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Insider



Safe sharing of data

Saturday, 28 September marks International Right to Know Day, which is celebrated every year in an effort to raise awareness of the importance of open and accountable government and the community's right to access government-held information. It's a worthy cause, where investigative journalists are awarded for shining a light on privacy problems and government institutions are recognised for good privacy practices (and, in some cases, chided for bad practices). This year's awards will be presented at a ceremony to be held in Sofia, Bulgaria.

It's great that such efforts are made to highlight issues concerning access to information held by governments, but what about the sharing of citizens' data within and between governments, departments and agencies? Security and privacy is, of course, top of mind both for members of the public and for governments. There are obvious security concerns — protecting us from hackers and preventing data crooks from stealing or leaking confidential information. There are also the moral questions over who has the right to know and access our information, and how, why and when consent to access or share data can or should be given or implied.

Data sharing holds a lot of promise for the delivery of government services. Sometimes that data will need to include identifiers that specify individuals or groups, while other datasets will need to be appropriately anonymised and sanitised. The trick will be to know when, where and how data can be safely shared and for what purposes. For instance, there's a big push for 'single point of contact' systems within government in order to simplify citizens' interactions with departments and agencies. This means sharing that particular single contact with all the departments and agencies that need to know. But as Ian Oppermann (CEO of the NSW Government's Data Analytics Centre) explains in this issue of GovTech Review, "better services don't always require data sharing, so the challenge is to not overuse data sharing when trying to build great services, but rather to explore ways to both protect privacy and improve services".

Oppermann outlines some of the issues involved. Can governments share citizens' data while keeping specific information private? Can standard definitions be devised for testing for personal information? And do we even need data sharing at all?

Whichever way these questions end up being resolved, it will be important to remember that, when dealing with citizens' information, doing the right thing by data is important... but it's just as important for public confidence that governments are seen to be doing the right thing.

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EXPLORING THE SUBTLETIES OF DATA SHARING

Ian Oppermann*



FRAMEWORKS FOR DATA SHARING, AS OPPOSED TO DATA RELEASE, NEED TO BE DEVELOPED THAT PRESERVE USERS' PERSONAL INFORMATION WHILE MAXIMISING UTILITY AND BENEFITS.

People have been actively sharing personal data through online platforms for decades. Since the beginning of the internet and the development of HTTP cookies, people have been generating data about personal interests and preferences through web browsing and online purchases.

More recently, with the rapid expansion in the number and sophistication of mobile devices, people en masse have begun sharing data about movement and service quality with network providers. The providers then optimise network performance, create location-based services and plan future network infrastructure.

Concurrently, social media has provided companies with unprecedented troves of information about locations, relationships, events, plans, personalities and purchases. The Internet of Things (IoT) is adding to this. For example, through normal use, a domestic smart light has the potential to generate data on personal habits, sleep patterns and activity. A smart lighting service provider that aggregates data from multiple homes may use this to optimise energy consumption at a neighbourhood level and will draw data on the daily lives of every person who uses the smart light service.

The three main mechanisms for data sharing — explicit, derived and inferred — each come with concerns about the degree of personal information contained within them and the obligations of the organisation that captures, uses and stores that data.

How companies use this information has also come under intense scrutiny. It was recently revealed, for example, that Cambridge Analytica used explicitly

shared personal information to target political campaigning, potentially influencing the outcome of elections. At the same time, online browsing and purchasing data is being used to derive information about preferences and create personal profiles of users, while mobile network data has demonstrated it can go well beyond network optimisation to allow customer churn prediction and even infer relationships to other mobile users.

In both commercial and government examples, other concerns relate to the unanticipated fidelity of data generated, who will access it, what it will be used for, and what will happen as a consequence of its use. There are questions about the 'use' of data by a company or government and the 'release' of data to the wider world. Questions have also been raised as to whether the use of derived information to create highly targeted 'anonymous identities' should come with the same restrictions as use of personal information.

While these issues are yet to be fully addressed, future 'smart services' for homes, factories, cities and even smart governments rely on the sharing of large volumes of often personal and sensitive data between individuals and organisations, or between individuals and governments.

The ongoing benefit from sharing data more easily is the ability to improve the efficiency, quality and degree of service personalisation, as well as optimising service delivery across networks. To deliver these benefits, frameworks for data sharing, as opposed to data release, need to be created that preserve the personal information of service users while maximising the utility and benefits.

WHAT ABOUT GOVERNMENT?

The potential benefits that companies generate from data sharing are paralleled within government, but with different outcomes in mind and with much greater expectations for protecting individuals' privacy and the public good.

Governments across the world are struggling to meet citizen expectations and ever-increasing demand for services and infrastructure, particularly in response to growing and ageing populations. There is a drive for easier modes of engagement with government agencies, such as a single point of entry for key data and identity authentication. There is also a need to create smarter, data-driven, personally tailored services, and to use data to underpin better policy and resources allocation.

At the same time, better services don't always require data sharing, so the challenge is to not overuse data sharing when trying to build great services, but rather to explore ways to both protect privacy and improve services. Sometimes, for instance, we could verify a claim to replace data sharing, like 'does the customer meet the means test?' or 'are they over the age requirement?'.

PRIVACY CONCERNS

Despite the potential benefits of better, more effective services underpinned by data sharing, many government data custodians are, understandably, hesitant to share data. Unvoiced concerns include uncertainty and fear about data sharing and the desire of respective agencies to control data about their own activities.

Voiced concerns focus on unintended consequences of sharing data through inappropriate use

and interpretation, data quality, the possibility of unauthorised release of data in a manner that might lead to reidentification of affected individuals, and adherence to privacy legislation.

CAN WE SHARE WHILE KEEPING INFORMATION PRIVATE?

Aggregation of individual data is an approach commonly used to reduce the risk of personal information being exposed. A key challenge for data sharing is that there is currently no way to unambiguously determine if aggregated data contains personal information or to determine whether multiple disaggregated datasets can be recombined or reaggregated to identify individuals' different compositions.

Concerns are also being raised by privacy advocates as data-analysing capabilities increase. When the number of data sources used to create and deliver a service or address a policy challenge swells into the hundreds or thousands, the complexity of the problem may rapidly exceed the ability of human judgement to determine whether the integrated data (or the insights generated from them) could be analysed to reidentify affected individuals.

STANDARD DEFINITIONS FOR TESTING FOR PERSONAL INFORMATION?

The ambiguity about the presence of personal information in sets of data highlights the limitations of the majority of existing privacy regulatory frameworks. The capacity of human judgement to appropriately apply the regulatory test to determine whether there is a 'reasonable' ability to reidentify individuals from datasets is increasingly limited as those datasets grow in complexity and size.

Developing standards around what constitutes 'de-identified' data (or, as it is referred to in the European Union and some other jurisdictions, 'anonymised data') would help address

the challenges of dealing with privacy. In all parts of the world, there are currently no objective quantitative measures and only high-level normative guidance to determine when data about individuals is de-identified. This leaves organisations to assess what de-identified means on a case-by-case basis, looking at different datasets and how those datasets might reasonably be used or combined with other data.

Technology can potentially play a role in addressing this challenge. However, agreeing and then communicating what an acceptable degree of anonymisation is, and how to achieve it in quantitative terms, would also greatly improve data sharing.

A key challenge for data sharing is that there is currently no way to unambiguously determine if aggregated data contains personal information.

WHAT IF I JUST GIVE MY CONSENT?

Consent from individuals to use and share data is an important mechanism in building trust in the design, delivery and evaluation of services. Consent creates awareness of intended use, and issues of unintended consequences may be addressed as part of the consent process.

From a personal information context, obtaining the genuine consent of an individual can allow use of datasets containing personal information in accordance with the terms of consent.

The Office of the Australian Information Commissioner has issued guidance on consent to help organisations interpret the meaning of this term in the context of the *Privacy Act 1988*. The guidance establishes that the four key elements for consent are:

- The individual is adequately informed before giving consent;
- The individual gives consent voluntarily;
- The consent is current and specific; and
- The individual has the capacity to understand and communicate their consent.

Genuine consent does not need to be expressly given and may be implied by the circumstances, and generally does not require an affirmative action by an individual (such as responding to 'tick the box', clicking through via 'I agree' or providing a signature), provided that the consent satisfies these conditions.

By contrast, through the GDPR the European Union has introduced an additional requirement that consent be unambiguous. This has generally been interpreted as requiring consent to be signified by an affirmative action of the user. Because of the emphasis placed on genuine consent in the GDPR, significant consideration and effort is involved in obtaining and managing

consent processes. In particular, there is an emphasis placed on demonstrating that such consent is both genuine and fully informed. This reflects best practice and should also be adopted in Australia when dealing with datasets that potentially contain personal information.

DO WE NEED DATA SHARING AT ALL?

Data sharing clearly has benefits, particularly for research, improved policy outcomes and service delivery. But there are many different ways to share data, ranging from unit record information to basic insights, verifiable claims or non-personal data, and everything in between. In government we need to explore all types of data sharing and match appropriately which methods are needed for which outcomes, and ensure that we only share data in accordance with our accountabilities, public expectations and public good to ensure and maintain public trust in our approach.

**Dr Ian Oppermann is CEO of the NSW Government's Data Analytics Centre.*

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Headlines



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DHS opens digital forensics lab in Brisbane

The Department of Human Services has launched a state-of-the-art digital forensics lab in Brisbane designed to help disrupt organised efforts to defraud Australia's welfare system.

The new lab is the second of its kind built by the department, with the existing facility in Canberra having launched in 2015.

The Brisbane lab will seek to support the department's Taskforce Integrity operations, and enhance its ability to support other agencies in their efforts to tackle fraud, such as the National Disability Insurance Agency and the Australian Federal Police.

So far the Canberra digital forensics team has contributed to over 50 investigations and analysed hundreds of seized devices. It helped the NDIS Fraud taskforce secure a successful conviction against an individual just last month for defrauding the scheme of more than \$400,000.

Minister for the National Disability Insurance Scheme and Minister for Government Services Stuart Robert said the new lab is a reaction to the increasingly complex nature of fraud and the propensity for fraudsters to exploit technological advances to commit crimes.

"Advanced technology in the laboratory will allow investigators to obtain and deliver crucial evidence in investigations. The government is more serious than ever about stamping out welfare fraud, with close to 1000 cases reviewed in just the past two months," he said.

"The new facility will allow the department to continue to detect and disrupt organised crime activity, and to stop the exploitation of vulnerable customers and communities."

Whittlesea deploys process management, automation solution

The City of Whittlesea Council in northern Melbourne is overhauling its council operations with the deployment of process management and automation solution Nintex Promapp.

Nintex has been contracted to deploy the solution to manage more than 100 customer-facing processes.

The cloud-based Promapp solution will enable the council to capture and manage these processes to support the demands of the organisation.

The City of Whittlesea is engaged in a project to integrate its legacy systems by deploying Salesforce solutions to allow it to support the anticipated 40% growth of its population size by 2040.

Nintex Promapp will be integrated with Salesforce to support the delivery of improved customer experiences for current and new residents.

Initial services to be made accessible in Nintex Promapp over the next few months will include waste management, animal registration, venue hire and planning.

