govtech review

BALANCING ACT

WHY EMPLOYEE EXPERIENCE MATTERS

DATA MESH
A FEDERATED APPROACH

INVISIBLE ENGINES
HOW DATA CENTRES UNDERPIN CHANGE

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Insider

Welcome to the mid-year issue of *GovTech Review.* While it's hard to believe we are this deep into 2023 already, there has also been enough action in the tech world to keep us busy.

In this edition of the magazine, we're taking a deep dive into data. In a world increasingly reliant on multiple inputs to guide strategic direction and help business leaders in both private and public sectors make better decisions, there are plenty of challenges along the way.

Public sector data product owners must meet with the government aim of delivering better public services through world-class digital capability, while simultaneously ensuring security and privacy for citizens — a feat easier said than done. It is no longer enough to treat data management as an afterthought — something to be deployed and made to fit to an existing infrastructure. The time to foster a holistic approach to data architecture that ensures government-held data is both accessible *and* private is now.

Of course, effective data management also means keeping an eye on cost. Reducing the complexity of your data management solutions through the use of adaptive technologies like machine learning and AI can help lower overall technology ownership costs and accelerate digital transformation. But for all the talk of the beneficial aspects of AI — and the world's current obsession with tools like ChatGPT — we aren't hearing much about the environmental consequences.

It's estimated that generative AI requires five times the power of traditional data centre storage and processing. As we move to accommodate AI-based GPU servers, legacy data centres designed for less process-intensive computing may not be up for the task, leading to a range of sustainability challenges for government and public sector organisations.

While it's easy to see the benefits offered by AI when it comes to service delivery and ensuring a superior customer experience, the road to optimal CX is littered with attempts that have fallen short for a host of reasons. As we become more familiar with the capabilities and limitations of new technologies we will continue to identify opportunities for expansion and application. In the meantime, it may pay to look inward. Employee experience is increasingly recognised as the natural companion to CX, leading organisations of all sizes to focus on delivering a superior experience internally — a worthy goal in both the private and public sectors.

I hope you enjoy this issue of the magazine.

Dannielle Furness, Editor
editor@govtechreview.com.au

wfmedia
connecting industry

A.B.N. 22 152 305 336
www.wfmedia.com.au
Head Office:
Locked Bag 2226
North Ryde BC NSW 1670
Ph +61 2 9487 2700

EDITOR
Dannielle Furness

gtr@wfmedia.com.au

ACTING PUBLISHING DIRECTOR/MD
Janice Williams

ART DIRECTOR/PRODUCTION MANAGER
Julie Wright

ART/PRODUCTION
Linda Klobusiak, Marija Tutkovska

CIRCULATION
Dianna Alberry
circulation@wfmedia.com.au

COPY CONTROL
Mitchie Mullins
copy@wfmedia.com.au

ADVERTISING SALES
Liz Wilson Ph 0403 528 558
lwilson@wfmedia.com.au

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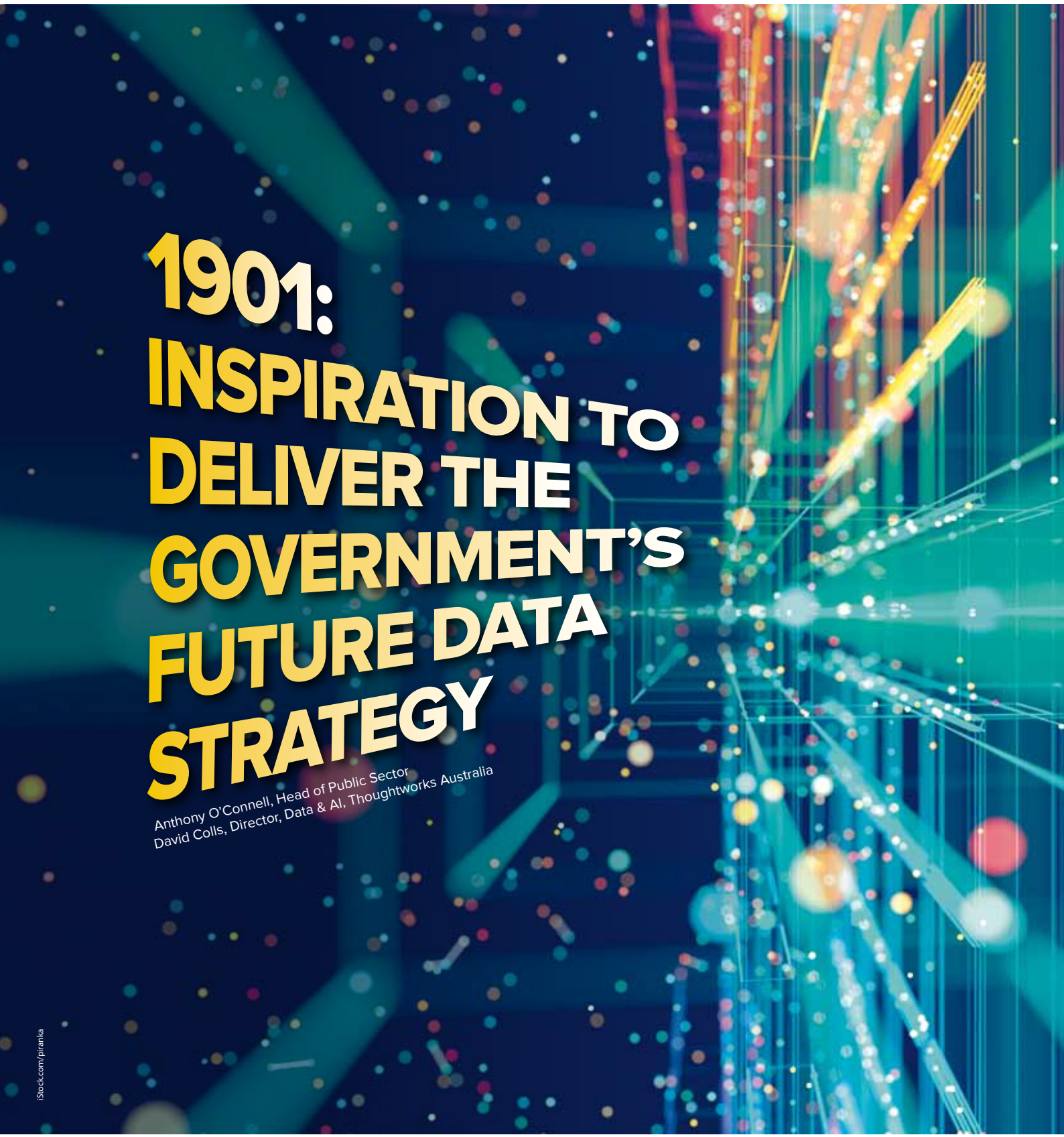

1901: INSPIRATION TO DELIVER THE GOVERNMENT'S FUTURE DATA STRATEGY

Anthony O'Connell, Head of Public Sector
David Colls, Director, Data & AI, Thoughtworks Australia

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As the Australian Government seeks to deliver its commitment to deliver connected public services through world-class data and digital capabilities, it would do well to look back in time to the birth of our current system of government for inspiration.

As every 12-year-old child will tell you, it was in 1901 that six British colonies — New South Wales, Victoria, Queensland, South Australia, Western Australia and Tasmania — united to form the Commonwealth of Australia, in the process known as Federation. Federation allowed states autonomy over their own unique interests, while facilitating coordination in the national interest, and allowed the country to make huge advances in vital strategic policies such as trade, the economy and defence.

In order to achieve the very 21st century goal of creating a national ecosystem of data that is secure, accessible and reliable, it is crucial to create a data architecture that simultaneously enables both systemic coordination and local autonomy. This principle applies equally to the foundational requirements of data security and privacy, enabling the government to achieve its aim to "deliver simple, secure and connected public services through world-class data and digital capabilities".

Without a holistic approach, successes in making data available can't necessarily be replicated, and disparate and retroactive data and privacy protection initiatives are just bandaids on the problem. To meet its ambitious target for our government-held data to be both accessible and private, one has to think differently about data.

This is a very different type of federation to the 1901 version, of course, but a similar principle applies — let's get into some details.

WHAT IS DATA MESH AND WHY IS FEDERATION RELEVANT?

A new approach, called data mesh, is a useful start to seeing data in a fresh new way. Data mesh combines a number of technology architecture and organisational principles to enable federated governance of data. Managing data as a product in distinct domains allows local autonomy and local responsibility. Providing a self-service technology platform reduces duplication of effort between domains and allows many federated governance policies to be automated. The data mesh model thus contrasts with historical models of highly centralised management and governance of data.

We see some evidence of the data mesh model being used already in government where departments make their data open to citizens, and public and private consumers as usable products. But if we look at other organisational boundaries, such as within departments, the data mesh model presents many more opportunities to better align the management of data to the interests of government and the constituents it serves.

By moving away from a central model, towards data products aligned to source or consumption scenarios, we facilitate not just better accessibility and reliability of data, but also enable privacy by design. This is because these data product owners can make better decisions about balancing a range of privacy controls against the utility of data in their specific context. By designing data architecture and technology platforms to align to this organisational model, we make the approach scalable.

To recap, as we'll see them below, the key concepts of data mesh are:

- Domain ownership of data
- Managing data as a product
- Removing friction with self-service platforms
- Federated data governance with substantial automation

HOW MIGHT DATA MESH IMPROVE ACCESSIBILITY AND RELIABILITY OF DATA?

Accessibility starts by understanding that consumer requirements and reliability depend on good-quality feedback cycles.

Thoughtworks partnered with Geoscape Australia, the national provider of authoritative location data to businesses and governments including Australia's emergency services. Geoscape Australia identified a range of new data products to bring to market, but were hampered by the highly manual nature and long feedback cycles of their existing data processing approach.

With data products at the core of Geoscape's business, applying principles of data mesh, we built a custom technology platform to support rapid and high-quality delivery of data products.

In just 10 months, the combined Thoughtworks and Geoscape team went from discovery and inception to launching the streaming data platform for real-time customer consumption, alongside a suite of quality assurance tools. The team focused equally on building the platform and lifting the capability of Geoscape to continue to extend the platform.

The new platform shortened the feedback cycle from consumers to producers of data through a streaming data architecture, while improving the governance capabilities, including full lineage and sanitising sensitive information. The combination of data product thinking, a self-service platform and automated governance dramatically improved the accessibility and reliability of data to government and business.

HOW MIGHT DATA MESH ENHANCE PRIVACY AND SECURITY?

By putting domain experts in charge of data collection, storage and use, we allow those who know the data the best to make informed privacy and security choices. We enable them to enact those choices via a self-serve technology platform, to appropriately turn the knobs and enforce privacy standards from the source and across the lifecycle.

"Data mesh combines a number of technology architecture and organisational principles to enable federated governance of data."

This approach is similar to the tradition of librarians. BJ Ard observed that "librarians have a rich history as privacy advocates who have mobilised lobbying, litigation and education campaigns to combat state surveillance of their patrons' reading habits."

By giving them oversight and enabling more collective power over data, we also empower our citizens and build trust. Without treatment as a first-class concern, data use may become disconnected from its provenance. The architecture of data products in data mesh, however, ensures this governance integrity of data.

