “How you scale that then is the next question, and how you prioritise. Being able to fail safely is important – fail fast and fail quick and take those learnings into the next thing you want to work on.”

Swimming in a Pool of Data

The examples of AI in action today are highly varied. Johnston cited the example of Swimming Australia, which was working with AWS to use machine learning to analyse the data generated from the performance of swimmers in the pool to help improve their performance.

“We helped them standardise data in the cloud and gave them access to it, democratised the technology, and made sure it was secure and safe,” Johnston said.

"And then we started developing advanced analytics and machine learning capabilities to give them insights in terms of how they can match teams up or take other competitor information and apply that."

For many industries, Johnston said the greatest benefits of AI came when the technology was applied to the most complex challenges, such as when optimising supply chains in mining.

"Some humans may understand their part of the supply chain very, very well, but they may not understand the whole thing," Johnston said.

"That's where you get the true efficiencies."

Often this capability was brought to life in the form of a digital twin, where AI was used to help model an organisation's their operations. This allowed experimentation to take place in a virtual environment using existing data sets.

"It's about coming up with ideas, insights, and actions that you haven't thought about before," Johnston said.

"If you were for example an oil and gas company, and you wanted to drill 1000s new wells, but you couldn't afford linear growth of 2000 new operators for each of the wells, could you develop an agent that would simulate based on the data and scale out?

"That's a holy grail for some businesses in terms of how they can manage their assets and scale."

Walsh said scenarios such as this represented a marriage between simulation and AI, and that this was being adopted by companies such as Tesla to test scenarios well in advance of what would be possible in the real world.

"You can put the car in simulations that would not be possible to put humans in," Walsh said. "You could say 'okay, we're going to put this car through a crash'. You can put it through strange situations that would only turn up once in 100 years, and you can try them all on the simulator."

Moving Forward

For those technology leaders who were keen to implement AI, Johnston said it was critical that they be able to sell AI's benefits to their leadership peers. For this to occur he said they needed to establish a common language to describe what AI and ML actually was.

"It's effectively a digital asset," Johnston said. "It's driving new levels of customer experience. It's allowing you to sweat your existing assets and reduced unplanned downtime if it's predictive maintenance. It's allowing you to implement new levels of health and safety that you didn't have before. It's allowing you to attract new talent because you're building the stuff that the generation alpha people want to work on.

"Changing the common language of what the business benefits are is the challenge and opportunity for CIOs and CTOs, because ultimately this is organisation-wide."

So while AI's long term contribution to the workplace was yet to play out, Walsh said it was more important than ever to invest in people's skills to derive the maximum benefits of AI.

"At the end of the day, there are 100,000 unfilled jobs in IT in Australia today, so invest in your people," Walsh said. "There's untold numbers of online training courses. People are keen to learn, especially when they're the younger generation.

"That will give them reward in their job, and that will give you people to build the technology with."

Unlock AI & ML with:

- Deep dive coursework, hands on tutorials, and more
- Demystiying data – read the report and get the latest insights

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For 14 years, Amazon Web Services (AWS) has been the world's most comprehensive and broadly adopted cloud platform. AWS offers over 175 fully featured services for compute, storage, databases, networking, analytics, robotics, machine learning and artificial intelligence (AI), Internet of Things (IoT), mobile, security, hybrid, virtual and augmented reality (VR and AR), media, and application development, deployment, and management from 76 Availability Zones (AZs) within 24 geographic regions, with announced plans for nine more Availability Zones and three more AWS Regions in Indonesia, Japan, and Spain. Millions of customers – including the fastest-growing startups, largest enterprises, and leading government agencies – trust AWS to power their infrastructure, become more agile, and lower costs. To learn more about AWS, visit awsinsight.com.au or aws.amazon.com.

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