"Prior to the deployment of Nintex Promapp, we lacked an accurate record of processes and realised the necessity for a central repository. We also wanted to enable our 1000-strong workforce to make recommendations, improvements and timely updates in the years ahead, while having access to what they need to achieve operational excellence," said City of Whittlesea Executive Officer, Customer Experience, Sasha Lord.

"We liked the fact that Nintex Promapp is cloud based, easy to use and has an attractive and a visual user interface."

In June, the City of Whittlesea announced it has become the first Australian council to deploy the software-defined wide area network (SD-WAN) solution offered by HPE's Aruba Networks. The council plans to use Aruba's SD-WAN to optimise connectivity between 15 branch offices across the council area.



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City of Darwin reassures on safety and privacy

In the wake of the rollout of Darwin's \$10 million smart city initiative, the city's lord mayor, Kon Vatskalis, has again attempted to assuage public concerns that the northern capital will be a place where your every movement will be tracked.

In a statement released 8 August, Darwin City Council said it "has resolved to implement privacy and security best practice in the gathering, storage and analysis of data collected through its smart technology".

The statement said that "The use of facial recognition technology is not part of the City of Darwin's #smartdarwin strategy."

"The framework Council has agreed to establish will provide an overarching guide to the management of data gathered through our smart technologies and address data privacy, ethics and security," Vatskalis said.

"Privacy and security are significant concerns for our community, and Council aims to ensure the framework put in place meets our community's expectations," he added.

In May, Darwin completed a rapid rollout of smart technologies — one of the biggest in Australia — such as CCTV cameras, Wi-Fi connectivity and environmental sensors.

The \$10 million project was funded with \$5 million from the federal government and \$2.5 million each from the NT Government and City of Darwin.

According to the Council, Darwin's #smartdarwin strategy is to use technology to "enhance the lives of all those interacting with the city by planning for and delivering better services, improving community safety and enhancing the livability and environmental sustainability of our city."

"The privacy framework City of Darwin implements will not only comply with all applicable Federal and Territory laws, we also aim to achieve global best practice regarding privacy and the use of surveillance devices," said the City's CEO, Scott Waters.

"City of Darwin will be undertaking robust external privacy impact assessments and the findings will be made public to ensure transparency and accountability," Waters added.

Mobile tool for parliamentarians wins award

A dedicated mobile-friendly website designed and developed for the Independent Parliamentary Expenses Authority (IPEA) has won an Institute of Public Administration (IPAA) Innovation Award.

The website, known as IPEA:ED, provides easy-access education anywhere, anytime for parliamentarians and their staff about their obligations when spending public funds.

Developed by Canberra-based OPC IT, the IPEA was awarded in the Culture and Capability category, which focuses on initiatives that help strengthen the culture and capability for innovation by developing a mindset where doing things better is a daily habit.

"We were thrilled to learn that out of 62 nominations, IPEA recently won an Institute of Public Administration (IPAA) Innovation Award for their educational resources and the IPEA:ED website," said Michael Goss, Web Operations Manager at OPC.

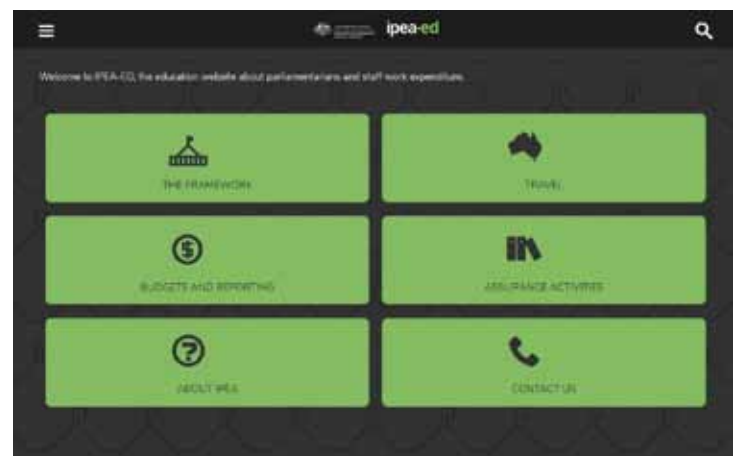
IPEA, an agency within the Department of Finance, had sought a mobile app that could easily be accessed by users on mobile and tablet devices while travelling.

"We proposed a more sustainable and cost-effective option... A 'mobile first' website that would closely resemble an app, be accessed from mobile devices in the same way as an app, but for a fraction of the cost," Goss said.

The Department of Finance engaged OPC to deliver the website, which involved all elements of the project including coming up with a design that closely resembled an app, and ensuring accessibility and responsiveness.

While accepting the award, IPEA referred to the project as "intuitive" and said it was a "world first" to present information to this audience in this way.

"We feel privileged to have been a part of this incredible project and extend a huge congratulations to IPEA for their well-deserved win," Goss said.



Headlines



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DTA launches RFP for GovDesk project

The Digital Transformation Agency has revived a proposal to build a whole-of-government, cloud-based email and desktop environment, and has launched a request for proposals on the Digital Marketplace.

The listing on the Digital Marketplace portal calls for sellers interested in partnering with the agency and Microsoft to build a solution based on Microsoft 365 that will be named GovDesk.

The planned GovDesk solution must be robust, maintainable and scalable, and “deliver transition pathways with standardised approaches to support line of business applications”, the listing states.

GovDesk will meet government Protected security requirements due to Microsoft’s receipt of Protected-level certification for Office

365 and the Azure Cloud from the Australian Signals Directorate last year. The DTA last year became the first government agency to adopt Office 365 for Protected-level email and collaboration.

The project has an estimated start date of 2 September.

The GovDesk project was first proposed by the Department of Finance in September 2014 as a way to give agencies the option of sourcing standardised email and desktop applications at volume subscription pricing. But the project has been dormant for several years.

Deloitte was last month awarded a \$588,000 contract to develop a business case for the revived GovDesk project through an open tender process.

NSW Government to convene AI summit

The NSW Government will hold an AI Thought Leaders’ Summit on 29 November 2019, bringing together experts to consider how the government can most effectively use AI for policymaking.

Experts from government, academia, industry and science will convene at the inaugural AI summit to explore possibilities

and opportunities for AI utilisation across government agencies, including consideration of the NSW AI ethics framework.

“AI has the potential to transform service delivery and make life easier for people, and this summit is an opportunity to learn from some of the country’s top experts,” said Minister for Customer Service Victor Dominello.

“This summit will identify next steps for the use of AI in NSW and test the NSW AI ethics framework and AI strategy, both of which are being developed.

According to the Minister, AI is already being used to manage the NSW train fleet, predict the location of bushfires and predict water pipe failures.

Researchers have estimated that productivity gains from automation, including AI, could add \$2.2 trillion to Australia’s national income between 2015 and 2030.

But any “use or expansion of AI must be subject to the right oversight mechanisms, including privacy, to prevent misuse”, the Minister said.

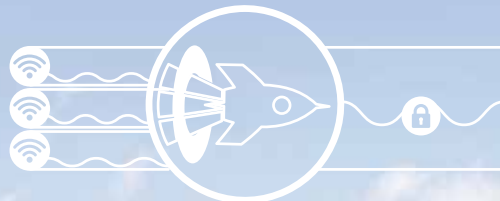
More details about the summit will come later. You can sign up for updates by emailing policylab@finance.nsw.gov.au.



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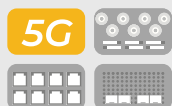


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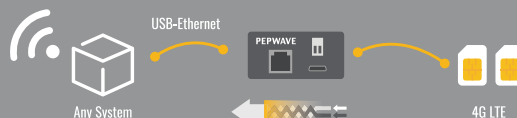
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BOOSTING COLLABORATION TO IMPROVE DELIVERY

Sam Hunt, VP APAC, GitHub

OPEN SOURCE CAN HELP LOCAL GOVERNMENTS TAKE CITIZEN EXPERIENCE TO THE NEXT LEVEL, AND CREATE MORE EFFICIENCIES.

Local governments across Australia have made great efforts to digitise and modernise their online services to deliver better citizen experiences. However, they are still lagging behind technology evolutions that are occurring within other sectors.

Faced with growing pressures and challenges, including limited tech resources and skills, restricted budgets and large legacy systems, many reach a point where they can't deliver more.

But by using the power of open source, local governments can accelerate digital transformation without having to spend more. By tapping into a wide range of skills and thousands of publicly available projects, governments can increase collaboration, break down silos and foster efficiencies.

As highlighted in a webinar recently hosted by GitHub and featuring leaders from Australian councils, local governments can use the global open source community to speed up time-to-market for innovations, as well as optimise resources.

DRIVING GREATER RESULTS AND EFFICIENCIES

Collaboration will drive future change in government. This is why an increasing number of governments around Australia, such as Ipswich City Council and Georges River Council, are using open source to support and foster a more collaborative approach to innovation and citizen experience transformation.

By leveraging the open source community and applying an open source mindset to their own organisation, local governments can take advantage of resources already

available, and in turn contribute back to others.

Collaborating with the millions of developers from the open source community and tapping into the thousands of projects publicly available, local governments can save precious time and considerable amounts of money.

This means their tech teams can focus their efforts and budgets on projects that really matter, as well as on finding and solving new problems instead of addressing those that have already been resolved by others.

Open source also makes it easy to create greater inter-government and department collaboration, and enables teams to pass on key learnings from past projects to ultimately educate and shape a stronger innovation culture.

THE POWER OF INNERSOURCE

More organisations are using



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innersource to shift the way they manage their internal resources, bringing the open source ways of working and developers' work practices within their firewall.

This practice enables internal teams to incorporate open source methodologies into the way they work and build their own software, and improve internal collaboration among teams. This ultimately makes managing large and complex projects easier, lowers costs and creates greater flexibility. Innersourcing also helps drive the cultural change that every organisation needs if they are to succeed in a fast-paced digital world.

Finally, innersourcing can help governments keep their intellectual property protected from external contractors, while making the most of their own talent pool as teams get to work closer together, and educate and upskill each other.

BREAKING DOWN SILOS

By applying an open source mindset within their walls, local government agencies can remove the silos that delay innovation and growth.

According to Matthew Shultz, City Digital Officer for the Ipswich City Council, the biggest challenge for government agencies is to modernise access to services from legacy systems such as old ERP systems, and local government property rating and financial systems.

While the council has historically worked with different, siloed data sources, Shultz has been focusing on providing access to data and information in a centralised manner. This led him and his team to build a full-service city offering — a City-as-a-Service platform.

On the other hand, Georges River Council decided to start many of its systems from scratch, thus avoiding silos and meeting all compliance and

integration needs, as well as leading to greater efficiencies.

There is still a big disconnect between legacy tech and new generation tech functions. Governments need to restructure their core IT functions so they are not siloed, as well as work alongside and in close collaboration with teams leading innovative and disruptive projects.

The open source community represents a unique and easily accessible opportunity for local governments to accelerate their digital evolution, and create more efficiencies. Local governments are slowly following the lead of businesses: they're becoming software organisations. To succeed in the next step of their digital evolution, it is vital they put the role of the developer front and centre, as well as foster an open source mindset internally, to increase collaboration and speed up innovation.

CAUTION: MERGING AHEAD

Dylan Bushell-Embling

MERGING OR RESHUFFLING PUBLIC SECTOR ORGANISATIONS LEADS TO AN ENHANCED RISK OF CYBER ATTACKS, THE ACSC HAS WARNED.