For instance, in order to facilitate the sharing of trusted data assets across agencies, the Singapore Government Data Strategy (GDS) aims to build the right infrastructure for data sharing by building Trusted Centres (TC) to be data intermediaries for individual, business, geospatial and sensor data.

Thoughtworks published a white paper in conjunction with Amazon Web Services (AWS) describing how data mesh enables this vision, as a structured way of integrating people and processes with technology.

Considering the concept of federated computational governance, we demonstrate how each data product implements standard governance concerns for interoperability, including discoverability, access control, security and auditing. We demonstrate that automated auditing can surface inconsistencies in the handling of Personally Identifiable Information (PII) in an ecosystem.

Elaborating on domain ownership, we show how individual data product owners can implement additional controls beyond the minimum requirements, tailored to different consumption scenarios. This might include de-anonymising or even applying differential privacy to data before sharing.

TAKEAWAYS FOR GOVERNMENT

Without a trustable and resilient data sharing framework, it's impossible to bootstrap new initiatives and policies quickly and responsibly. Lack of transparency and controls during sharing causes cracks in data privacy and security. And delays in data access requests lead to loss of valuable government resources.

Data mesh culture embraces connecting citizens, creating empathy, and a structure of shared responsibilities. This federated approach brings us closer to goals of accessible, reliable data, built on the trust engendered by a sharing infrastructure that protects citizens' privacy and security.

If we do it well, the next few years may just rank as some of our country's historic years, right alongside 1901.

Anthony O'Connell

Dave Colls

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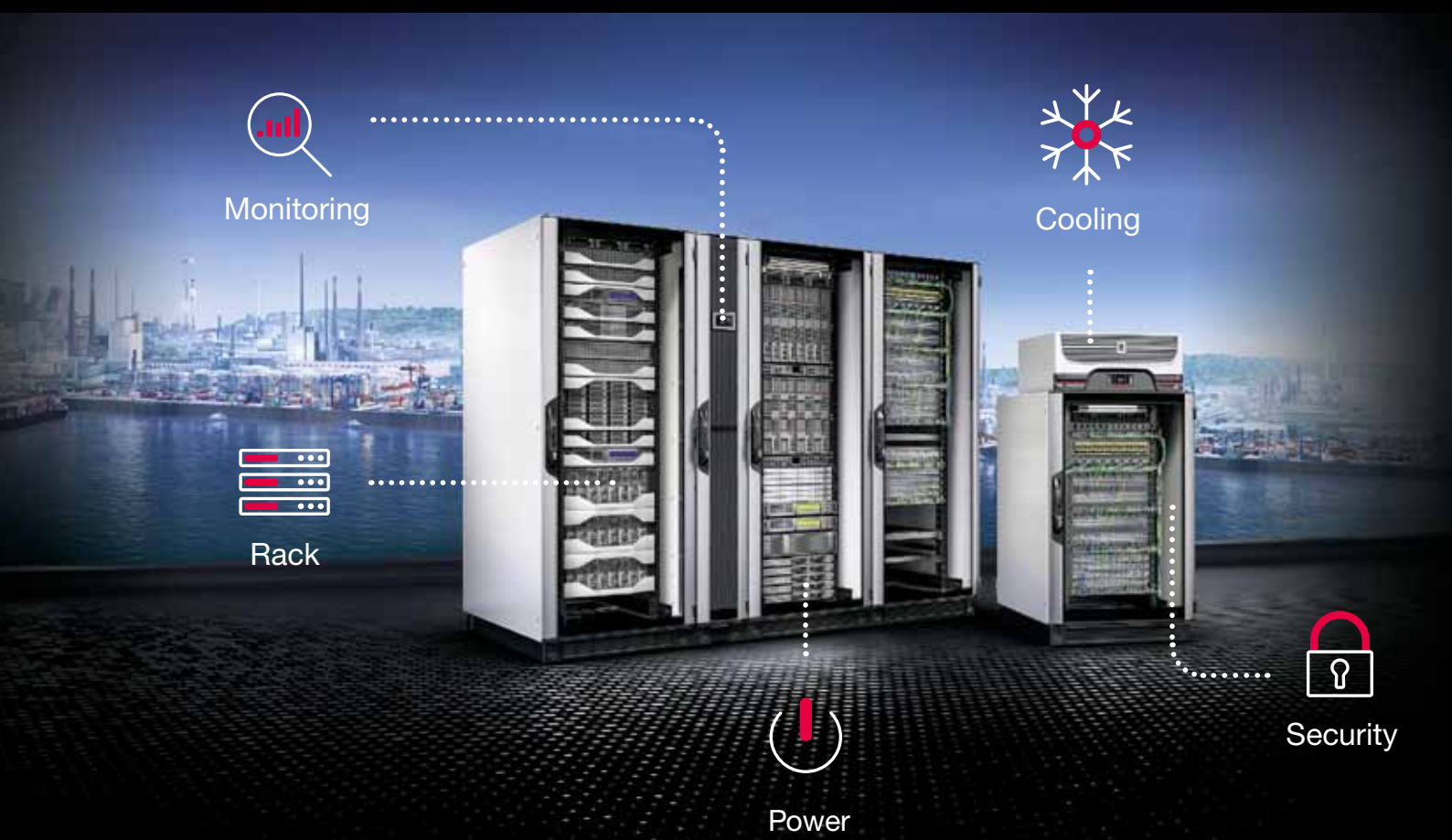

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ACT Govt launches program to boost cyber workforce

The ACT Government has launched a new program aimed at increasing the government's cyber workforce by at least 100 people by next year.

The CYNAPSE (Cyber National Assessment Program for Skills and Employment) program is being backed by the federal government and led by FifthDomain, a sovereign cyber workforce management platform provider.

The program will standardise cyber skills assessments to help people from outside of the cyber domain transition into careers in the field, and will prepare candidates for working in security operations centres.

The FifthDomain platform will be used to supplement traditional recruitment techniques such as interviews with standardised skills assessments.

The program will also seek to improve diversity in the field by opening up opportunities for underrepresented cohorts such as women, neurodiverse individuals, Indigenous Australians, transitioning veterans and people who live in remote areas.

ACT Chief Minister Andrew Barr said he was proud yet another forward-thinking and inclusive initiative was born out of Canberra.

"It's both encouraging, and no surprise, that innovative and inclusive solutions like CYNAPSE have been developed here in Canberra. Initiatives such as these will be essential to build the capable, skilled and diverse workforce the sector needs to continue its strong growth."

FifthDomain has been awarded $3 million in grant funding for the program from the federal Department of Industry and Science's Round 2 of the Cyber Security Skills Partnership Innovation Fund.

FifthDomain founder and CEO Matt Wilcox said he hopes the program will help students pursue a career in the field.

"There is a whole pool of people with untapped potential we could be hiring in cyber, and they currently experience barriers. For example, we know that some neurodiverse individuals have incredible abilities in this industry, but the thought of the interview process is daunting for them. CYNAPSE lessens that issue, providing the employer with their data sets of ability first," he said.

ACT Chief Minister Andrew Barr and CYNAPSE Partners. Front L-R: Louise Momber, Sarah Watson, Deanna Gibbs, Sarah Tisdell, Elsa Gray-Murphy, Heidi Nuttall, Angela Powell, Jessica Hanley, Amelia Edge. Back L-R: Ben Whitham, Andrew Noble, Jose Santos, Alex Elliott, Matt Wilcox, Chief Minister Andrew Barr MLA, Phil Dawson, Ben Waters, Gabriel Exposito, Josh Wood.

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Toowoomba council taps Optus for smart water meters

Queensland's Toowoomba Regional Council has awarded an Optus-led consortium a contract to deploy 68,000 smart water meters to help the council manage its water network more efficiently and better detect water wastage.

The deployment will leverage Optus's NB-IoT network, as well as blockchain-powered IoT devices from IOTA, a user experience platform from GreenBe and installation services from ETS Deployment Services.

Once deployed, residents will be able to use the new system to set water usage targets and monitor their consumption in real time, according to Toowoomba Regional Council councillor Rebecca Vonhoff.

"The benefit for residents, is that if there's a leak somewhere in their system, they're going to know about that much sooner than they would have previously," she said.

"It's also really good for residents because just day-to-day, they're going to have a lot more understanding about how their water usage habits actually play out with how much water they are using."

The project is the first advanced metering infrastructure contract to be awarded by a telco-led consortium.

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The slim, light-weight device fits wide-ranging installation scenarios, including eGates, desks, kiosks, and free-standing pillars.

Cognitec is the only company worldwide that has worked exclusively on face recognition technology since its inception in 2002, offering products for facial image database search, recorded video investigation, real-time video screening and people analytics, border control, ISO-compliant photo capturing, and facial image quality assessment.

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AI-powered kerbside recycling robot commissioned

Tetra Pak has partnered with APR Kerbside to implement an AI robot that can identify and sort used Tetra Pak beverage cartons.

The robot has been commissioned at the APR Kerbside Material Recovery Facility (MRF) in Truganina, Victoria. The glass-out facility has the capacity to process up to 20,000 tonnes of materials annually and mainly sorts items from the kerbside stream. Such items collected from residents' yellow-lidded recycling bins include paper and cardboard, steel, aluminium, and plastic bottles and containers. The robot has been training, learning to recognise all the different types of beverage cartons like milk, soy, oat, almond, stock and juice, ahead of its final deployment in the coming weeks.

The councils that are working with APR Kerbside are excited about this opportunity to divert more valuable resources from landfill. They are eager to expand the current kerbside service offering to their respective residents.

"Tetra Pak is incredibly proud to be pioneering this exciting recycling innovation with APR to further advance the circular economy in Australia," said Vikas Ahuja, Sustainability Director for ANZ.

"For us at Tetra Pak, to be the first market outside of the US to introduce this AI-powered recycling robot is testament to the steadfast progress we have been making in our sustainability journey in Australia."

Darren Thorpe, MD of APR Kerbside, said the innovation is one of many planned steps.

"We take pride in being at the forefront of recycling innovation in the ways we tackle resource management at our material recovery facility (MRF)," he said.

"Future aspirations of expanding and working towards additional MRFs in Victoria will allow us to increase our processing capacity. We are looking to install more AI robots as part of our upgrade and expansion plans. It is our commitment to continue supporting carton recycling infrastructure and enable the circular economy so that Australians know their recycling efforts aren't going to waste," he said.

MATTR lands NSW Digital ID project

The NSW Digital ID and Verifiable Credentials program will be supported by MATTR's digital trust platform solutions, MATTR VII and MATTR Pi.

The solutions will enable credentials to be issued via NSW Government apps and independently authenticated by third parties, allowing NSW citizens to verify identity and eligibility for services while limiting the amount of personal information they need to share.

Verifiable credentials can be used for a variety of different use cases, from qualifications and course completion certificates to personal identity credentials, entitlement cards, licences, permits, insurance documents, company credentials and much more. Held in applications on the individual's device, these credentials allow them to conveniently prove things about themselves, without having to locate documents, use notary services or turn up in person to get something done.

"Our verifiable credentials solution helps organisations who are looking for ways to create confidence in digital interactions," said MATTR CEO Dr Claire Barber.

"We apply data minimisation principles that enable individuals to share the information they need to, without oversharing, and which avoid the creation of unnecessary data 'honeypots' that can then be targeted by bad actors.

"We are excited to bring this technology to Australia and delighted to be partnering with the NSW Government, which is pioneering how this technology can be used for the benefit of individual citizens and organisations operating in an increasingly digital world," Barber said.

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Why government needs to embrace smart technologies

Rod Lester, Managing Director ANZ, NICE

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There are few organisations that need to be more people-first than government agencies and departments. At their core, government agencies are set up to help and serve citizens. Consequently, the customer experience (CX) is one of the most essential elements of a government agency, especially when it comes to its contact centre operations.

As with most industries, digital transformation has revolutionised the agent and customer experience in government contact centres. Citizens are consumers, and their experiences with other organisations and industries has led to increased demand for more frictionless experiences, omnichannel solutions, and self-service options to be integrated into their interactions with government agencies.

While some government organisations have already taken significant steps towards transformation, others continue to lag, leading to frustrated citizens enduring negative experiences each time they engage with a government department contact centre. While it's essential for the laggards to accelerate their transformation efforts to improve CX, it's equally important for leading departments to continue to engage with new and emerging technologies to ensure their services deliver what customers need.

How improving CX through technology leads to frictionless citizen experiences

Investing in new technologies and modernising operations is only one piece of the puzzle, albeit an essential one. It's crucial that government organisations take the time to understand what areas of their operations can be improved by integrating new tools and technology, including automation, artificial intelligence (AI), and machine learning (ML), among others. However, for the best return on investment (ROI), and to truly make a difference to the customer (and agent) experience, it's equally important to understand what processes must also be improved, and how to more intelligently use new technology to deliver frictionless experiences.

There are two key ways government agencies can transform their operations for the future:

1. Voice of the customer

The focus of government departments should ultimately be on the people they serve, so an effective Voice of the Customer (VoC) program is critical to help identify gaps in services that need to be remediated. Investing in a VoC program will help agencies uncover customer pain points, while simultaneously identifying limitations with the service or its contact centre agents. This should be department-wide and conducted across every channel through which people are contacting the government contact centre.

Asking for and acting on feedback demonstrates that the department is actively engaged in improving CX and delivering excellent service. It also helps the department to proactively improve its operations and streamline processes where possible, identifying opportunities to leverage new tools.

2. Agent experience

Beyond the citizen experience, VoC programs can also help to uncover areas of opportunity to improve the agent experience. Understanding where customers are having negative or positive interactions with agents can help departments understand where improvements or additional training needs to take place across its team. Investing in digital contact centre platforms that facilitate streamlined agent training and sentiment analysis, among other features, can help government departments significantly improve the customer and agent experience in tandem.

At the same time, cloud-based contact centre platforms that facilitate flexible hybrid work environments also empower agents to engage more with their tasks. Additionally, solutions that leverage smart technology, such as AI, ML, and automation, can help agents reduce the amount of time-consuming, manual processes involved in their work, while redirecting their skills to more high-value tasks.

The contact centre environment will continue to evolve, and government departments can't afford to be left behind, especially when lagging results in negative citizen experiences and poor customer service. Government departments must invest in new technologies to modernise their contact centre environments, delivering frictionless experiences for customers and agents alike.

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IDEMIA wins Singapore's competitive ABCS contract

Identity technology vendor IDEMIA has been awarded the highly competitive and much sought after Automated Border Control System (ABCS) contract for all travellers entering and exiting Singapore's air, land and sea checkpoints by the Immigration & Checkpoints Authority (ICA) and HTX (Home Team Science and Technology Agency).

IDEMIA was first awarded the contract to roll out automated gates for immigration clearance at Changi Airport in 2017. The organisation subsequently worked with ICA and HTX to equip other Changi Airport terminals as well as Woodlands and Tuas land checkpoints with automated gates, delivering a seamless and secure travel experience for all travellers.

Following this award, IDEMIA will continue to further expand its investment into Singapore nurturing local talent and expertise by putting its next-generation systems into all air, land and sea border checkpoints. IDEMIA will be deploying its Augmented Borders Suite along with new front-end technologies including the award-winning ID-Look devices and a range of digital processing to deliver a smart, automated and robust border crossing system.

"We're thrilled to be awarded this high-profile contract that showcases our ability to surpass our customers' expectations, our ongoing and significant investment in innovation and our capacity to roll out our technologies at scale. We look forward to paving the way for a future digital travel era," said Matt Cole, IDEMIA Executive Vice President, Public Security and Identity.

UNSW launches Defence 10x accelerator program

UNSW Sydney has launched a new accelerator program aimed at strengthening Australia's sovereign defence capabilities.

The program, Defence 10x, will provide six local startups with seed investment, R&D capabilities and access to expert networks to help them accelerate the commercial development of defence innovations.

The program is currently the only defence-focused accelerator program in Australia, and is open to all Australian startups innovating in the sector. Each selected startup will receive $350,000 in seed funding.

The program will be run in two phases, a pre-accelerator and an accelerator program. Selected teams will commence a boot camp in August.

UNSW Director of Entrepreneurship David Burt said the program is seeking founders who have technology that will strengthen Australia's sovereign capabilities in areas such as weapons, equipment, quantum, artificial intelligence, or systems that protect critical infrastructure including energy and water assets.

"Startups and a vibrant innovation ecosystem have a key role to play in boosting Australia's national security and resilience. While large foreign defence firms are important for Australia to access scalable manufacturing and systems integration, locally based innovation and industrial capability are critical to developing solutions that are specific to Australia's needs," he said.

"It is necessary to support the emergence of next-generation defence contractors like High Earth Orbit Robotics and Silentium Defence who can tackle this gap."

Burt said Australian defence startups often face obstacles commercialising their ideas and innovations due to difficult market dynamics. "Defence-specific expertise, funding and networks are needed to accelerate our ability to develop and translate great ideas into deployable products, to the benefit of our national security," he said.

"That's why we've developed Defence 10x. UNSW is uniquely positioned to support founders with extensive expertise and specialist equipment."

The program forms part of the federal government-led Defence Trailblazer initiative, which aims to increase collaboration between Defence, academia and industry.

Under the initiative, UNSW and the University of Adelaide will collaborate on a range of research commercialisation initiatives, working alongside industry in both Defence and civilian market sectors to translate university research projects to innovation and manufacturing.

The government is contributing $50 million in funding to the initiative, which has been matched by $50 million from the University of Adelaide and UNSW and $10 million from CSIRO. Over 50 industry partners have also collectively committed more than $140 million in capital and in-kind contributions to the initiative.

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AUSTRALIAN RED CROSS BACKS TECH TO SOLVE CHALLENGES

The Humanitech Lab innovation program is developing four cutting-edge projects to solve humanitarian issues, thanks to the support of Australian Red Cross and founding partner the Telstra Foundation. Among the new developments are chatbots designed to tackle racism and 'digital humans' which will increase access to sign language during emergencies.

The initiative is providing four organisations with up to $100,000 in grant funding, capacity building and support to pilot a project with communities across Australia.

Humanitech Innovation Program Manager Adelide Mutinda said these solutions represent some of the most cutting-edge applications of technology to address challenging humanitarian issues.

"We're thrilled to be able to fast-track the work of these startups through Humanitech," Mutinda said.

"What's especially significant is that these projects are piloted alongside Australian communities — allowing us to deepen our understanding of what it takes to develop inclusive and ethical technology, and to share this knowledge with others."

First Nations-led startup HoldAccess is using the funding to develop its digital platform, WUNA, to empower First Nations people and digitally excluded people to hold, access and share their digital identity. In partnership with the Red Cross Port Lincoln Youth Development Hub, it will pilot with jobseekers in South Australia.

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With one in six Australians affected by hearing loss, much-needed inclusivity and disability-focused startup Kara Technologies has received funding to increase access to sign language in emergencies using 'digital human' avatars.

Kara Tech will pilot alongside Deaf communities, Red Cross's Emergency Services team, and emergency management agencies in NSW to provide fast and on-demand Auslan during emergencies.

Maya Cares has created a chatbot to support women of colour who have experienced racism, including those who identify as Black, Aboriginal or Torres Strait Islander. Through Humanitech, the Maya Cares pilot project will enable users to access culturally appropriate mental health and wellbeing resources and services.

Also among the startups is AirSeed, a company with a target to plant 100 million trees a year using drone-planting technology to regenerate land across Australia. AirSeed is piloting with flood-affected communities in Lismore, NSW, with support from Australian Red Cross's Emergency Services team.

Telstra Foundation CEO Jackie Coates said the program offers a genuine opportunity for ambitious startups to develop meaningful relationships with the community.

"These bold initiatives are made possible through the power of collaboration — Humanitech offers others a model to develop and use technology by working alongside the people who are impacted by it, creating impact for people and the planet," Coates said.

The teams will spend six months moving through the program's pilot stage, which features learning workshops led by subject matter experts, access to Red Cross expertise and collaboration, industry contacts, mentorship and a network of peers.

BALANCING ACT

WHY EMPLOYEE EXPERIENCE MATTERS IN THE PUBLIC SECTOR

George Harb, Vice President, ANZ, OpenText

Customer experience (CX) has always been at the core of all business operations. But in recent years, employee experience (EX) has gained momentum with 83% of organisations shifting their focus on building a people-centric culture. This is widely a result of the global pandemic, which has forced businesses and people to rethink the way the working world operates. Employees began prioritising their wellbeing and employers started listening to their employees to create a working environment that will allow the employees and business to thrive. However, in doing so, some organisations have developed a skewed perspective in prioritising EX, viewing EX and CX as separate entities.

Organisations in the public sector play a pivotal role in Australians' lives as they offer essential services. However, the public sector is faced with numerous requests daily and in wanting to accommodate to citizens, EX has been slow moving. For the public sector to achieve sustainable growth over a long period, it needs to begin prioritising both employee and customer experience simultaneously. Especially since citizens have high expectations today. With inflation and the cost of living increasing, more citizens are leaning in on support services. It is necessary the public sector considers EX and CX as two sides of the same coin, and only then will it be able to alleviate both.

CONSISTENCY ACROSS CUSTOMER EXPERIENCE AND EMPLOYEE EXPERIENCE

As CX directly affects a business, naturally many organisations focus solely on CX and exhaust their resources on this one particular area. However, in doing so some organisations like the public sector have branded EX as "nice to have". In today's business climate, EX and CX go hand in hand because CX is a direct reflection of EX which are the interactions and the context of those interactions any employee faces at work. Only when the public sector views both customer and employee experience under the same lens will it be able to avoid the kind of technological silos that are created by one-sided attention.

For example, if employees are still utilising outdated technology or platforms, it tends to overcomplicate their simple tasks with additional steps and as a result, take a longer time to complete that task. This then impacts CX directly because citizens who have submitted requests or enquiries are having to wait over a longer period to have their queries resolved.

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On top of this, with the current economic climate, citizen requests are more likely to increase and with outdated technology or platforms, employees will be unable to keep track of the overwhelming number of requests coming through. Ultimately, these requests then end up creating a backlog. When the public sector identifies EX and CX pain points, they will be able to draw out an employee and customer journey map that highlights which areas directly connect an employee and customer and which areas could better connect them. This provides the senior management with a better overview of the entire journey and allows them to make the necessary changes.