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Mergers, the reallocation of government functions and other major organisational changes within public sector organisations present major cyber security challenges, according to the Australian Cyber Security Centre.

Major organisational changes present significant opportunity for attackers, such as opportunities to use social engineering and other low-sophistication techniques to cause significant harm, the centre said in a new publication.

A merger between two public sector organisations may increase the chance of systems being misconfigured leaving them vulnerable to compromise, the ACSC warned.

Combining two organisations with different security postures may also lead to assumptions being made about the effectiveness of the combined company's security controls, and if adversaries have compromised one organisation's systems, they could be granted easier access to the second organisation's systems post-merger if systems are connected.

The key to understanding security postures between different organisations is sharing candid information as efficiently as possible, ACSC said. Examples can include an exchange of penetration testing results and cybersecurity incident registers.

ACSC also recommended that agencies consider conducting fresh penetration testing after a major organisational change to verify the security posture of any combined systems.

Before any systems are combined, ACSC recommends that agencies consider questions such as whether the systems are still under vendor support and fully patched, as well as how new systems will be patched, backed up, monitored and managed.

Cybersecurity governance, policies and standard operating procedures may also need to be updated to cover the combined systems.

Another significant challenge of maintaining strong security during organisational change involves file system and other data migration, the publication states.

When data is being migrated online, ACSC urges agencies to use technical measures including encryption and checksums to ensure data is not corrupted or modified in transit, and to appoint two trusted staff to oversee the transfer and verify that data is being sent to the intended destination.

When using public cloud storage as an intermediary, organisations should use cloud storage from a government-certified cloud provider and ensure any cloud storage uses access controls limiting access only to staff and systems involved in the transfer.

Media being used for physical transfer of data should meanwhile be protected

in transit and thoroughly wiped before released for general use or disposal, the ACSC advised.

Before importing data into an existing system, organisations should review system and data architecture, business rules and security architecture. Organisations should also take reasonable steps to ensure any imported data is free from malicious software, such as scanning the data with two separate high-quality antivirus products.

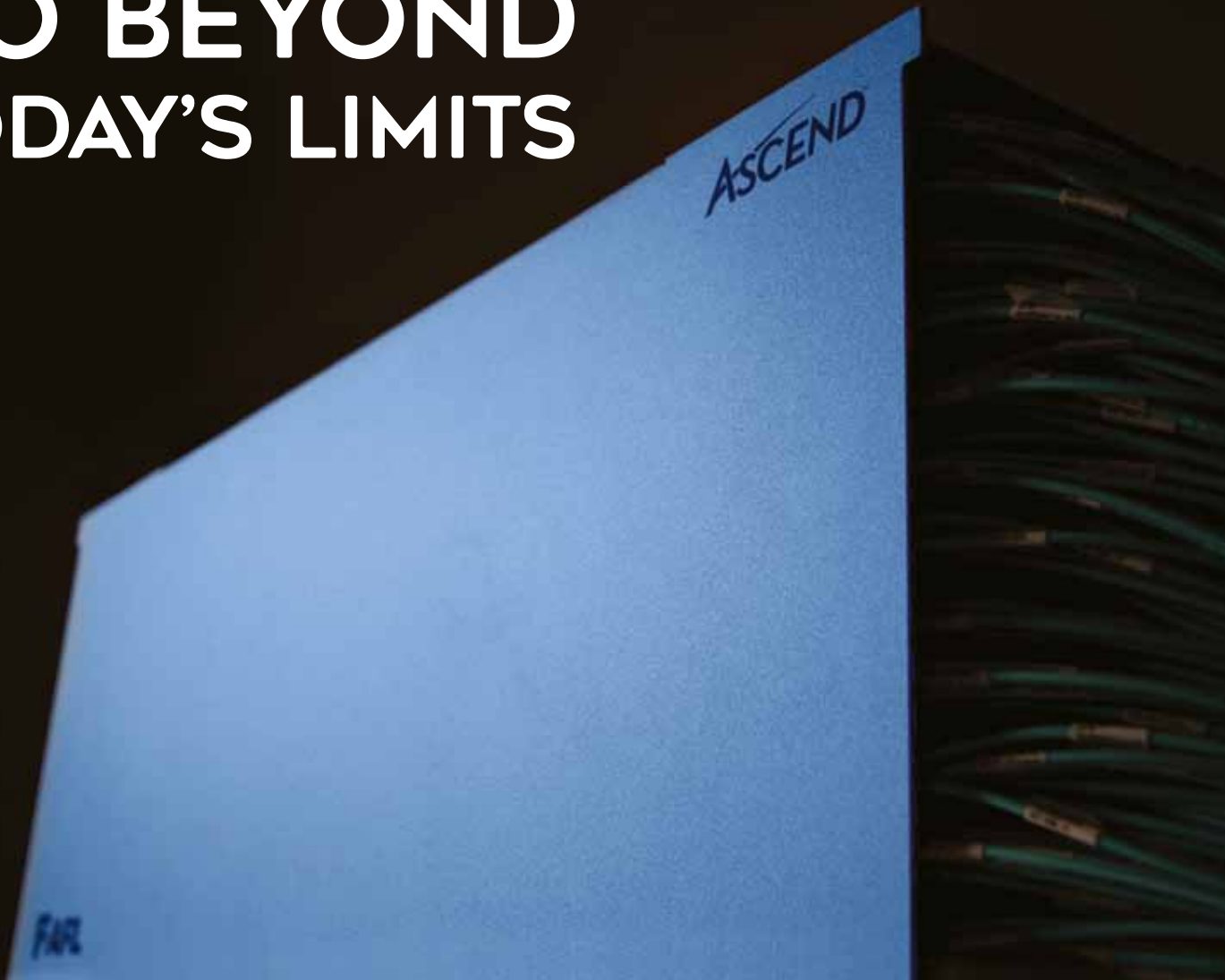
Another important prerequisite involves ensuring any sensitive data will be protected with the same level of security or higher in its new destination.

Following data migration, organisations may need to take additional steps to preserve file system permissions, as in many cases there is no native support to move access control lists between different systems.

ACSC also called on organisations to establish well-developed relationships between the operational cybersecurity teams in each organisation early on in the merger process to improve incident response capabilities.

Other factors that must be planned for include the increased potential of a combination of systems to reduce system availability protection capabilities, the need to join network environments while being confident that neither environment is the subject of an active compromise, as well as issues related to how identity and access control is handled in combined systems.

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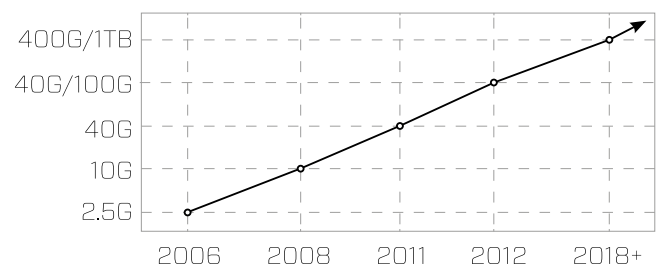
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Optical Network Progression



Icom's IC-SAT100 — Satellite Push-To-Talk Radio

Icom's IC-SAT100 (Satellite PTT) offers global communication over the Iridium® satellite network. Where traditional satellite phones offer one-to-one type calls, the IC-SAT100 users can immediately start talking to all the radios in the same talkgroup, with just a push of the PTT. The IC-SAT100 can be used as a communication tool in remote, isolated areas where there's no cellular network coverage available or landline network infrastructure support. In a situation where terrestrial network infrastructure is rendered unusable by human or natural disasters, Icom's Satellite PTT can provide stable back-up, independent from other networks.

With the IC-SAT100, users will be typically charged a flat rate through a monthly plan and there are no additional call charges. Different monthly plans will be available to better suit your communication needs depending upon the coverage area and the number of Talk groups.

The IC-SAT100 is an ideal tool for personnel involved in Emergency Response, Business Continuity Planning (BCP) and Disaster Recovery environments that ensures reliable and instantaneous communication even in the remotest location. This one-of-a-kind radio ensures seamless communication without investing in setting up essential infrastructure.

Features of the IC-SAT100 include:

- Wide Area Global Communication — The Iridium® satellite network can provide wide area global communications anywhere on the planet. (Depending on the country or region, carrying or the use of the IC-SAT100 may be prohibited.)
- Real-Time, Low Latency Communication — Using 66 low Earth Orbit (LEO) Iridium® satellites, the IC-SAT100 provides

low-latency communication and broader, more reliable network coverage.

- The IC-SAT100 has a built-in Emergency Key that can be used for emergency situations. An emergency call can be transmitted to preprogrammed users by holding down the key.
- The IC-SAT100 provides an IP67 rated waterproof dust-tight and durable body making it suitable for use in harsh outdoor environments. The radio also meets MIL-STD 810G specifications and has an operating temperature range of -300°C to +600°C.
- The IC-SAT100 comes with a 1500mW powerful audio delivered from the internal speaker that provides loud and clear communication even in noisy environments.
- The radio comes with a Li-ion battery pack that provides around 14.5 hours of operation.
- Secure Conversations with AES encryption
- Built-in Bluetooth®
- Aquaquake™ function clears any water ingress that may penetrate the speaker grill of the unit.
- Integrated GPS receiver
- SMA type antenna connector for an external antenna
- Short Data Message Function
- The IC-SAT100 is compatible with other Iridium® PTT devices, including Iridium® Extreme PTT (some specific functions may not be compatible).

Icom will be launching the VE-PG4 RoIP gateway in the coming months. The VE-PG4 offers interoperability with existing infrastructure including LTE Networks, Radio over Wi-Fi, IP Phone Systems and LMR Networks.

The IC-SAT100 is now available in Australia.



For more information on the IC-SAT100, please send an email to sales@icom.net.au.

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COUNCILS EMBRACE TECHNOLOGY TRANSFORMATION

Dylan Bushell-Embling

AUSTRALIAN LOCAL GOVERNMENT COUNCILS ARE UNDER INTENSE PRESSURE TO TRANSFORM THEIR OPERATIONS TO MEET THE INCREASED EXPECTATIONS OF THEIR RESIDENTS, ACCORDING TO A NEW REPORT FROM KPMG AND PUBLIC SECTOR NETWORK.

In May, KPMG sponsored Public Sector Network's Local Government Transformation Series — an evaluation of the key challenges faced by local government areas in Australia. The initiative involved a roadshow across six cities in Australia and New Zealand.

The resulting report evaluates the state of technology transformation across the local government sector.

According to the report, a number of local councils are either developing technology transformation strategies or

in the midst of rolling out transformation programs.

But these initiatives have met with varying degrees of success. While some councils are adopting a 'quick fix' approach by immediately seeking to transform the front end of customer experience, a truly successful transformation program must also involve a great deal of middle- and back-office transformation as well.

Attendees to the series were asked a number of questions regarding the status of their transformation journey.

The survey found that a local government transformation program can be divided into three key steps — program strategy development, program business case development and program operational rollout.

Responses indicate that 29% of councils are at the strategy development phase, 22% are at the business case development stage and 37% are at the operational rollout stage.

Only 7% of councils have not started a technology transformation

program at all, and just 3% consider themselves to be at the transformed stage.