DRIVING VALUE SIMULTANEOUSLY

To ensure the public sector is driving value in EX and CX, it first needs to understand what constitutes EX and CX, and the importance of prioritising both. Only when this realisation is made, senior management can develop strategies to prioritise both, without having to impede the other.

This presents an opportunity for the public sector to identify creative ways to directly connect employees and customers. This is an important task given the nature of the organisation; the public sector must ensure it connects employees and customers in a manner that EX and CX is able to take place simultaneously. To do this, the public sector must develop a total experience strategy that includes EX and CX. Hence, technology should be a tool leveraged to its fullest capacity as it is key in resolving this issue. For example, by investing in customer and employee engagement platforms it allows the public sector to hear directly from customers and employees on their pain points, what can be improved and most importantly, what they need. With this data, senior management can then plan accordingly with the resources available to provide solutions.

To further drive value, the public sector will need to address problems faced by employees and customers in a timely manner. By investing in an automated platform that allows customers to record their requests, employees can focus on addressing their requests quicker with less pressure and citizens do not have to wait a long time to have their queries resolved. Hence why it is pivotal for employers to listen to their employees to gauge this. Especially with its demanding nature, by engaging in regular feedback, the public sector can identify problems immediately as they begin and provide solutions before things worsen. This is pivotal because each employee may face a different issue at work and employers should not assume an all-for-one solution and put a bandaid over something that varies from person to person. In the similar sense, not all customers experience the same pain points.

COMMUNICATION IS KEY

Communication is vital to every organisation, not just the public sector. But in this case, effective communication will drive value for all parties involved. When senior management tactfully communicate with their employees, they provide a space for employees to feel comfortable in highlighting their issues. Similarly with surveys, senior management can provide a space for customers to share their experiences and identify how the public sector can continue to provide effective assistance to them. When communication is effective, it can educate, inform and engage both employees and customers to achieve the business growth it desires on multiple fronts.

This is an opportunity for the public sector to further strengthen its relationship with its employees and customers. It can also assist employers in better visualising the customer and employee journey maps to identify the intersections and how to allocate resources accordingly.

As the working world continues to navigate uncertainties, it is important that organisations respond accordingly to their employees' and customers' needs. Only when EX and CX are enhanced at the same time, it will drive value for the public sector. It is a simultaneous process, and the public sector will need to invest in this area accordingly. With an effective communication and total experience strategy, the public sector will be able to identify the areas it needs to improve on and allocate resources where immediate attention is required. With these efforts, the public sector can propel forward and effectively cater to both employees and customers.

What are smart city networks: IoT networks built for scalability

Nathan McGregor, senior vice president Asia Pacific, Cradlepoint

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Industrialisation, employment opportunities, social benefits, and a rise in global population have made urbanisation virtually impossible to suppress. The United Nations predicts that by 2050, over 70% of the world's population will be urban dwellers.[1] This dramatic shift in where people live, work, and play creates stress for city infrastructure — a primary reason why smart city IoT has become a major initiative for many local governments.

Predicted to generate $20 trillion in economic benefits by 2026[2], smart city technologies spearheaded by both public and private organisations create a better living experience for residents. Not only are smart cities making urban areas safer and more navigable, but they're also improving emergency response times, enhancing energy efficiency programs, reducing pollution, cutting back on commuter times, and more.

What is smart city technology?

Smart city technology is a form of digital transformation involving the use of IoT devices such as sensors, meters, robots, cameras, and more to collect and analyse data to make city processes more efficient. Technologies for smart cities can be applied to agriculture, energy, construction, homes, public health and safety, city services, and utilities.

By connecting these devices to cellular networks, cities can take advantage of wireless reach, reliability, and flexibility while avoiding the need to rely on existing wired infrastructure which can be costly to expand and maintain.

Examples of cellular IoT connectivity for smart cities include the use of sensors and cameras to improve traffic flow, which can reduce congestion and enhance safety. Similar technologies can also help cities better monitor and manage their waste and resources — such as energy and water — which can lead to cost savings and reduced environmental impact.

Studies show that Australian businesses are in support of using IoT technology to reduce environmental impact. In Cradlepoint's State of Connectivity Report 2023[3], Censuswide research found that nearly 85% of Australian businesses believe that the current energy crisis has increased the need for smart buildings. These technologies ultimately help cities attract and retain businesses, tourists, and other visitors by making the city more attractive and liveable.

The role and challenges of IoT in smart cities

The success of a smart city network depends on the seamless execution of four things: data collection, data transportation, data storage, and analysis. Connected IoT sensors are the main driver for data collection

and transmission to the cloud for storage and analysis. While this can be achieved over wired connections, cellular can make connections where wires can't. This means cities are increasingly turning to cellular IoT connectivity over 4G LTE and 5G networks to simplify deployment, enhance cybersecurity, improve network reliability and add redundancy, and finally, enable the management and remote updating of deployed equipment.

With sensing nodes and monitoring devices in nearly every corner of a city's domain, smart city IoT is prolific. IoT deployment with such a large scope has its undisputed upsides, but deployments of that size come with challenges that must be considered.

Security and privacy

Sensors throughout smart cities continuously collect data about citizens' activity — information that may be of particular interest to bad actors. When IoT routers are built to take advantage of advanced security services including zero trust architecture and other 5G network security enhancements, smart city networks significantly reduce the risk of data being compromised.

Management and analysis at scale

With every new parking garage, subdivision, and grocery store comes a need for dozens or even hundreds of additional IoT devices to maintain a city's established level of data intelligence. Although the reach of connectivity may increase, the size of IT teams will likely stay the same, meaning smart city IoT and the data collected from it must be manageable at scale.

Physical IoT performance

Due to their location on streetlights, under garbage trucks, across parking lots, in busy intersections and more, smart city IoT sensors are exposed to extreme heat, cold, dust, moisture, and vibrations. These devices and IoT routers must be able to withstand the elements while maintaining power and remaining simple to set up and service.

Network performance

The success of smart city IoT depends on the capability of sensors and other devices to send and receive information to each other and the cloud. The type of smart city network — such as wired, 4G, 5G, or private cellular — plays a large role in the security, reliability, and scalability of smart city architecture.

Exploring the options for smart city IoT connectivity

Wired and wireless connectivity solutions come with their own sets of advantages and challenges, making them each uniquely qualified for various smart city IoT applications.

Wired connectivity

As urban environments continue to stretch into new territory, wired connectivity can only go so far. New developments can be far away from existing fibre, and the cost and time associated with establishing new lines is often prohibitive. Wired lines are also at risk of extended downtime due to fibre cuts that can occur when a traffic accident damages a fibre junction box, or when digging at a new construction site is miscalculated.

If a city already has dedicated, trenched fibre, it is fairly inexpensive to operate and serves as a reliable and fast method of digital communication for most smart city IoT applications including advanced traffic control cabinets (ATCC) and smart utility meters. However, as cities seek solutions that are scalable, secure, and futureproof, wired connectivity may only be an ideal solution if pre-existing contracts are in place or if IoT assets are already close to a fibre network.

5G and LTE wireless connectivity

Cellular connectivity from a public 5G or LTE network provides the ability to have an internet connection without having to dig up streets, sidewalks, and storefronts, creating a solution that is less disruptive and more cost effective than investing in new wired lines. Cellular broadband supplies three distinct benefits compared to wired connectivity:

- Enables ad-hoc placement for smart city IoT devices including security cameras, sensors, kiosks, electric vehicle charging stations, road signs, etc.
- Serves as a failover solution for wired connections in the event of a fibre cut.
- Provides constant connectivity for smart city applications in public service vehicles and on public transportation fleets.

Intelligent transportation systems are ideal applications for cellular IoT connectivity. This includes technologies such as traffic signal controllers, traffic flow meters, video cameras, and in-vehicle sensors that improve safety by adapting to real-time traffic conditions and help traffic to move more efficiently throughout areas, reducing pollution from emissions by nearly 20%[4] and cutting down travel time by up to 25%.[5]

While the environmental benefits are clear, connectivity continues to be a challenge for many Australian public sector organisations. In the Cradlepoint State of Connectivity Report 2023[6], 75% of public transport and nearly 70% of Government respondents in Australia said that poor connectivity held back sustainability projects for their organisations in the last 12 months.

Whether connected to public or private networks, cellular IoT routers bring an added benefit to the table: remote management. Cloud-managed networks save IT teams time and money with the ability to deploy, troubleshoot, and analyse network connectivity from anywhere.

1. UN report: World's biggest cities merging into 'mega-regions', The Guardian, by John Vidal, 2010
2. The future of Smart Cities, Barclays, 2020
3. https://resources.cradlepoint.com/l/connectivity-report
4. How Smart Traffic Signals Can Help Meet Emissions Targets, Applied Information Blog, 2019
5. Smart Cities, Smart Investment — What You Need to Know, Hylan
6. https://resources.cradlepoint.com/l/connectivity-report

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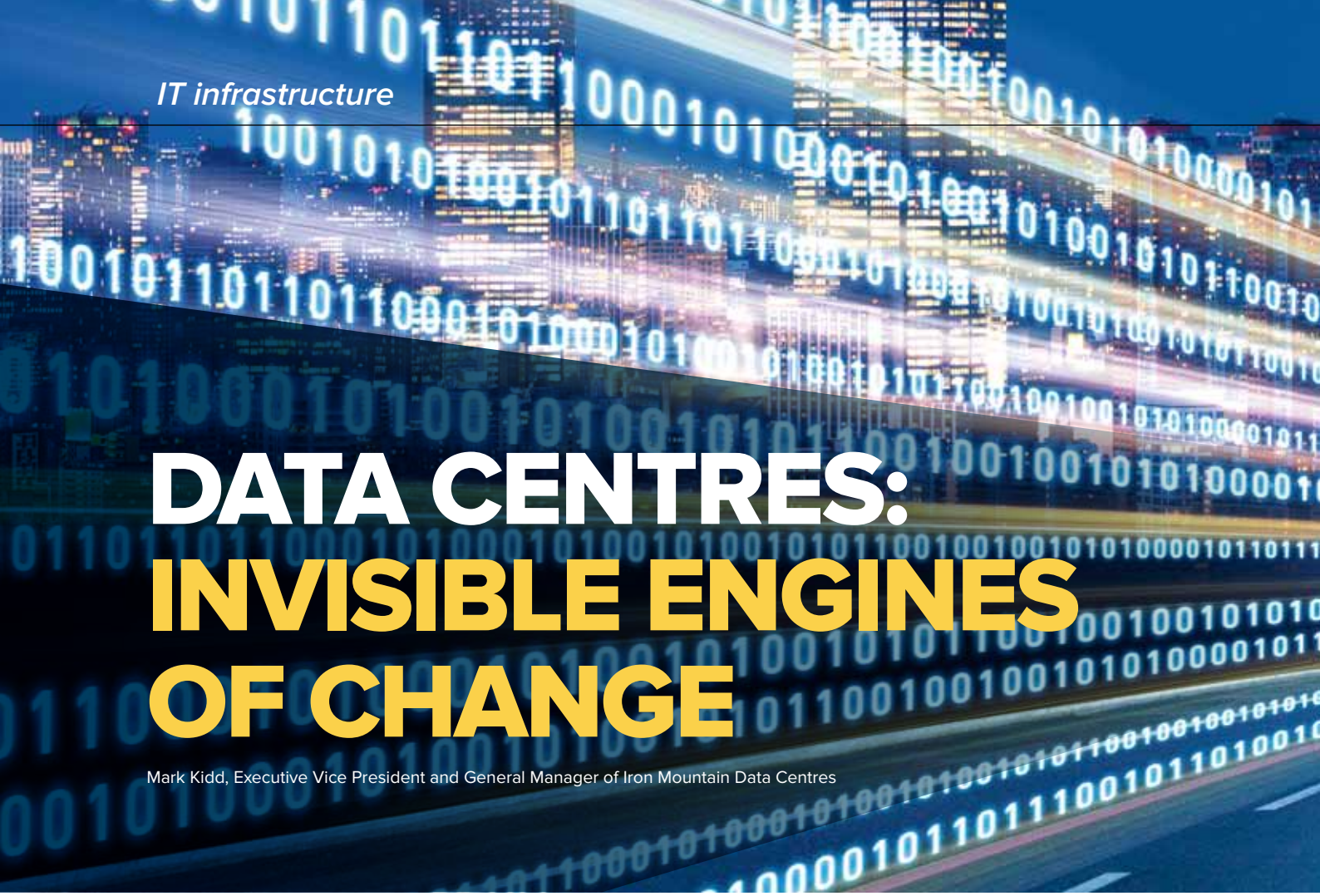