The state of transformation varies by area, KPMG said — while the majority of respondents from Western Australia and South Australia stated they were at the operational rollout stage, the majority from NSW are at the business case development phase, and the majority from Victoria and Queensland are at the strategy development phase.

The report states that the results of the survey do not fully reflect the extent of digital transformation projects that the company has observed in the market.

For example, KPMG has observed that a number of councils in Victoria and South Australia have established live transformation programs, which is not the case in NSW, where the focus has been on amalgamation challenges.

The transformation programs being planned or underway share some common characteristics. Nearly 100% of respondents stated that their transformation projects had the key prime focus areas of improving customer experience, digitisation and modernising technology.

A key theme involves adopting sophisticated data analytics to capture customer information to make more informed decisions.

KPMG said it has identified a real increase in the maturity and expertise of councils in focusing on the customer. This has included developing the skills and resources to understand what customers want, how they want to engage with council, and what changes need to be made to facilitate this. The results of the research reflect this.

All of the respondents to the survey agreed that improving the customer experience was the biggest identified benefit in their investment case for their transformation program.

This was followed by improving decision-making and collaboration and breaking down organisational silos (70%).

No single council has all these skills to hand, nor does Local Government have a lot of free capacity...

Other significant identified benefits include improving productivity as well as lowering maintenance spending and unnecessary vendor costs.

But councils are also facing a number of roadblocks obstructing their customer and technology transformation program, the survey found.

A full 100% of respondents identified a lack of adequately skilled resources as the largest potential obstacle inhibiting their transformation programs. This was followed by a lack of clear leadership (83%) and insufficient financial resources (53%). Nearly half cited difficulties in sourcing vendors and procurement partners.

“Successful delivery of a transformation program obviously requires bringing together a range of unique skill sets across a variety of disciplines, including project management, change management, customer experience and user experience design, solution architecture, data migration, integration, and systems analysts,” the report stated.

“No single council has all these skills to hand, nor does Local Government have a lot of free capacity or funding to release existing resources full time.”

The survey found that 98% of respondents’ transformation programs include back-office and customer relationship management software replacement. KPMG said this demonstrates respondents’ understanding that tackling the often unseen back-end procedures and processes is a vital step in transforming the front-end customer experience.

By contrast, while 70% of respondents had invested in front-end components such as redesigning their council website, many have not yet commenced this component of their transformation.

In addition, one-third have still not tackled ‘middle section’ components such as integration layers, data warehouses or payments platforms.

“A holistic integration of back, middle and front end components must take place to make a significant step change in transformation. Replacement of core back office and CRM technology will deliver firm foundations, however to ensure a seamless service experience for customers and council employees, investment in the ‘middle section’ is needed to support end-to-end process delivery,” the report stated.

“Based on our survey results, this is a significant pain point and a number of transformation programs are suffering from under-investment in these key components that deliver real, direct customer experience improvement.”

According to the report, a connected council transformation program should include back-office investments in fit-for-purpose IT and data architecture, as well as in ensuring processes and functions support a seamless customer experience.

This should be accompanied by investments in service delivery supporting the redesign towards a customer-centric model, as well as in customer experience and engagement. This requires understanding the needs and preferences of end users.

Both components should be combined as part of an underlying service delivery framework.

The report also proposes that councils could assist each other on their transformation journey by collaborating to develop standardised toolkits and architecture roadmaps for these programs. But it notes that precise transformation plans should always be customised to fit the individual culture and environment of each council.

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THE APPLICATION OF INTELLIGENT DESIGN AND TECHNOLOGY-BASED SOLUTIONS WILL HELP LEAD AUSTRALIA INTO A PRODUCTIVE, SECURE AND MORE SUSTAINABLE FUTURE.



BUILDING THE FOUNDATIONS FOR A PRODUCTIVE AND SUSTAINABLE GOVERNMENT

Mark Gambino

In a rapidly changing world, the need for businesses and companies to ensure the continuous delivery and improvement in quality of services has become the number one priority for building engineers and systems designers worldwide. When it comes to government operations, this tenet applies tenfold.

For companies like Ecoview Integration Services — a division of national electric services company Stowe Australia — the key to achieving this lies within people, not products.

“The main component in a company like ours is we’re trained on all the new products released,” said Evan Petersen, National Operations Manager for Ecoview. “Each platform has its own benefits, pros and cons. We look at the client’s design documents to understand what’s been specified in the functionality and what the client wants to see as the end result; and we’ll know the best system that fits the brief.”

Ensuring end functionality is critical for Petersen, who understands that the experience and knowledge of his team is just as important as the training and support behind it.

This concept underpins Schneider Electric’s ‘EcoXpert’ training and certification program, which helps to provide system integrators like Petersen with the knowledge and expertise to design systems and install products that operate effectively and efficiently.

“If we’re working on a job and find a limitation with equipment, we can go back to Schneider Electric for advice and help,” said Petersen. “Schneider assist our team by demonstrating new product releases and provide on-going training and technical support when required.

“Our team has invested a lot of time testing the hardware used on our jobs, to make site installation a much more efficient and effective process.”

To this end, the team at Ecoview recently completed the design and installation of a lighting control system

— based on the new C-Bus Automation Controllers — that spans 23 floors of one government building, which is monitored and controlled from a single computer; reducing the need to purchase and maintain hardware and software across multiple floors, thereby reducing cost and downtime.

Other areas of government are now mandating for smarter hardware design like this, which is leading to innovation in building services for many departments, including the Department of Defence.

“Defence operates large, complex and secure enterprise systems,” said a Defence spokesperson.

“When developing new buildings and infrastructure, Defence seeks to maximise the use of extensible and programmable systems in the design and build phase, where those are compatible with Defence security environment and operational requirements.

“Defence uses available technologies where appropriate to assist with building management. Defence has encouraged innovation within its contracts that deliver facilities management and infrastructure support.”

On a community level, systems such as this are a growing component of design and construction for new local government buildings or the upgrade of existing structures to improve usability and sustainability.

An initiative of the Turnbull government, the Smart Cities and Suburbs Program is designed to “improve the liveability, productivity and sustainability of cities and towns across Australia” by funding innovative technology-related solutions in a broad range of sectors, such as education, public spaces and services, and lifestyle and recreation facilities.

Now in the second round of implementation, then Federal Minister for Urban Infrastructure and Cities Paul Fletcher stated last year that the project will “deliver innovative, technology-based approaches to improve the

liveability and increase the productivity and sustainability of Australia’s cities, suburbs and towns”.

A project in the first round of this initiative was the development of smart digital infrastructure in the South Australian town of Kapunda, which is now being used to collect data on city services and deliver improved living conditions to the town’s residents.

Large-scale projects such as this can be a complex task, but ones made easier by determining outcomes directly from the client to ensure the right solutions are delivered.

“Our priority is to work out what the client actually wants,” said Michael McKay, Principal Engineer at Pesce. “When you look at plans, [what is required] is not always apparent from the specifications, but it’s apparent when talking to the client. Then we choose the key equipment that accomplishes that outcome.

“Our training gives us knowledge that we use towards putting together a system that is a better design and gives us the knowledge to use a product appropriately, so we can optimise the equipment we provide.”

An Australian company that has delivered automation and power solutions for various levels of government, the team at Pesce also understand the modern security concerns that come with digitally connected systems.

“For all our systems, security is quite important,” McKay said. “It’s a very real and very big concern if someone can gain access to a poorly configured network.

“Schneider Electric take digital security seriously, so our knowledge and training on Schneider products allows us to address security concerns in a very thorough way, which gives us an advantage over other businesses.”

Through the application of intelligent design and technology-based solutions, the infrastructure of modern Australia and the skills of those behind it will help lead our country into a productive, secure and more sustainable future.

CX SOLUTIONS IN A VOICE-ACTIVATED WORLD

Margaret Harrist

IN A WORLD OF VOICE-ACTIVATED, 'PAGELESS' SERVICES, YOUR 20-YEAR-OLD APPS CAN'T KEEP UP.



M

any companies are chugging along on back-office software systems that were implemented 15

or even 20 years ago, with business processes hardwired in through extensive customisations that no longer fit with our mobile and increasingly voice-activated digital world.

Juergen Lindner was among those who spent a lot of his career implementing those heavily customised systems. Now Senior Vice President of Product Marketing for Cloud Applications at Oracle, Lindner spent almost 20 years at SAP.

"I am guilty as charged — I bastardised the heck out of those systems," he told a room of reporters during Oracle Media Days, held at the company's headquarters in Redwood Shores, California. "But business processes have evolved. Whatever you put in a decade ago may not be cutting it in this new world, and I encourage executives to look at their business processes anew."

Here's an example: Your customers and employees will increasingly see it as old-fashioned if they have to use a webpage, a PC screen or even a smartphone touchscreen to engage with an application.

"We live in a pageless world," said Rob Tarkoff, Oracle Executive Vice President of Oracle Customer Experience Cloud. "My watch tells me to stand up or I interact with a voice interface on one of my other devices."

The US city of Albuquerque has taken this to heart. For the last year, Tarkoff said, residents have been able to contact the city's '311' non-emergency municipal services contact system using their Alexa-enabled device to report abandoned vehicles, graffiti, missed rubbish pickup or a range of other non-emergency issues, as well as get answers to frequently asked questions. The 311 service is

powered by Oracle Service Cloud, which can generate service tickets for the right city departments.

But high expectations for ease of use aren't limited to how people engage with organisations on their devices; people are also becoming accustomed to the convenience of applications powered by machine learning — and they'll expect those kinds of intelligent interactions with the applications they use on the job.

Organisations need systems capable of seeing what a customer or employee is doing and understanding their intent — is a customer almost ready to transact, an employee considering changing jobs or a warehouse manager about to order too much inventory?

"How do you collect the right kind of signals from those interactions, combine it with third-party and first-party data and then understand the right next action?" Tarkoff said. And, the big challenge is to do it in real time and at scale.

That's why one of the key focus areas of Oracle's cloud applications development teams is to incorporate machine learning into both back-office and front-office systems.

"We're not looking at emerging technologies as side gigs to the actual business problems," Lindner said. "It's built right into the applications, layered with the data and the intelligence to gain insight from that data throughout the organisation and all the way through the technology stack. All of this together provides maximal outcomes."

KNOCKING DOWN SILOS

Key to getting the best outcomes is being able to connect the dots across the organisation. But the technical, data and business process silos that many organisations built over time to meet certain functional needs are now becoming baggage that leaves employees inventing workarounds,

keying data into spreadsheets and duplicating effort. Further, all that work is in support of an outdated operations model.

"From a business perspective, it's gone beyond the need for a point solution; it's about complete business process flows and transforming the entire enterprise," said Steve Miranda, Oracle Executive Vice President of Applications Development, who spoke on a panel with Lindner. "That's why we built a much broader suite of cloud solutions, offering a complete way to run your business."

And because Oracle Cloud applications are updated quarterly, new features can be added quickly. Easy access to a steady cadence of new, digital capabilities is critical for organisations — especially as companies look to use machine learning to glean more insights from data.

"Data has become the number-one conversation I have," Tarkoff said. "And while it's easy to talk about data in the CX world, it's hard to engineer solutions around data that create a great customer experience, leveraging machine learning and intelligence to help you optimise your time and delivering it in a way that organisations can consume easily."

For example, using machine learning so your staff know their next best action is good, he said, but organisations that can orchestrate data, insight and business process across a range of functions will be able to deliver a far better customer experience.

"We're working with our customers on the harder CX problems," Tarkoff said. "It's not good enough to build the technology; you need to think about how it is delivered and what the total end experience is like."

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Attunity: Your data integration solution for streaming data pipelines

The ground is shifting under the feet of enterprise data teams as business demands for machine learning, IoT and other advanced analytics initiatives create the need for modern data platforms. To operate effectively, these cloud, data lake and streaming platforms require real-time, universal, agile and automated data integration.

Attunity delivers data integration solutions that enable you to meet these requirements and modernise your data pipelines for advanced analytics. Half the Fortune 100 and more than 2,500 organisations globally, including government departments, state-owned energy firms and others depend on us to integrate data and metadata in real-time across their heterogeneous and distributed environments.

Streaming data pipelines

Our universal solutions enable you to automatically and non-disruptively stream live transaction data from production sources such as Oracle, mainframe and SAP to any major target — database, data warehouse, data lake and streaming systems, on premises or in the cloud. We also automate the creation and updates of data lake and data warehouse structures to accelerate data transformation within the pipeline. The result: rapid data readiness for analytics. Here is why CIOs and architects trust Attunity:

#1 in Change Data Capture (CDC): We are the largest independent provider of real-time CDC data transfer technology, with the broadest support, highest performance and lowest impact.

#1 in Cloud Migrations: We have moved more than 120,000 databases to AWS, Azure

and Google cloud platforms.

#1 for Ease of Use: We eliminate scripting and reduce dependency on developers by applying a consistent, 100% automated process to any replication source or target.

Generate and deliver data streams

Attunity provides a real-time, universal, agile and automated data integration platform based on industry-leading CDC. We enable architects and database administrators to quickly configure, control and monitor data replication, all through an intuitive graphical interface that eliminates manual coding. Our agentless CDC software remotely scans transaction logs to capture updates without putting any software footprint or performance overhead on production systems. We are optimised for all sources and targets. You can stream data and metadata changes across hundreds or thousands of systems, including any major RDBMS, legacy, data warehouse, data lake or streaming platform. Manage your streaming data pipeline through one pane of glass. We are agile. Our software runs in the cloud, on premises or in hybrid environments. You can deploy rapidly, with no agent software, and easily change sources or targets to evolve with ‘architectures in motion’.

Refine and transform data

Attunity software further reduces the time and effort of Big Data analytics by automating multi-stage data processing to eliminate coding. DBAs and architects can automatically create and update data lake stores. They can automatically transform enterprise data within them, then easily adapt to source and target changes. Our solution enables you to continuously feed Operational Data Stores (ODS) for real-time views, as well as Historical Data Stores

(HDS) that track all data and metadata changes. We also speed analytics projects by automating the design, implementation and updates of data warehouse environments. Our solution will minimise the manual, error-prone scripting processes involved in data modelling, ETL generation and workflow. You can easily adapt to new requirements by auto-propagating source or model changes through the data warehouse environment.

Integrate and manage metadata

Finally, Attunity users can better understand, access and trust their data by integrating and tracking metadata. Our unified repository provides end-to-end lineage views of sources, targets, replication and transformation processes. We also have taken a leading role in industry initiatives such as ODPi to simplify Big Data ecosystems with enterprise-wide discovery and reporting. This includes certified support for the Apache Atlas data governance framework. Visit <https://www.ibt.com.au/attunity/> to learn how we can accelerate your analytics readiness with modern data integration for streaming data pipelines.

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Kate Cornick, CEO, LaunchVic

THE PUBLIC SECTOR TRADITIONALLY PROCURES FROM WELL-ESTABLISHED COMPANIES. IT'S TIME TO THINK ABOUT WORKING WITH START-UPS.

Governments have a responsibility to drive economic development and jobs, and departments and agencies such as LaunchVic are established to support this. Another driver of economic growth is procurement, and while this is widely recognised by government as a job creator, not many people understand the huge potential offered by procuring from start-ups.

Each time a trusted public sector organisation such as the Victorian Government purchases from a start-up, they provide that start-up with a valuable use case, sending a powerful signal to other purchasers that it's 'safe' to buy from them.

However, government procurement processes, designed to minimise risk,

can make it difficult for the public sector to purchase solutions from start-ups. The CivVic Labs Accelerator Program aims to address this and is looking for civic problems to solve.

A SAFE PLACE TO DO SOMETHING NEW

As Australia's first GovTech accelerator, CivVic Labs aims to connect government challenges with start-ups who can solve them. From the start-up perspective, CivVic Labs helps them scale, securing more capital and creating more jobs. From a government perspective, problems are able to be solved in innovative ways without huge risk, and government teams are exposed to new ways of working.

How the program typically works is that the government presents a challenge to CivVic Labs, which in turn



Kate Cornick, CEO, LaunchVic



promotes it to the start-up ecosystem, inviting proposals for solutions. The best ideas from submissions are refined in the CivVic Labs pre-accelerator, with the best solution for each challenge moving to the accelerator phase. Here, a minimum viable product or prototype is built — with the backing of CivVic's funding, mentors and resources. There is also an opportunity for the start-up to secure up to \$185,000 in investment to develop the solution as a market-ready product, to sell to other customers and effect change on a larger scale.

So far, four start-ups have successfully been paired with government challenges, building their capability and connections in the government sector. St Vincent's Hospital, for example, was looking for innovative ways to reduce the number of hospital-acquired conditions (HAC) that patients contract within hospital walls. Currently, one in nine hospital admissions result in a potentially preventable HAC, and a breakthrough in thinking was needed.

After posing the challenge to the CivVic cohort, the hospital partnered with data analytics start-up Sky Ledge to develop a platform that proactively predicts the occurrence of preventable HAC. Its solution has the potential to

both save lives and ease the burden on the public health system caused by these preventable diseases.

In another positive outcome, the Department of Transport has started working with Envision Systems to understand how Victorians use public transport (trains, trams and buses) through sensory monitoring. The solution will hopefully help the state overcome current public transport data silos and gaps and meet future demand.

Other organisations in Victoria's public system are in the process of linking up with the state's approved innovators, and the call is out for further challenges to solve.

BRIDGE THE MIDDLE GROUND — WORK DIRECTLY WITH START-UPS

Despite the perception that government is behind on its digital transformation journey, the public sector does want access to innovative thinking, and is committed to delivering citizen value through better services and increased efficiency. But public sector procurements traditionally rely on purchasing from larger, more-established companies. These enterprises are rarely working at the forefront of technology; where they are, they are likely to be working with start-ups. Can we remove

the middle ground and see government working directly with start-ups?

CivVic Labs presents an opportunity for the public sector to progress the digital economy and accelerate the growth of the Victorian start-up ecosystem, which grew 40% in the past year alone. Government teams will also benefit from start-up collaboration in more intangible ways. For example, programs such as CivVic Labs offer a unique professional development opportunity, exposing public servants to agile start-up thinking.

Despite not always speaking the same language, public servants and start-ups share a passion for solving the same problems. Their differences, instead of keeping them apart, should be used to spark creativity and develop stronger solutions together.

I'd encourage any public servant who has ambitions to innovate to come forward and get involved. CivVic Labs is a great environment for Victorian Government professionals to learn from some of the best innovators in the world, whilst progressing the start-up sector, solving real challenges and realising economic potential. Both parties will benefit from the partnership, and Victoria's economic development and job growth will follow suit.

Mobilising Intelligence for Smarter Engagement

Rapid population growth, smart cities and IoT are reliant on the development of visual, spatial and graphical applications.

Especially where the digital and physical worlds will underpin the future of economic growth and efficiency gains.

This is time of rapid change, where technology is disrupting how people interact and businesses operate. There are new rules for business and just about everything we knew is on the table for review with the objective towards customer centric contextual communications.

Recently we were investigating the concept of a Local Government spatial data services maturity model. The results from a range of client discussions confirmed digital engagement priorities have shifted more firmly towards:

1. Connected Customers — digital interfaces that are smart enough to conduct an online relationship with the customer and deliver most services
2. Connected Systems — connecting information systems together live, to flow data between them so that information is current and complete in all places
3. Integrated Service Delivery — connecting all service delivery channels so that the customer receives coherent and coordinated experiences via the channel of choice
4. Efficient Service Delivery — understanding and measuring service delivery activities

to improve the customer experience being delivered and using this information to reduce costs.

These objectives alone are enough to indicate that GIS Platforms deployed in most Government and Utility organisations including IT and data storage architectures are no longer suitable.

Spatial data Infrastructure may have been satisfying mapping and visualisation for many years for an increasing number of stakeholders, however the speed of, and lack of free-flowing data updates is an impediment.

Heroic has been used to describe the sheer effort to manage the range of applications and maintain data currency in legacy systems. When considering the expectations of Smart Cities residents, businesses, visitors and city services to be connected, there is more need for a leadership role focused on data.

Data needs to be moved to be of value to any organisation. It should not be Static. Rather, managed in terms of Dynamic. Rich data is not just location-based, but also temporal and now includes sensor related inputs.

Informing mobile users on parking availability, traffic congestion, potential flooding alerts, events and road works. At the same time supplying this information in the context of 3D models will severely challenge the scalability of current ICT architecture.

The reliance on the small numbers of GIS practitioners and data scientists has grown enormously. But the data to flow to, and through them, for mobile operations, open

data, system integrations and IoT will grow exponentially in the next three to five years. Mobile users expect accurate and immediate responses to context-based queries in an interface that is accessible anywhere and anytime. They are seldom aware of how challenging it can be to retrieve, process and publish the data from disparate servers and databases to the multitude of available devices and operating systems.

Online users would also not appreciate how large or rich some of these data sets might be, or the incompatible format it was originally supplied in. They don't care about how the data was served, only the speed at which they can get their answer. Users expect that the data will be accurate.

Is it time for your organisation to review core applications, servers, databases, infrastructure, data sources, processes, 3D and data standards or governance in context to mobility strategies? RapidMap will be running a series of round table events in the near future with technology specialists including Zebra and 4D Global. If looking for a friendly forum to discuss, register your interest at roundtable@rapidmap.com.au **Please follow us and share on Twitter and Facebook. You can also subscribe for FREE to our weekly newsletter and quarterly magazine.**



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DELIVERING ON THE MISSION

PICKING THE RIGHT TEAM MEMBERS
AND GIVING THEM SUPPORT ARE KEY
INGREDIENTS FOR SUCCESSFUL PROJECTS.

Stephanie Foster, Deputy Secretary, Governance, in the Department of the Prime Minister and Cabinet, began her public service career in a small intelligence agency. As an Arts (Honours) graduate majoring in English literature and German philosophy, she said she didn't have a well-formed career plan in mind. "I certainly hadn't envisaged that I would be concerning myself with the entrails of government, as is the essence of my current role," she said.

Foster loved the intelligence world so much she stayed for nearly 23 years, working on intelligence and international policy, until she finally realised "I'd die in place if I didn't spread my wings". That realisation took her on a "somewhat scary but exciting" journey through infrastructure, regional development and the public service commission.

TELL US ABOUT YOUR CURRENT ROLE AND WHAT IT ENTAILS?