DATA CENTRES: INVISIBLE ENGINES OF CHANGE

Mark Kidd, Executive Vice President and General Manager of Iron Mountain Data Centres

MOST PEOPLE DON'T GIVE THEM A SECOND THOUGHT, BUT DATA CENTRES HAVE BECOME PART OF THE CRITICAL INFRASTRUCTURE OF MODERN SOCIETY, AND THEY ARE ALSO BECOMING CRITICAL ENABLERS OF DECARBONISATION.

Look at the devices around you. When did you last have a video call, do some online shopping, share a file or do some banking on your mobile? Do you store your photos in the cloud, use satnav or play online video games? These are just a few examples of how our way of life is now based on what goes on in data centres.

Dig a little deeper and you'll find that interconnected data centre infrastructure enables every part of modern life. It allowed people to work from home during the pandemic, paving the way to hybrid working. It makes telemedicine and the emergency services work, and speeds up all types of research and development.

For businesses, the huge volume of data stored and processed in data centres powers logistics, HR, finance and sales, with public cloud infrastructure and applications that are revolutionising every sector from entertainment and gaming to government and banking.

PHYSICAL TO DIGITAL

This transformation is happening at a breathtaking pace. A lot of what was once physical is now digital, and lives in data centres. An IDC report predicts that by 2026, organisations that successfully adopt a data-driven approach will generate more than 25% of their revenues from digital products, services or experiences. Locally, the adoption of cloud services by Australian businesses has resulted in a cumulative productivity benefit to the economy of over $9 billion within the last five years.

Largely, we take this new digital way of life for granted; it is impossible to calculate what the total social and environmental benefits of the digital society have been so far. However, they include improved collaboration,


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"Dig a little deeper and you'll find that interconnected data centre infrastructure enables every part of modern life."

greater competition, lower costs, more and faster product innovation, scientific breakthroughs, reduced travel and use of materials, and revolutionary new ways of using data like the Internet of Things and Artificial Intelligence.

IN-HOUSE TO SHARED

Over the last decade, legacy in-house data centres have migrated much of their IT workload to cloud facilities, massively improving operational efficiency.

To a great extent this increase in efficiency has offset the potential negative impact of the exponential growth in data. According to an IDC white paper commissioned by Microsoft, public cloud spending in Australia is set to grow by 83% to AU$22.4bn in 2026, as organisations seek to increase their capabilities and optimise costs.

As data levels continue to grow, so will data centres. Something altogether new needs to be done to ensure that the positive impact of data centres does not turn negative.

GREENING THE GRID

Fortunately that is what much of the data centre industry has been doing, led to a great extent by the largest public cloud providers and innovators in the sector. As well as being critical enablers of our digital society, data centres are now becoming critical enablers of decarbonisation and it is critical the sector continues to lead the way.

This begins with renewable energy. The world's top four purchasers of clean energy are cloud service providers. Renewables now account for over 30% of power generation globally.

Within Australia, data centres account for around 2% of total GHG emissions, leaving no room for complacency. While there are no mandatory energy efficiency programs that directly target the data centre sector, there are a handful of voluntary assessments including National Australian Built Environment Rating System (NABERS) that help reduce outputs by over US$1 million per year.

VIRTUAL TO REAL

Data centres are nothing if not ambitious, and they are now aiming higher. Amazon is the world's largest purchaser of renewables. Microsoft has committed to not only be carbon negative by 2030 but to erase its total carbon footprint going back to 1975 by 2050. Google has committed to go beyond Virtual Power Purchase Agreements (VPPAs) and run on 24x7 carbon-free power by 2030. Iron Mountain Data Centres, already running on 100% renewable power, was the first colocation provider to make the same commitment.

The key to using real rather than virtual renewable power — genuine decarbonisation — is tracking, analysis and rerouting. There are advantages to being a relatively new sector. Because the data centre industry is relatively new, it can do things differently. And, like the rest of society, it can take advantage of these new data-driven technologies to power its own transformation.

CHANGES AND CHALLENGES

Not all data centres are green, even if many are well on their way. Data centres are not genuinely sustainable yet, and data processing and power consumption will continue to grow as society relies on digital infrastructure more and more.

But data centres are definitely changing the way we live bit by bit. And many are also doing their best to tackle the challenges of the climate crisis. So next time you're streaming Netflix or scrolling through Instagram, spare a thought for this new and almost invisible industry which is growing fast and making such an important contribution to modern life.

TACKLING THE ENVIRONMENTAL CHALLENGES OF AI-DRIVEN DATA CENTRES

Walt Coulston, CEO and founder, GreenSquareDC

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Artificial intelligence (AI) has become a game changer for the public sector, automating tasks and improving decision-making processes. However, as AI adoption accelerates, concerns surrounding the environmental impact of AI-driven data centres have quite rightfully emerged. With significant power usage, carbon emissions, water consumption and embodied carbon in construction, it is crucial for governments and public sector organisations to address the sustainability challenges posed by AI at the core data centre level.

THE OVERLOOKED ENVIRONMENTAL IMPACT OF AI

While AI offers efficiency and accuracy across various applications, its environmental costs are often underestimated. Generative AI, which requires approximately five times the power of traditional data centre

storage and processing, significantly exacerbates existing environmental issues within the data centre industry. Legacy data centres designed for general-purpose computing simply cannot efficiently accommodate new AI-based GPU servers, their densities and storage capacities.

For instance, traditional data centres have a standard power density of around 8 kW per rack. In contrast, GPU-based servers for AI model training demand 45 to 55 kW per rack or more. As a result, conventional air-cooling systems are incapable of dissipating the heat generated by these high-powered processors.

SUSTAINABLE SOLUTIONS FOR AI-DRIVEN DATA CENTRES

To reduce AI's environmental impact, public sector organisations must implement sustainable practices and solutions in their data centres. Key measures include:

- **Green power**: Ensuring data centres operate on 24/7 renewable energy sources, such as solar, wind and hydroelectric power, can significantly reduce carbon emissions associated with AI computations.
- **Efficient cooling**: Liquid cooling systems are more effective for AI-driven data centres, reducing power usage by up to 40% while managing heat dissipation.
- **Waterless cooling solutions**: Data centres consume significant amounts of water, but waterless cooling technologies like immersion cooling or groundwater cooling can minimise water consumption while maintaining optimal temperatures for AI servers.
- **Recycling and e-waste management**: Responsible recycling and e-waste management policies can reduce embodied carbon in construction and mitigate the environmental impact of decommissioned equipment.
- **Collaboration and research**: Public sector organisations should collaborate with private enterprises, academia and international organisations to promote research and development of innovative and sustainable data centre technologies.

INCENTIVISING SUSTAINABLE DATA CENTRES

Governments can encourage the adoption of sustainable practices in data centres by offering financial incentives, such as tax breaks or grants, to organisations that invest in green technologies or achieve specific sustainability milestones. These incentives can accelerate the transition to environmentally friendly data centres and help reduce the overall environmental impact of AI.

DATA CENTRE CERTIFICATION PROGRAMS

Establishing certification programs for data centres can set clear standards for energy efficiency and environmental performance. These programs can help organisations identify areas for improvement and provide benchmarks for comparing data centre sustainability. For example, the Leadership in Energy and Environmental Design (LEED) certification, widely recognised in the construction industry, can be adapted to create a similar certification program for data centres.

RAISING AWARENESS AND EDUCATION

Increasing awareness about the environmental impact of AI-driven data centres is essential to drive change in the industry. Governments and public sector organisations can partner with educational institutions to develop training programs and workshops that focus on sustainable data centre design and management. By educating professionals in the field, we can ensure that sustainability becomes an integral part of data centre operations.

GREEN PROCUREMENT POLICIES

Adopting green procurement policies can help public sector organisations ensure that their data centre partners prioritise environmental sustainability. By requiring data centre providers to meet specific energy efficiency, waste reduction and renewable energy targets, public sector organisations can use their purchasing power to drive positive change in the industry.

As well as changing the design of data centres, the drive for sustainable AI will also inform where they are built. Access to low-cost, zero-emissions power is critical and was part of the reason why GreenSquareDC chose to build our 96 MW AI-enabled data centre, WA1, in Perth, Western Australia. The state already enjoys some of the lowest electricity costs in the OECD, and with access to more renewable energy projects than virtually anywhere else on earth. This makes WA an ideal location for building AI-ready data centres, which benefit from access to abundant, cheap renewable energy.

AI has the power to revolutionise the public sector, but its environmental impact cannot be ignored. By implementing sustainable practices and investing in environmentally friendly data centre technologies, governments and public sector organisations can mitigate the negative consequences of AI adoption while continuing to leverage its potential for positive change.

By taking a proactive approach to addressing AI's impact on the environment, the public sector can set an example for other industries to follow, ensuring a sustainable future for all. The key to striking a balance between AI-driven innovation and environmental sustainability lies in a holistic strategy that encompasses efficient resource management, infrastructure upgrades, innovative cooling solutions and responsible e-waste disposal.

A NEW APPROACH TO ACCESSING CITIZEN DATA

Vinay Samuel, founder and CEO, Zetaris

Government departments and agencies hold vast quantities of citizen data spread across hundreds of systems. Gaining a view of a single citizen across those systems is a challenge that many government projects have strived to achieve but always come up short. This is a significant challenge the Australian Government faces as it works to implement its whole-of-economy vision to become a modern data-driven society by 2030. But the strategy will be held back unless the government embraces new and emerging technologies that overcome the problems of legacy approaches to data access and management.

MULTIPLE CHALLENGES IN DATA SHARING

The challenges come from several angles. There are legacy systems, built with the needs of monolithic departments, that were never made to facilitate information sharing. There are also governance and privacy concerns. Much of the data is highly sensitive and giving access can, potentially, increase the risk of an accidental or intentional data breach. All of this means it is difficult to gain insights, particularly when the data is spread across multiple systems.

Data sharing across government departments is complex because data owners are reluctant to share data due to privacy concerns. There is significant community fear that data will be mishandled or misused and that data management platforms can introduce errors or security problems. A networked data platform allows data owners to retain control without the need to duplicate or give away extracts of data to other parties. Ultimately, a networked data platform enables the data owner to oversee queries on data without it ever leaving their governance.

Once data is shared, under traditional data management and sharing processes, there is no way to ever rescind access to data. The original owner cannot be guaranteed of that data ever being deleted and returned. A networked data platform overcomes this stumbling block and ensures the data owner retains control of where and how data is used at all times.

Another barrier to sharing is the old approach of extracting data from systems, transforming it to fit a specific database design and then loading it into a new database where it could be analysed and used. This approach, called ETL (extract, transform and load), was complex and required significant resources. ETL requires very specific expertise and significant investment in storage solutions. ETL never delivered on its promise — because of the cost and complexity, many datasets were omitted and adding new data resulted in expensive projects that took so long to deliver the desired outcome that the data was often no longer needed and vastly out of date.

NEW RULES AND A NEW APPROACH

A new approach to accessing data for rapid decision-making at a fraction of the cost of traditional data warehousing

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projects has emerged as a game changer. The first part of that approach starts by asking business experts how the data is to be shared. They can set the rules around access, security and how frequently the data can be accessed.

The second part of the new approach to data access is a networked data platform. This uses metadata to identify data sources and how disparate data from different sources can be joined. Data owners determine how to share data and make it available to authorised parties. Rather than needing to copy data to a centralised data warehouse or data lake, it becomes possible to query data without extracting it.

Rather than extracting, transforming and loading data into a single system, the analytics tool goes to the data, at its source, in real time and creates a coherent view at a speed never achievable before, with far less complexity and cost. With this approach, the time, effort and resources needed to add new data sources is vastly reduced. New data sources can be added in hours or days rather than months or longer. As well as being considerably faster, this approach is far more cost-effective and doesn't rely on major capital expenditure. For government departments that are increasingly focussed on ensuring costs are managed, this is a major benefit.

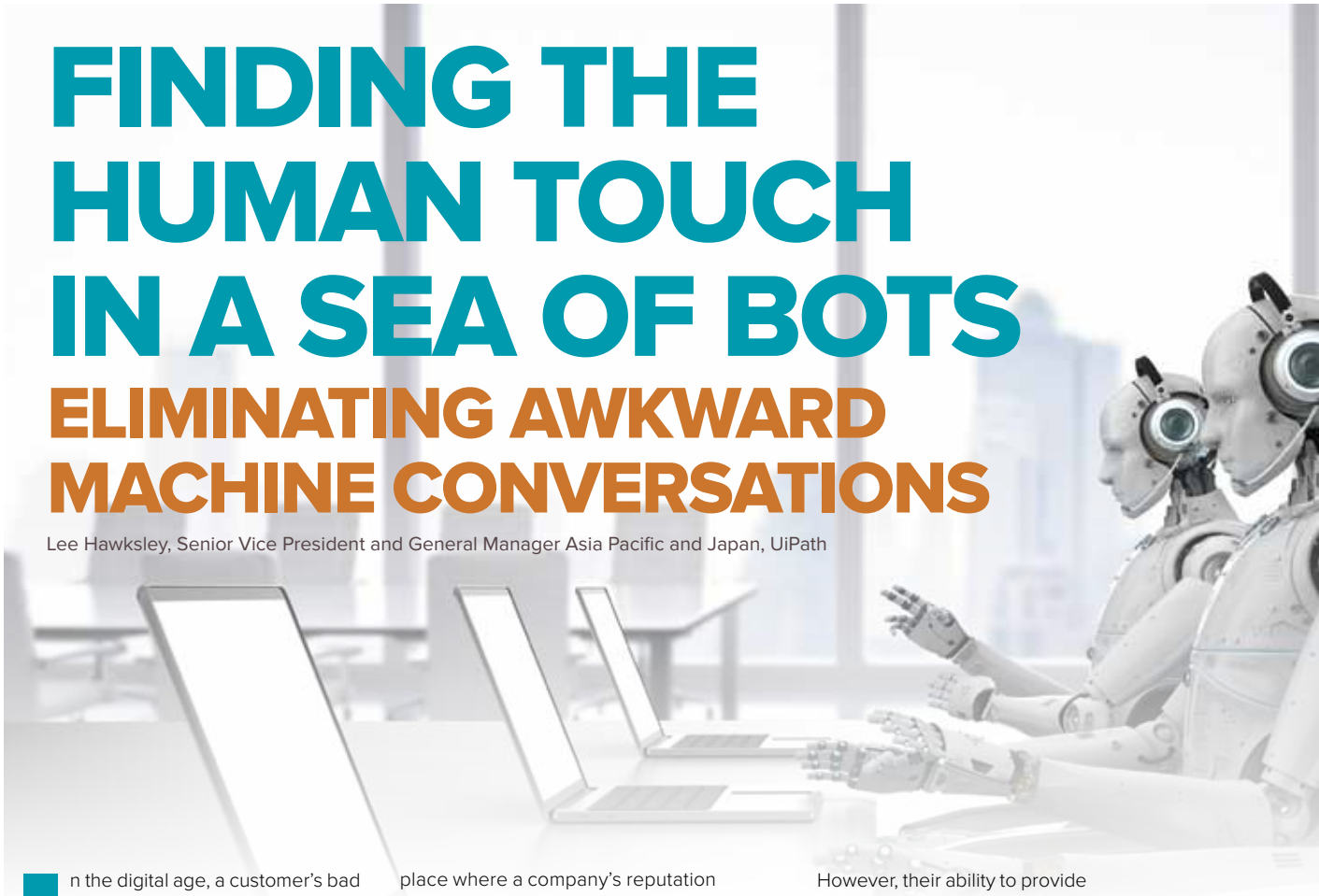
For many years, successive governments have been trying to find ways to improve services for citizens across digital platforms. One of the biggest obstacles they have faced is that citizen data is distributed across multiple systems, often duplicated with each department holding its own copy, and difficult to access as legacy systems were not made to facilitate information sharing.

A networked data platform allows those legacy applications to be retained but makes the information they hold accessible. Instead of information being locked in departmental silos, it can be virtually joined in real time so a single view of a citizen becomes possible. It is faster, more cost-effective and easier to manage and maintain. It is a modern secure solution to an old problem that governments have struggled to solve.

FINDING THE HUMAN TOUCH IN A SEA OF BOTS

ELIMINATING AWKWARD MACHINE CONVERSATIONS

Lee Hawksley, Senior Vice President and General Manager Asia Pacific and Japan, UiPath



In the digital age, a customer's bad experience with a brand can easily go viral with a single social media post. We've heard countless stories of such unpleasant experiences, be it with an airline or telecom services provider, and it can truly tarnish a brand's reputation when a lot of people relate to these stories. A common denominator to bad customer experiences often boils down to communication, or the lack of it, which is why at the very basic level, it's important for organisations to make themselves accessible to customers through multiple communications channels. Right now, delivering great customer experiences and having a strong customer communications strategy have never been more important.

Contact centres, which offer a direct line of communication, are an important customer touchpoint. This is also the place where a company's reputation can often be won or lost. Customers, when dialling into the contact centre, are almost always looking for immediate answers to questions and they want issues resolved quickly.

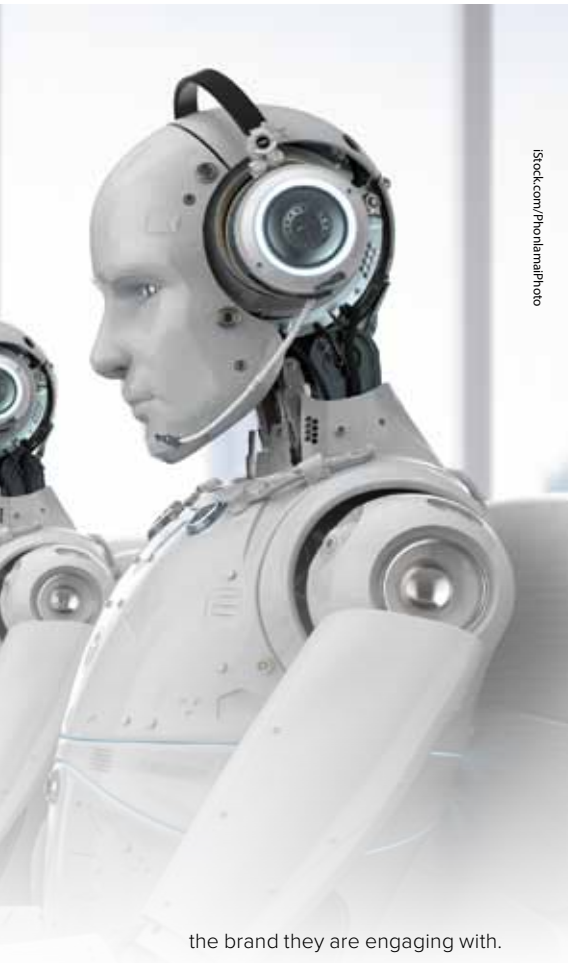
To address the large volume of requests coming in at speed, organisations need an always-on approach to customer engagement and service, so chatbots have become a popular solution.

HOW CHATBOTS SUCCEED, AND WHERE THEY FAIL

Empowered with artificial intelligence (AI) and machine learning (ML) technologies, chatbots are very effective at answering simple questions and resolving straightforward issues such as resetting passwords, updating addresses, or checking order and service status in near real time.

However, their ability to provide good customer service is often limited as soon as the complexities of human emotion come into play. In fact, many people are likely to have experienced frustrating conversations where chatbots fail to identify the nuances of requests or feedback, and direct the customer through a series of actions that ultimately do not resolve anything. Also missing is the ability to offer sympathy, support and promises of prompt action — something many frustrated customers seek.

With customer expectations now at an all-time high, such experiences are detrimental to the customer experience and the brand's reputation. Beyond the basics like quality service and fair pricing, customers today expect personalised interactions and connected experiences across all platforms. They want to feel that they are important and worthy of attention from



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the brand they are engaging with.

In this sea of bots, brands will need the 'human touch' to stand out from competitors. The challenge is how organisations provide a real, human-like experience in their customer service delivery without compromising on organisational efficiency.

WHERE CHATGPT FITS IN THIS NEW ERA OF CUSTOMER ENGAGEMENT

The generative AI chatbot that has taken the world by storm, and its rivals such as Google Bard may be part of the solution. With natural language processing (NLP) capabilities, tools like ChatGPT are able to understand natural language spoken by humans, and respond with coherent, fluent and human-like responses in a fraction of a second. It is as if your queries are being answered by a person instead of a machine. With the updated GPT-4, OpenAI's new large multi-modal model that can solve difficult problems with greater accuracy, and accept both image and text inputs, the AI-powered chatbot is now more powerful than ever.