My current role as Deputy Secretary, Governance at PM&C has me taking a 'whole picture' outlook to deliver results for government. I'm responsible for Cabinet and coordinating support for the Prime Minister, machinery of government, legal policy and governance issues, as well as the Department's corporate management. Primarily, we provide an enabling function — we work to enable the proper functioning of government and, through our Corporate Services, we enable and support the Department to deliver on its mission and priorities.

CAN YOU DESCRIBE A CURRENT OR RECENTLY COMPLETED PROJECT?

The APS Policy Capability Project was commissioned by the Secretaries' APS Reform Committee last year, and a cross-agency project team has been doing some fabulous work on this since September. Through this project, we're

bringing together the great pockets of really innovative approaches to policy development across the system into a 'policy hub', a curated online library of policy tools, resources and expertise for all policy advisers.

The initial phase of the project attempted to answer one simple question: How can we lift policy capability across the APS? To get to this point, the team engaged with over 200 policy advisers and policy leaders, analysed APS workforce data and reviewed publicly available evidence.

WHAT DID YOU LEARN FROM THIS PROJECT?

I've been excited to see the amazing rate at which you can achieve [results] with a small number of the right people. The team was consciously picked for their diverse experiences. They were given a broad objective but then they had the freedom to find their own methodologies and solutions. What this team has achieved really reinforces that you don't need many people — you just need to have the right ones and to give them the headroom and backing to do their best work.

I think the key ingredients that are making this project work so well are the team's structured approaches to tackling problems — including by using agile methodologies — and that they ensured they had commitment and engagement from decision-makers upfront. With these important foundations in place, they rallied to deliver great results quickly. This project showed the importance of actually 'doing' stuff, not just talking about it. Demonstrating, not advocating.

I've been reminded by this project that we need to make sure we don't become defeated by the failure of numerous efforts over many years to tackle really hard problems. Every effort moves you forward and fresh thinking can genuinely find new responses.

WHAT EXCITES YOU MOST ABOUT THE FUTURE?

For a long time I've had a passion to see a high-performing APS delivering excellent outcomes for Australians. We do a lot of great work, but there is so much scope to do things differently and improve how we operate and deliver. The APS Review will give us the aspiration and clear direction to achieve that.

I'm also excited about the opportunities that disruptive technologies, along with disruptive millennials, offer us.

WHAT ADVICE WOULD YOU GIVE SOMEONE LOOKING TO FURTHER THEIR CAREER IN GOVERNMENT?

Do what you really love. Do it with your whole heart and always focus on how you're helping to make the world a better place.

WHERE DO YOU LOOK FOR FURTHER EDUCATION?

I endeavour to read broadly. My regular sources at the moment are *The Economist*, the *Financial Review* and various podcasts, such as *Freakonomics Radio*, *The Daily* and Malcolm Gladwell's *Revisionist History*. My executive officer and I check in with each other regularly to compare and discuss what we've been listening to and reading. This helps motivate us to read that extra article before bed!



Stephanie Foster spoke at Public Sector Network's recent Public Sector Innovation Show. Visit <https://events.publicsectornetwork.co/events/> for the full list of upcoming government ICT conferences, workshops and summits.

AGE DIVERSITY IN THE DIGITAL WORKFORCE

Craig Roth*

EACH GENERATION HAS SKILLS AND EXPERIENCES THAT CAN CONTRIBUTE TO YOUR DIGITAL WORKPLACE SUCCESS.

I want to walk you through one of the more interesting findings from my Digital Dexterity Index (DDI) research. While aggregating an index of six questions from a larger survey of digital attitudes and experiences, I found that the youngest workers have the highest digital dexterity. That's not the interesting part — you probably expected that. What's interesting is that the second-highest digital dexterity was actually achieved by the oldest workers (aged 55-plus). Age groups in between scored lower.

I know what you're thinking: what do you mean the oldest workers are almost as digitally dexterous as the youngest ones? My teenagers are so into new technology I can't even keep up, while my grandmother can't even figure out how to send an email.

This may seem counterintuitive at first, but let's see if I can give your intuition a mental workout. Luckily the DDI doesn't just give an answer, but goes one level deeper into explaining 'why' since we can explore the six scores it consists of. There are two twists to get your intuition pointing the right way.

First, this index is for full-time workers, not consumers. Most older people, such as that hypothetical

grandmother who can't do email, have exited the workforce. The ones who are still working are capable and want to get their jobs done as best they can. As for teenagers, their attitudes towards technology in their personal lives may change or adapt once they report to work. After all, at work they will be among a different peer group, with different expectations and requirements.

Second, we define digital dexterity as the ability and willingness to use new technologies to get work done. The DDI is meant to indicate categories of people who, while at work, are more likely to use and absorb the new ways of working (NWOW) you are trying to introduce. It isn't an observational measure of whether they jumped early into Instagram or how often someone flits from app to app. Digital promiscuity may not lead to digital dexterity.

With that direction established, now I can explore the six elements. I decided to pick questions that looked at worker's circumstances and attitudes. For example:

- Have their jobs evolved to the point that they have a lot of freedom in deciding how they can do their work? Because non-routine work provides more opportunities and more need to use a wide variety of new general-

purpose creation and coordination tools.

- Do they think work gets done better in teams or alone? Because most new ways of working involve collaboration.

I also decided that I wanted to zero in on high performers — those in the top 20 points on a 0–100 self-reported score, not the average. Why not averages? Because I wanted to study the characteristics of high performers who are ready today to adopt NWOW. By comparison, if you want to study geniuses (IQ more than 140) by country you would look at what percentage of the population in each country has an IQ over 140. The average IQ in each country wouldn't be the best metric. You wouldn't care if one country has twice as many 110s as another. That would affect the average, but if you are just studying geniuses it is irrelevant.

So as I mentioned at the beginning, young workers garnered the highest DDI score. They had the most high performers in working away from a desk, a belief in the work value of apps and devices use from home, and a great attitude toward new workplace tech (the biggest component of the index). No surprise there — it matches the common intuition.

But older workers had different ways of racking up a DDI score. They were



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most likely to be respondents who believed highly in the value of working in teams and in the value of enterprise social networking, and they were doing mostly non-routine work.

We are busy crunching the numbers on a new set of survey data and it's possible that this time around the spread may differ. But I hope this snapshot injects some perspective into the approach that technology providers and IT leaders take towards older workers when deploying NWOW. As I

wrote in 'Age: The Missing Spot on the Tech Diversity Rainbow?', I have heard too many clients and vendors focusing exclusively on millennials as the only workers 'worth' focusing on. And no doubt, as our results show, the youngest workers are a critical part of your ability to introduce new and clever ways of working.

But the better approach is to be inclusive of all generations when planning changes to work practices and tools. Each generation has skills and

experiences that shape their readiness and can contribute to your digital workplace success.

**Craig Roth is a Research Vice President within the Gartner for General Managers team. His research efforts focus on understanding how knowledge workers get their jobs done today and how they are likely to get them done in the future. He is the creator of Gartner's Digital Dexterity Index.*

Featured products



Four-bay, outdoor shelters

MFB's four-bay, outdoor shelters allow people in remote regions of Queensland to communicate via the state's trunk two-way radio network.

They are powered by a solar array, which sits on top of the shelters, along with a battery bank that is housed in the MFB battery enclosure next to the shelters.

MFB Products Pty Ltd
www.mfb.com.au

IoT gateway

The UTX-3117 uses Intel Atom E3900, Celeron N3350 and Pentium N4200 series processor technology to provide a real-time, Internet of Things (IoT) computing, power-efficient, plug-and-play gateway. The device is compatible with Microsoft Windows 10 IoT Enterprise, Yocto Linux and Wind River Pulsar OS. Furthermore, it has integrated Advantech WISE-PaaS software and is certificated with an AWS Greengrass IoT solution to bridge connectivity from edge sensors to the cloud.

This IoT gateway integrates three RF modules in palm-size dimensions, including one M.2 slot for Wi-Fi, one half-size MiniPCIe slot and one full-size MiniPCIe slot for 3G/LTE, Zigbee or LoRa connection. It features a special double-sided thermal solution and offers three independent RF modules to maintain maximum RF throughput in temperatures ranging from -20 to 60°C. The UTX-3117 has two RS-232 and RS-422/RS-485 serial ports for device control and wire sensor data aggregation. It also has two USB 3.0 ports, one HDMI port, one display port, an audio jack and dual gigabit LAN ports for general system control, as well as a HEVC and VP9 HW video coding/encoding solution.

With a wide power input range from 12 to 24 VDC, the device can be used for transportation, logistics and industrial automation applications. It is also suitable for smart city street lighting, smart metering, smart parking, smart agriculture, HVAC, healthcare and industrial automation.

Advantech Australia Pty Ltd
www.advantech.net.au

Modular desktop computer

Dell's OptiPlex 7070 Ultra is a modular desktop computer that can hide in the company's monitor stands. It's built on Intel Mobile U architecture and can be scaled up to include 25 w Intel Quad Core vPro i7 processors, 64 GB of RAM, a 1 TB NVMe SSD and 2 TB HDD.

The computer is separate from the monitor, meaning each part can be swapped out, serviced or upgraded independently. It can support three displays between 19" and 27" and is compatible with Dell's height-adjustable stand, fixed stand, VESA mount, Dell Single Monitor Arm — MSA20 and Dell Dual Monitor Arm — MDA20.

The computer's associated monitor stands also contain physical security features to protect against physical tampering. Power, data, video and audio are transmitted in a single cable when the computer is paired with Dell USB-C monitors.

Dell EMC
www.dell.com





Hunter Water IoT trial to detect leaks and protect water infrastructure

A digital innovation trial by Hunter Water and NNNCo will assist in detecting leaks and predicting water main bursts before they occur.

The 12-month trial will test a range of sensors to monitor the water pressure and flow in parts of the Hunter Water network at Lake Macquarie and Maitland. It will use NNNCo's carrier-grade LoRaWAN network and N2N-DL data platform to connect devices and deliver essential data.

The trial deploys 30 pressure sensors to monitor water pressure in real time across 25 km of pipe mains and five water flow meters to monitor flow at junctions where pipes meet. NNNCo's multi-purpose N-sen device will provide connectivity to both sensor types to the network.

The sensors will alert Hunter Water to reductions in water pressure and flow, enabling the utility to respond quickly and cost-effectively to fix leaks and prevent pipe bursts. Hunter Water's Chief Information and Technology Officer, Richard Harris, said the trial was an exciting opportunity for Hunter Water.

"These devices, combined with the use of advanced analytics, will give us greater visibility into how the system is performing,

Having that visibility will allow us to more quickly find and respond to breaks if they occur, particularly those in remote locations," he said.

"Leaks can sometimes be a precursor to a water main break, so the sooner we find leaks, the sooner we can fix them and minimise any potential impact on our customers and community."

"It will also assist our field crews in their active leak detection work to find and fix leaks that would previously go undetected," added Harris.

NNNCo Founder and CEO, Rob Zagarella, said the trial was particularly relevant to infrastructure-rich organisations like utilities.

"This is about implementing a system to better monitor and manage existing assets in order to prevent issues and prolong the life of the asset," said Zagarella.

"The potential is to be smarter with the management of existing assets and reduce spend on new or replacement infrastructure," he added. "That has positive impacts for the utility as well as the broader community by reducing cost and environmental impacts."

A private carrier-grade LoRaWAN network and NNNCo's N2N-DL data platform will be used to enable the IoT-powered water

pipe solutions of the trial. The network has the potential to extend into the region's public network in the future.

"This is a standards-based carrier-grade system, with built-in end-to-end security, that is ideally suited to IoT projects involving critical infrastructure. We see enormous potential for it to be applied to a wide range of use cases across asset-rich organisations," said Zagarella.

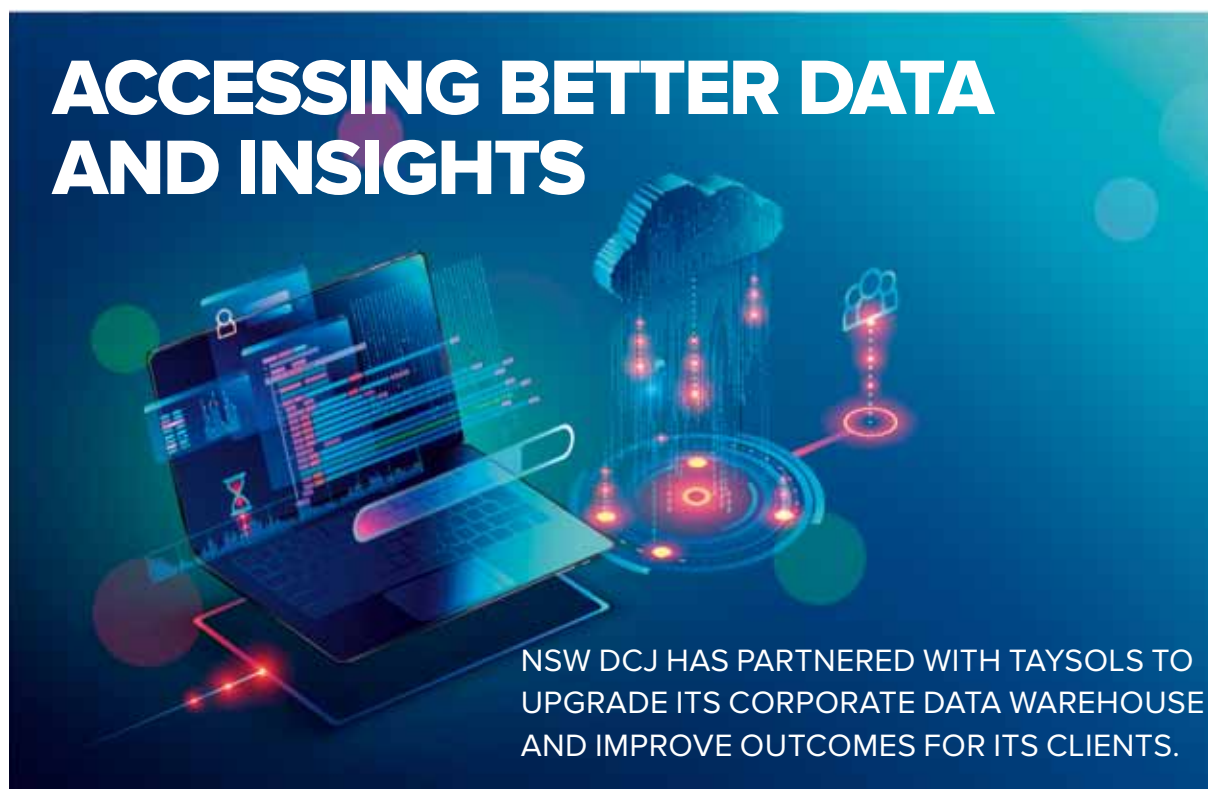
"I'm really pleased to see this trial get underway, which has been made possible through the collaboration of various sections of our business," added Harris.

"Intelligent networks will help transform the way we do business, driving better outcomes for our customers and community. If successful, we hope to expand it to other parts of our network and apply the learnings to future projects."

To find out more about NNNCo's IoT coverage and solutions, email Tessa Ritchard at info@nnnco.com.au.



National Narrowband Network
www.nnnco.com.au



ACCESSING BETTER DATA AND INSIGHTS

NSW DCJ HAS PARTNERED WITH TAYSOLS TO UPGRADE ITS CORPORATE DATA WAREHOUSE AND IMPROVE OUTCOMES FOR ITS CLIENTS.

Consulting, cloud and support services company Taysols is working with the Department of Communities and Justice (DCJ) to deliver greater insights into the services DCJ provides children by improving the technology that delivers these insights to caseworkers and other carers.

DCJ works with children, adults, families and communities, and has a statutory responsibility to protect children and young people from risk of significant harm.

For the implementation of the new IT system, ChildStory, DCJ required data warehouse improvements, reports and dashboards that would help report on and manage the families and children that DCJ assists. It was therefore necessary to upgrade the Corporate Information Warehouse (CIW) to work seamlessly with ChildStory.

Taysols is working closely with the DCJ team to create a solution

that includes building reports and dashboards built in OBIEE, extract, transform, load (ETL) capabilities using Informatica, and a data warehouse based on Oracle. The source data comes from Salesforce.

“Access to better data and insights is an essential component of the ChildStory program, making the CIW mission-critical for DCJ. The strong working relationship between Taysols and DCJ is a crucial element of this project’s success,” said Mark Taylor, founder and director of Taysols.

“With Taysols’ focus on delivering high-quality outcomes, we’ve been able to help DCJ evolve their team on the ground with ongoing support along with system analysis, development, testing and deployment.”

The implementation was challenging, in part because the CIW project was run in parallel with DCJ’s implementation of the new source system. This created challenges because data warehouses normally rely on stable underlying

data structures. However, because the source system was being implemented at the same time, it meant the data structure was constantly evolving, which had a flow-on effect to the ETL and data model development for the CIW.

Despite this challenge, and after significant effort over several months, Taysols delivered the original CIW piece of work on time, just four short weeks after ChildStory went live. Taysols and DCJ continue to deliver new information, enhancements, and updates every eight weeks.

“DCJ enjoys a strong working relationship with Taysols, which has seen the successful delivery of this project,” said Owen Griffiths, DCJ director of information management.

“It was important to work with an organisation highly experienced in OBIEE and data warehouse projects, and Taysols delivered a high-quality outcome. DCJ continues to rely on Taysols for expertise focused on the delivery of the CIW.”



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AUDIT HIGHLIGHTS CYBER RESILIENCE ISSUES

Dylan Bushell-Embling

Australia Post is lacking in cyber resilience, and has not yet met the requirements of its own cybersecurity framework, an audit has found.

The audit into the management of cybersecurity risks of three corporate commonwealth entities — Australia Post, the Reserve Bank of Australia (RBA) and naval shipbuilder ASC Pty Ltd — was conducted by the Australian National Audit Office.

It found that the RBA and ASC have both effectively managed cyber risks. But despite spending the most on cybersecurity among the three entities, Australia Post is still deficient in this regard and is not cyber resilient.

As a result of the audit, Australia Post has agreed to conduct risk assessments for all its critical assets where it has not

yet done so, and to take immediate action to address any identified extreme risks to those assets, as well as the organisation's supporting networks and databases.

The purpose of the audit was to enable comparison between the cyber capabilities of corporate and non-corporate government entities to provide information to help improve the low levels of cyber resilience at non-corporate entities.

The three entities were selected based on the sensitivity of the private information they collect and store, including their role as managers of critical infrastructure or systems of national interest. The audit was performed on systems that were self-reported by the entities as critical.

The audit found that Australia Post spent \$22 million on ICT security

expenses, from total operating expenses of \$6.57 billion. ASC had a cybersecurity budget of \$1.9 million and operating expenses of \$719.3 million, while RBA had ICT cybersecurity expenses of \$7.1 million and operating expenses of \$588 million.

ESSENTIAL EIGHT

One metric used in the audit was the entities' compliance with the Australian Signals Directorate's Essential Eight threat mitigation strategies from the Information Security Manual.

While compliance with these strategies is only mandated for non-corporate government entities, it is strongly recommended for corporate entities, and all three audited companies have incorporated these strategies into their cybersecurity risk management frameworks.



Australia Post and RBA have gone beyond this to incorporate aspects of other national and international standards into their frameworks.

The audit found that while RBA and ASC have implemented controls in line with the requirements of all of the Essential Eight strategies, Australia Post has only implemented two of the Top Four strategies.

Specifically, Australia Post has implemented processes for regularly patching applications and minimising privileged user access, but was not adequately meeting the requirements regarding application whitelisting and patching operating systems.

But the audit found that ASC and RBA could stand to further strengthen controls for patching applications and operating systems.

Australia Post had likewise implemented only one of the four non-mandatory mitigation strategies — conducting daily backups. The agency is not yet actively implementing the requirements for multifactor authentication for all privileged users, user application hardening and configuring Office macro settings.

RISK MANAGEMENT

The audit found that the three entities all have a cybersecurity risk management framework that is “fit for purpose”, incorporating both enterprise-wide risk management arrangements that incorporate cybersecurity, and specific frameworks for managing cybersecurity risks appropriate to their operations.

All three entities were found to have governance arrangements in place involving senior executives and board-level committees.

The three organisations were also assessed based on whether they have established six risk management and government arrangements for cybersecurity. These include the presence of enterprise-wide governance arrangements; whether

information security roles have been assigned and responsibilities communicated; and whether ICT security is incorporated into strategy, planning and delivery of services.

The remaining criteria included whether ICT operational staff understand the vulnerabilities and cyber threats to the system; the presence of integrated architecture for data, systems and security controls; and whether agencies have implemented a systematic approach to managing cyber risk through methods including security awareness training.

RBA was found to have established arrangements across all six of these criteria. Australia Post was found to have fully implemented the first three but to have only partially established the remaining three, while ASC was found to have only fully implemented controls two through five.

But unlike the RBA and ASC, Australia Post was found not to have met the requirements for ICT controls specified in the entity’s own cybersecurity risk management framework. As a result, the audit states, Australia Post “has rated the overall cyber risk as significantly above its defined tolerance level”.

It notes that last year Australia Post established the Securing Tomorrow cybersecurity program, which aims to reduce cyber risks to within the organisation’s risk tolerance levels by 2020.

CYBERSECURITY RESILIENCE

The audit also examined whether the three entities are cyber resilient, and whether they have established a culture that encourages this. It found that both Reserve Bank and ASC are cyber resilient, with high levels of resilience compared to 15 other entities audited in recent years.

While Australia Post is not cyber resilient, it was found to be internally resilient, having an adequate level

of protection from breaches and disclosures of information from internal sources. Where the entity is lacking is in external resilience, or vulnerability to intrusions from external sources.

The three entities are meanwhile at different stages in fostering a cyber resilience culture. RBA was found to have a strong such culture, having established all of 13 assessed cybersecurity risk governance and risk management behaviours and practices.

ASC is developing such a culture, having established seven and working to fully establish the remaining six. But while Australia Post has established eight of the 13 practices, it was found not to have systematically managed cyber risks. The entity is nevertheless working to establish such a culture, the audit states.

The 13 behaviours and practices assessed in the audit can be grouped into four categories — governance and risk management capability, clearly defined roles and responsibilities, technical support capabilities, and monitoring compliance with cybersecurity requirements.