Through the ability to understand users' intent, and provide recommendations in an intelligent and conversational manner, ChatGPT is transforming the way businesses interact with customers. Used in tandem with automation solutions, organisations could potentially accelerate customer engagement workflows, while increasing personalisation in their customer service delivery. A couple of simple examples may be:

USE CASE #1: ANALYSE CUSTOMER FEEDBACK

While many businesses may already rely on software robots to collect and collate customer feedback received through online chatbots, they can deepen their insights further by using ChatGPT to analyse that data. They can get software robots to send a set of customer feedback to ChatGPT, and enter the following prompt: "Please identify the sentiment of this feedback, assigning it as positive, negative, or mixed". Once the robot receives the answer from ChatGPT, it can then collate the positive, negative and mixed answers for further review. Based on the sentiment, useful feedback can be processed downstream and shared directly with the team for consideration and action.

USE CASE #2: CREATE A CUSTOMER RESPONSE EMAIL

ChatGPT can also write appropriate responses to customers who have shared negative feedback. This whole process can even be automated from end to end. When negative feedback is received, a software robot shares a prompt and the text of the email with ChatGPT, which replies with an appropriate response message. The bot then validates with customer support before sharing it with the customer. This shortens the response and resolution time for customer feedback, which can go a long way to improving the overall customer experience.

#3: EVALUATE CUSTOMER SERVICE CONVERSATION

ChatGPT can rank the quality of support provided by customer service agents in online chats. ChatGPT does this by returning a satisfaction score, and if the score falls below a certain threshold, a software robot can automatically escalate it to a manager for review. This lets managers continually enhance the training of their support teams.

WHAT'S NEXT?

As much as we're seeing rapid progress with AI/ML technologies, the world is not quite ready to see human customer service agents completely replaced by robots. Contact centre hubs in Australia and across Asia will not entirely be replaced just yet. There are still instances where we need a real human behind the screen. However, it is interesting to note that automation will likely play an increasingly critical support role in the near future.

Where automation is adding the most value is by streamlining contact centre processes, giving agents more bandwidth to address more complex problems. For example, to address a single customer request, an agent may need to switch back and forth between multiple systems, which can be inefficient and distracting. With the help of software robots that collect information from disparate systems and present it in a single, consolidated interface, agents can easily address the customers' needs, while focusing on delivering great customer experiences. This results in a better employee experience for the contact centre agent and better relationships with customers, which ultimately supports a stronger positive brand sentiment for the company.

FIVE WAYS GOVERNMENT AGENCIES CAN MODERNISE SUCCESSFULLY

Fytos Charalambides, Senior Director and Head of Technology, Australia and New Zealand, Red Hat

The Australian Government has made significant strides towards digital modernisation and digitisation to improve community experiences. Indeed, it's a strategic priority for the government, which has its sights set on being a top 10 digital economy and society by 2030. The strategy includes investment in critical projects, including 5G, payment systems and general technology infrastructure.

But modernisation in government takes on extra layers of complexity as organisational silos, skills shortages, a risk-averse culture and funding challenges are deeply entrenched. The risks of not taking action are equally concerning, as departments may lose sustained funding and fail to meet community expectations in a digital-first world.

These challenges boil down to five key areas government agencies need to prioritise across technology, people and process.

LEADERSHIP

Government agencies face pressure to ensure modernisation efforts are delivered securely and safely, minimising financial and operational risk. After all, these solutions can affect the lives of countless Australians.

The old adage "If it ain't broke, don't fix it" resonates in risk-averse teams, and can feel like a reasonable course of action given the inherent risk in any transformation. But departments like the digital transformation agency are demonstrating what's possible when there is a clear vision for the future of community interactions, with defined benefits for every project.

The most successful transformation projects occur when leadership promotes experimentation and collaboration. In practice, this happens when there is a common purpose and vision, departmental silos are removed and continuous learning is encouraged. This point is particularly salient, as Red Hat's Global Tech Outlook report found that skill-set or talent gaps emerged as the top barrier organisations believe will prevent them from achieving their digital transformation goals.

Another important factor that can change the course of a transformation project is the leadership teams taking the necessary steps to lead projects and make critical decisions. This signals that the leadership is willing and able to drive change, and acts as a motivator for others across the organisation to participate and contribute. This is a lesson Red Hat learned many years ago, leading many open source software (OSS) projects, and then inspiring others to contribute and be a part of that change. In addition to traditional hygiene factors, displaying innovation can inspire and retain top talent.

PRODUCT

Software must support the mission. There's often a perception that public services must eliminate their existing IT architecture and mainframes to increase interoperability as they modernise. But the reality is more complex than that, especially when the implications of a failed project have real-world consequences for communities. This is why each agency must have a clear strategy to define what users need, want and can easily use.

For example, some agencies rely on flexible systems that can scale up


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and down based on periods of intense activity, such as the end of financial year. Government agencies, therefore, do well to understand the constraints and needs of their organisation, and work with a trusted partner to overcome them in a safe and scalable way.

The best way to do this is to create a hypothesis and then build a prototype to test it. This helps to minimise the project risks and creates a sandbox where tests can safely 'fail'. Agencies can also adopt employee guardrails, providing built-in controls for enforcement to reduce operational risk. Modern platforms embed this functionality in developer workflows and the software supply chain.

DEVELOPMENT

Above all, software must meet the defined mission requirements. Product and operations teams do well to adopt a 'trusted software supply chain' methodology where test-driven development (TDD) and continuous integration and continuous delivery (CI/CD) is the norm.

To avoid 'over-engineering' a solution, building with a 'minimum viable product' mindset allows for more rapid waves of feedback that can be quickly incorporated into the product with less friction. This approach is referred to as 'agile', which describes a process of rapid development, called 'sprints', with regular 'scrums' to review and test. A digital transformation project would involve lots of easily tracked sprints to ensure each stage is delivered in a timely and scalable manner.

Automation can also help to offload manual processes spanning architecture, development and operations. This should be done in a measured way where IT managers can provide guidelines on how automation is applied to individual teams.

Automation enables organisations to take a 24/7 approach to run and manage process workflow. The ability to automate key functions like security scanning and patching, network scaling and descaling, and alert and response functions means the workforce can be effective even after they clock off. This can increase productivity and output greatly and amplifies the success of software development projects.

ARCHITECTURE

Community expectations are rapidly evolving as they become accustomed to digital services in every aspect of their lives. To keep pace, software must be not only scalable, but flexible.

Event-driven architecture, which enables applications to respond to events in real time, provides the flexibility to pick and choose technologies as community expectations change. In this approach, each 'event', such as someone filing their tax return, triggers an update in back-end systems — in this case the return would now be marked as lodged and then completed once it has been assessed.

Furthermore, with an open hybrid cloud approach, government agencies can take advantage of their existing hybrid IT while setting themselves up for future technological advances as no one cloud provider or on-premises environment is capable of meeting the diverse and competing needs of government use environments, and proprietary solutions can restrict choices and adaptability in the future.

OPERATIONS

Government agencies can, understandably, not afford outages and downtime. At the same time, new features need to be deployed at speed. In the 'start on the path toward site reliability engineering (SRE)' model, operations teams give development teams space to code until an 'error budget' is met — the maximum allowed number of times something can fail without consequences. Development then stops and the focus shifts to technical debt.

This approach works well for agencies that employ a DevSecOps model where development, security and operations teams work hand in hand throughout the life cycle of a project rather than in silos. It also encompasses an organisational approach to modernisation, where security and innovation become a shared responsibility across teams.

The Australian Government should be applauded for its focus and commitment to modernisation. By focusing on these key five areas of transformation — leadership, product, development, architecture and operations — and adopting best practice in each pillar, they will be well placed to modernise in a safe, scalable and repeatable manner.

CONNECTING IT TO AUSTRALIA'S NET ZERO TARGET

Katrina Lawrence, Vice President, Public Sector, Dell Technologies ANZ

In 2022, a new federal government answered Australia's collective call for climate action; we saw a considerable push, solidifying Australia's commitment to the Paris Agreement. All levels of government substantially improved their climate action goals last year and the federal government legislated a 43% cut on 2005 greenhouse gas emission levels by 2030 and net zero emissions by 2050.

A new energy transition report by McKinsey notes, "with its significant renewables potential and large-scale reserves of critical materials, Australia could prosper in the energy transition". However, Minister for Climate Change and Energy Chris Bowen said the first Annual Climate Change Statement released on 1 December 2022 shows "we are on the right track, but it is also a wake-up call for the nation to do more".

To achieve our ambitious decarbonisation targets, Australia must double down on its renewable energy transition efforts. Achieving a sustainable, optimised, affordable energy sector means using emerging technologies that can convert data into value while smoothing out transition wrinkles.

TECHNOLOGICAL INNOVATION ESSENTIAL TO ADDRESS THE ENERGY TRILEMMA

The shift from centralised energy generation dominated by fossil fuels towards distributed energy resources (DERs) leveraging wind, solar and other renewables relies on transforming the traditional Operational Technology (OT) systems. However, this can be a complex process, particularly in Australia, with its varying geography, climate and energy mix.

CSIRO notes that Australia's decentralised electricity grid is different from other countries' because, "our demand centres (major cities) are located long distances from each other in different climate zones. As the percentage of Variable Renewable Energy (VRE) sources in the grid increases, there is a need for greater interconnection and affordable energy storage solutions".

As such, Australia is particularly affected by the energy trilemma: supply must be reliable, sustainable and affordable. To achieve these requirements, we need to lean on innovative technology. Emerging technologies can complement energy storage capacity solutions and meet the timescales of energy demands while maintaining grid stability — and it's increasingly affordable.

CSIRO found that compared with its 2017 GenCost report, which reported it would cost Australia a trillion dollars to convert to renewables, its new 2022 estimate has been cut in half: it's now $500 billion. It notes, "A large part of this is because of recent technological innovation."

However, no single technology addresses the transition to renewable energy. The International Renewable Energy Agency (IRENA) reports, "technologies, such as the Internet of things, AI & Big data and blockchain, support the integration of renewables through faster response and optimised use of assets."

Essentially, a broad range of proven solutions and new innovative technologies will accelerate progress — with support from the public sector.

Thankfully, the Australian Government stepped up in 2022 with its 'Rewiring the Nation' promise, a

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$20 billion commitment to upgrade the national electricity grid, which includes $878.2 million to back low emissions technologies.

EDGE AND IOT ARE ESSENTIAL ENABLING TECHNOLOGIES

To meet goals and maximise reliability, affordability, and sustainability, public and private utilities can leverage modern distributed architectures and autonomous capabilities deployed at the energy network's edge.

This can help support a distributed energy system by continuously learning changes in supply and demand and use patterns without going through a utility's data centre. Additionally, smart IoT consumer energy systems can achieve significant efficiency gains by managing prosumer energy production, consumption and storage by offering on-demand data to better manage supply.

Like in other sectors, the role of data will be critical to future-proofing energy needs and ensuring a collaborative approach that organisations, businesses and Australians can implement.

THE CRITICAL ROLE OF OPERATIONAL TECHNOLOGY

Operational Technology (OT) is the hardware and software that operates our energy systems. It is the critical computing capability upon which national infrastructure and bulk power systems are entirely dependent. The complexity of these systems is dramatically increasing to support distributed energy resources, storage and grid endpoints like electric vehicles, smart homes, smart factories and smart offices.

All of this complexity generates vast amounts of data right at the very edges of our network, where it needs to be analysed in real time to generate actionable insights that can be acted on by a new generation of autonomous systems.

These systems will help provide demand-side management as a new critical grid capability. It will allow the optimisation of consumer and utility-scale storage and scheduling loads like EV (Electrical Vehicle) charging.

ENERGY-EFFICIENT SUPERCOMPUTERS SUPPORT THE TRANSITION

Energy-efficient supercomputers continue to solve complex energy problems across hundreds of application areas. The HPC5 supercomputer can perform 52 million billion mathematical operations per second and is largely solar-powered. Italian energy company Eni is benefiting from the computational power of the HPC5 in working to accelerate energy research and development sustainably.

In addition, Cambridge University uses the Wilkes-3 supercomputer to carry out nuclear fusion research for power generation.

ADVANCED TECHNOLOGY IS PROPELLING THE ENERGY TRANSITION FORWARD

Transformational IT systems and a new generation of autonomous, data-driven, operational systems are vital to accelerating the energy transition and forging a low-carbon future with abundant, affordable energy.

By investing in revolutionary clean energy technologies, public sector authorities will drastically improve outlooks and set Australia up for future success. We've set the right goals, and we've got the right tech — in 2023, it's time to put it to use.

THE THREE BIGGEST DATA CHALLENGES FOR AUSTRALIAN ORGANISATIONS

Daniel Hein, Chief Architect Asia Pacific and Japan, Informatica

Data is hitting the headlines almost daily due to ongoing cyber attacks on Australian public and private sector organisations. While data breaches are dominating news, there are much greater challenges facing Australian organisations when it comes to managing data.

The types and volume of data that organisations manage will continue to explode due to factors such as the growth of on-premise and multi-cloud solutions, social media and the Internet of Things (IoT). This will lead to more regulations and requirements beyond the current privacy and cybersecurity reforms, which will place even greater pressure on organisations to adopt consistency in the way they manage data. It has created a perfect storm of three key data challenges for Australian organisations: the complexity of data management, cost overruns and compliance.

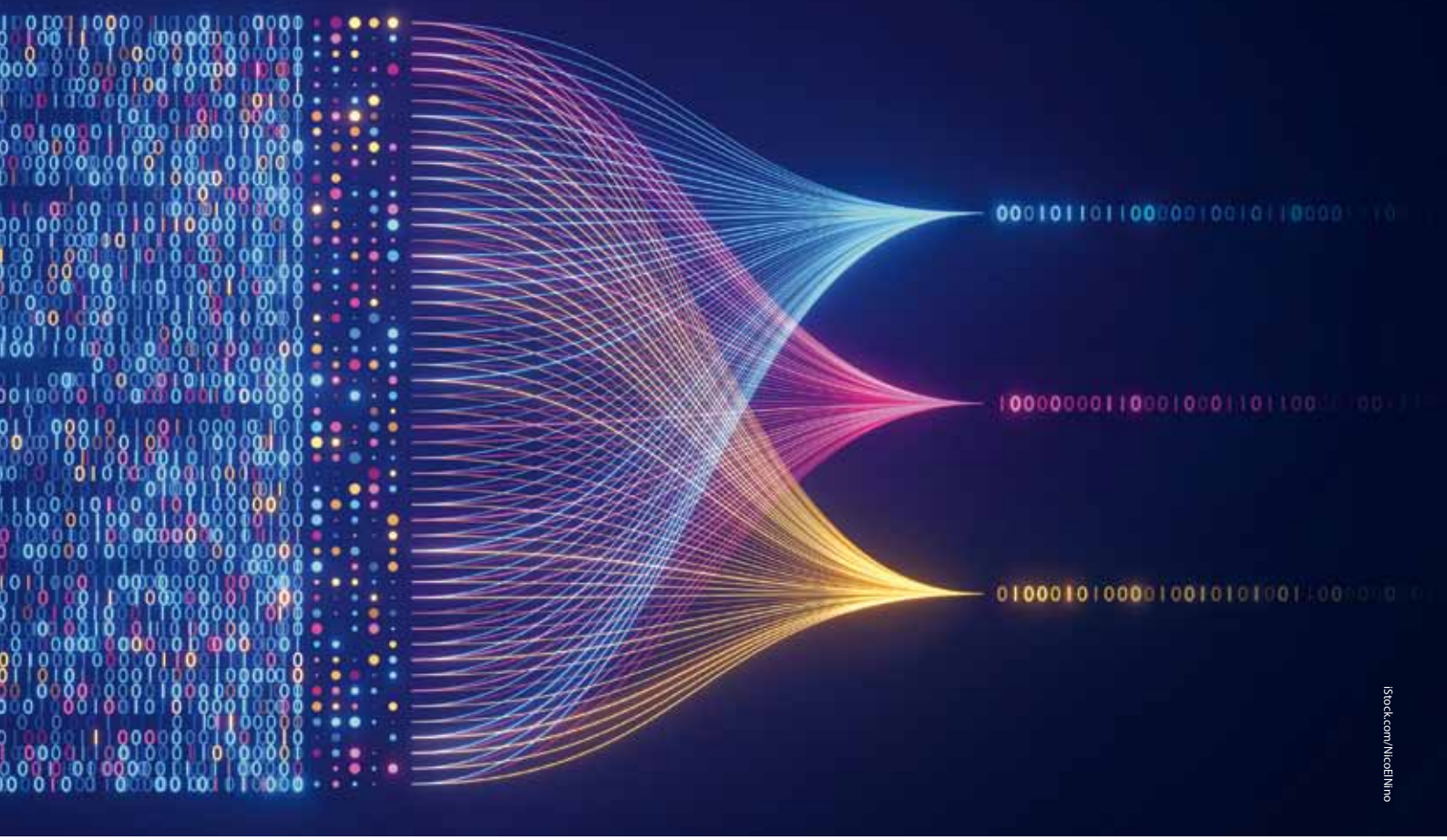
1. COMPLEXITY OF DATA MANAGEMENT

There is a growing concern in Australian organisations about the number of different solutions in place to manage data.

An unfortunate reality across all sectors is that too many companies have taken a siloed approach to storing and accessing data instead of adopting an enterprise-wide and strategic approach to data management. The result is that over half of recently surveyed organisations need to rely on more than five tools to support their data management priorities. This introduces more complexity, risk and cost into their technology landscape because all these tools need to be integrated so they can work together effectively.

Due to the vast volume and complexity of modern data, it's no longer sufficient to simply store data in a legacy technology landscape and manage it across siloes. To truly drive digital transformation, organisations must become data-driven by holistically managing the data they hold. This is because in the cloud, we no longer own applications, databases or even infrastructure. All we own is our data, so intelligently managing it enables organisations to rein in chaos and unify the enterprise.

However, many organisations still rely on multiple point solutions for



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data integration. They also have more solutions for data curation, profiling and cataloguing, and often disconnected solutions for data governance and data privacy. This complexity results in several issues such as:

- data becoming difficult to find and understand
- poor data quality meaning information can't be trusted
- systems unable to scale to meet changing enterprise needs
- data and applications becoming even more siloed and fragmented
- data being difficult to share and not sufficiently governed or protected
- cost overruns
- resource constraints.

Data leaders who invest in data management capabilities that promote better control, trust, utilisation and a unified understanding of their data can overcome these issues while at the same time addressing business imperatives such as reducing costs, improving efficiencies and growing revenue. This is because they can gain access to reliable, trusted and governed data that delivers better business insights.

"Due to the vast volume and complexity of modern data, it's no longer sufficient to simply store data."

The way to achieve this is through rationalising and simplifying data management by focusing on data intelligence that helps business users find, understand, trust and access the information they need, and simultaneously provides the right level of governance, quality and privacy. The key outcome is to provide users with the information they need through data storefronts, such as a data marketplace solution that lets data consumers easily search for the data they need to fuel data-driven decision-making that is balanced with the right level of governance and data privacy.

2. COST OVERRUNS

In the face of a global recession, organisations must now do more with less. This is not a new concept for businesses, but by reducing the complexity of data management they can lower their technology TCO through

increasing efficiencies across the entire software development lifecycle — from the build to deployment and maintenance stages.

When rationalising software, it's important to use adaptive data management technologies to avoid the cost overruns that are often associated with hand-coded and limited point solutions. Manual or code-based processes can render them unproductive and slow, which adds to costs while exposing the organisation to operational risks. They also place more time pressures on data engineers when code changes are required.

Conversely, intuitive data management technologies supported by AI and ML provide faster time to value by accelerating digital transformation, which reduces repetitive manual tasks and the requirement for hand-coding. These solutions future-proof data analytics initiatives through the ability to scale and adapt in the evolving public cloud ecosystem and help companies avoid lock-in vendor contracts in a multi-cloud or hybrid environment.

Best of breed, low code/no code and agnostic solutions can process data on premise, in the cloud or in any cloud, which results in improved efficiency, scalability and flexibility, simultaneously delivering trusted insights and business value, while avoiding cost overruns.

3. COMPLIANCE

Every time we board a plane, we assume that the flight crew has completed its essential safety checks. You must do the same thing to ensure that your data is protected. There is nothing more critical. You want to be assured that trained professionals have checked every aspect of the plane you are on — mechanical, physical, digital. You need to pay the same amount of attention to your data.

"Without a unified and comprehensive data platform, organisations are forced to cobble together disparate point solutions."

Questions you should ask yourself include:

- Should this dataset be protected from misuse or loss?
- Is it appropriate for my business users to access and consume it?
- Is it necessary to expose this data to meet a business value need?
- Does this dataset contain Personally Identifiable Information (PII), and thus require special handling?
- Is my organisation at risk if I allow this dataset to be used outside of our policies?
- Have customers consented to having their data used except for specific purposes?

Data privacy and compliance, much like aviation regulations, is not to be ignored. It not only puts you at risk of making negligent decisions but could also expose the organisation to severe fines and remediation costs if you aren't careful. More importantly, the organisation's reputation will suffer if there is a data breach that makes headlines, which undoubtedly directly impacts revenues and customer loyalty. This is the reality for many leading Australian organisations right now and is likely to continue with the rising number of cyber attacks that are targeting high-profile brands across finance, telecommunications and healthcare — as well as government.

However, rather than thinking of completely restricting business users from accessing particular datasets, ask yourself if you could permit usage under certain conditions — perhaps by anonymising sensitive data, while monitoring proper sharing and use. Develop opportunities for permissive use within an appropriate context, instead of only restrictive policies, to accelerate giving users safe access and the ability to create value from the data.

As data volumes grow and industry regulations become even more complex, the ability to access, understand and use data securely is key to organisational success. Without a unified and comprehensive data platform, organisations are forced to cobble together disparate point solutions that were never designed to work together in the first place. Integrating these systems is time consuming, costly, risky and inflexible to change. If one point solution changes, then you need to redo and retest all data management processes and your ability to drive data literacy programs reduces considerably.

As well as scalable, secure data management technologies, data literacy programs are often the most effective way of increasing an organisation's data-driven culture. The better informed employees are about what insights are available and how those insights can benefit them, the more likely they are to embrace it and access data securely. This is why building a robust foundation for data intelligence is key to empowering data consumers and addressing business imperatives, without compromising data security.

With predictive data intelligence, you can transform organisations, bringing people and data together by simplifying and automating the ability to quickly find, understand, trust, secure and access data. And with a data consumption focus that improves data delivery, business outcomes can be accelerated.

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