For example, all three entities were found to have implemented a cyber incident response plan, developed a compliance monitoring approach, embedded security awareness as part of their enterprise culture and assigned information security roles to relevant staff.

But only the RBA was found to have adopted a risk-based approach to prioritising improvements to cybersecurity based on higher vulnerabilities; developed an integrated architecture for data, systems and security controls; and identified security risks to their information and systems.

Both Australia Post and ASC have made at least some progress implementing all 13 of the controls, the audit found.



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Many of the nation's most influential leaders in technology and innovation will be part of the line-up for CEBIT Australia 2019, 29–31 October 2019.

Focusing on the key digital issues that are facing businesses today as they seek to innovate and grow, the full session line-up will include esteemed main speakers such as Andrew McMullan (Commonwealth Bank), Tim Roberts (Westpac), Kate Burleigh (ANZ), Lee Hitchin (Microsoft Australia), Steven Scheurman (IBM Asia Pacific), Peter Xing (KPMG) and Hercules Koustantopoulos (Atlassian).

More than 200 expert speakers will converge at Sydney's International Convention Centre to deliver keynote presentations, panel discussions, workshops, sessions and lightning talks at APAC's largest business technology conference and exhibition.

World-class keynote speakers include UK-based Stephen Attenborough, employee number one and now Commercial Director of Virgin Galactic; world-renowned cybercrime expert Mikko Hypponen from F-Secure; and 2018 Australian of the Year, Michelle Simmons, Scientia Professor of Quantum Physics at the Faculty of

Science, University of New South Wales.

More than 100 influential cross-industry representatives from eight committee areas have worked together for the first time to put together a program covering the future of industry, digital pioneers, technology gurus, technology innovators, start-ups, women in tech, supply chain and industry 4.0, and fintech and finance. Some of Australia's best minds have worked alongside the CEBIT team and its new Chairperson, ex-Facebook ANZ CEO Stephen Scheeler, to produce a highly informative, curated session program highlighting industry trends and showcasing digital case studies from the world's largest corporations.

The six themes that will shape CEBIT this year will be: transformation and disruption; driving business growth; data privacy and trust; the future of work; changing lives with technology; and applications of emerging technology.

"Based on extensive work with our incredible Advisory Committee members over the last six months, we formulated six content pillars to build the framework of the conference program," said Scheeler.

"This will enable CEBIT to appeal to the new wave of technology buyers and specifiers that now shape the technology ecosystem, whilst also

appealing to our traditional technology audience."

CEBIT Australia is again delighted to partner with the NSW Government. Deputy Premier and Minister for Trade and Industry John Barilaro said: "As the innovation capital of Australia and leader in the ICT and start-up sectors, Sydney is the right home for major tech conferences like CEBIT.

"NSW has a \$19 billion information, media and telecommunications industry; the largest of any Australian state. We wholeheartedly support the growth and development of the technology sector in Australia," he added.

"To capitalise on NSW's world-leading capability in quantum computing, the NSW Government invested \$15.4 million in the Sydney Quantum Academy (SQA). The SQA will see universities collaborate to advance the quantum industry in NSW which has applications as far reaching as simulations to predict impacts of climate change, drug discovery and cybersecurity.

"We know that each technology-based job has been shown to create up to five jobs in other sectors. These are the jobs of the future."

CEBIT Australia 2019 will take place from 29 to 31 October 2019. Visit www.cebitalia.com.au for details.



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OVERCOMING SECURITY HURDLES AND UNEARTHING SAVINGS

AN UPGRADED AND STANDARDISED PDF SOLUTION HAS BEEN ROLLED OUT ACROSS SIX QUEENSLAND GOVERNMENT DEPARTMENTS.

For the Queensland Government, the ongoing robustness of the software tools it uses to conduct its day-to-day business is fundamental. If features, performance or value of a software solution are compromised, it is reassessed. Such was the case when one IT department embarked on a review of its incumbent PDF program.

"We found that many of our 9000 staff were using various versions of Adobe Acrobat Writer. Some of these were quite dated and no longer supported by Adobe. This raised security concerns with regards to the vulnerability of the aged software and the PDFs it was creating," said Peter Floyd, Director Operations, Information and Technology Partners, whose team supports six Queensland Government departments.

"The other issue was that while we were receiving patches for later versions of the software, continually applying these to the utility product was both time-intensive and frustrating," he said.

Floyd decided to review the departments' PDF needs and roll out an upgraded and standardised solution across all six departments to ensure

security and seamless capability. In addition, due to the immediate need for some 700 current version licences, he was keen to choose a solution that offered value for money without foregoing capability.

"A number of PDF solutions on the market were assessed and narrowed down to three options. Of these, Kofax's Power PDF solution looked promising but it was untested in our departments, so we approached Kofax to see if we could trial the product," Floyd said.

"They readily agreed, issuing us with an enterprise trial licence which a couple of our biggest PDF users tested over a three-month period. The feedback was impressive. Our staff found the software to be feature-rich, smoother, faster and far more natural to use. In fact, so pleased were our staff that they refused to relinquish the software. Given the overwhelming positive feedback, we knew we had found our PDF software."

To ensure the seamless integration of Power PDF across six government departments and more than 700 seats, the old software was removed and the new software rolled out as users requested Power PDF. According to Floyd, "The switch to Power PDF was

far easier than we anticipated, it's very straightforward because the software is pre-packaged and ready to go."

Staff quickly took to the new software. Floyd said that no training was required and, as a 'just-in-case' measure, Kofax provided a series of videos that the departments placed on their intranets.

"Early on we suggested to Kofax that they add certain features to the software to increase its usability in our environment. To our amazement they took what we said on board and inserted the features in the very next version," Floyd said.

The issue of security was also resolved. "With everybody now using the same PDF solution, and the latest version, risk of possible exploits and attacks have been minimised. Plus, we are automatically notified of any upgrades and because everybody is on the same page, rolling them out requires little effort," Floyd added.

The departments have also achieved considerable cost savings. "In the first year we saved nearly \$150,000, and after that, our year-on-year savings have been about \$50,000. That's a significant saving in anyone's language," Floyd said.

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TURNING THE TECHNOLOGY BIG WHEELS

SEEKING OUT AND APPLYING INNOVATION TO MAKE LIFE BETTER FOR COUNCILS IS IN THE LGAQ'S DNA.

Greg Hallam is CEO of the Local Government Association of Queensland. With more than 25 years' service under his belt, he has visited every settlement in Queensland. This article is a lightly edited version of that which appeared in the LGAQ's regular newsletter, and is republished with permission.



The middle word in the Local Government Association of Queensland (LGAQ) credo Connect.Innovate.Achieve is the 'I' word — Innovate. I'm proud to say that at the LGAQ we innovate in spades. It's in our DNA.

It is pretty much the magic formula we've practised for decades — connect councils together to create virtual economies of scope and scale and add a decent dollop of innovation in the form of new business models or technology and, hey presto, you have real, tangible and bankable achievement.

This approach has achieved billions of dollars of real savings and improved services for our member councils over the last 30 years.

Think products such as LGM, LGW, Local Buy, LG Online, the digital legislation compliance service, managed services, LGAQ websites (especially the new Jadu offering, Ready.Set.Go), Sherlock and now of course blockchain, smart contracts and the wonderful world of homomorphic encryption. More on that later.

We are mighty proud to have won the 2019 Australian Public Sector 'Blockie' award for our work in proving up the use of blockchain in council procurement and insurance.

Blockchain? This is the technology behind bitcoin and other cryptocurrencies. According to the *Harvard Business Review*, blockchain is "an open, distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way". That is, a super secure ledger resistant to fraud. Quite a handy tool for local governments to have.

Blockchain does not stop at bitcoin. It is ushering in a revolution in the global finance world, trade and commerce, agriculture, you name it.

All commercial transactions in the world are predicated on trust, a belief you will

receive the goods you paid for, that your money is safe and financial transactions are sure, and that your financial systems cannot be hacked or fall victim to identity fraud.

But we know that over the last five years or so, online white-collar crooks have found a myriad of ways to defraud government, companies and individuals.

Blockchain provides provenance and protection; it's that simple. The mathematical algorithms are immutable. Changing one record such as a bank account number (by deception) will no longer be rewarded by fraudulent profit. Blockchain holds the baddies at bay.

So why the Blockie? With our technology partner, Everledger, we created a working blockchain, smart contract-enabled procurement prototype last year, replete with APIs that received the tick of approval from the Auditor-General. That is, it works and ticks all the compliance boxes.

Now to that wonderful phrase: homomorphic encryption. Simply put, it enables encrypted data to be analysed and computed without having to decrypt it first; the ultimate in security. It was central to a pilot project we developed that covered an entire supply chain and digitally arranged immediate insurance cover for assets that were acquired as well as the anonymous (homomorphically encrypted) transfer data between councils on procurement patterns. This is world-leading.

Let me say that innovation for innovation's sake alone is, at best, a waste of resources. Some might even say indulgent amusement. The LGAQ is not in the business of being smarty bums. Rather, we seek out and apply innovation to make life better for our member councils. Think faster, smarter and fraud-proof systems, with no more cybersecurity nightmares or





compliance worries for a decent whack of council business.

Where to next? The LGAQ has been in deep discussions with Everledger, global procurement software providers, council financial management system firms and, of course, our commercial arm, Peak Services.

The wheels are turning fairly quickly. Hopefully, by year's end we will have a big announcement to make regarding turning our successful and nationally awarded blockchain proof of concept into something to offer our members.

As I said earlier, at the LGAQ it's not about technology acquisition, it's about technology application. We must be convinced that big dividends are to be had for councils for any innovative technology to deserve such large investments in time and resources.

This one does that and some. Best of all, it has not cost councils a cent, nor will it in the future. In the final wash-up, the total costs of this very exciting initiative will come in at around \$6 million to \$7 million if it reaches fruition.

All of that has come out of LGAQ subsidiary profits and surpluses. The Association value-creation wheel just goes around and around.

Calendar

Innovating for the Future 2019

Melbourne — 2 October

Develop vision and gain innovation skills to lead with agility
events.publicsectornetwork.co/events/innovating-for-the-future

Digital Summit 2019

Canberra: 3 October

The Digital Transformation Agency's first-ever summit
dta.gov.au/help-and-advice/digital-summit-2019

AISA Australian Cyber Conference 2019

Melbourne — 7–9 October

Bringing thought leaders and experts together to effect change
cyberconference.com.au

CEBIT 2019

Sydney — 15–16 October

Bringing together tech vendors, buyers, along with savvy professionals
cebit.com.au

IoT Impact 2019

Sydney — 15–16 October

Line-up led by Victor Dominello, NSW Minister for Customer Service
www.iotimpact.com.au

Gartner IT Symposium | Xpo

Gold Coast — 28–31 October

Exploring the tech, insights and trends shaping the future of IT
gartner.com/en/conferences/apac/symposium-australia

Smart Cities Week Australia 2019

Sydney — 30 October–1 November

2019's theme: Smart infrastructure, equitable communities
australia2019.smartcitiesweek.com

Women in Tech Fest 2019

Brisbane — 6–8 November

Leading the future of tech diversity through community and empowerment
womenintechfest.com.au

Comms Connect Melbourne 2019

Melbourne — 26–28 November

The very best in radio and wireless communications
www.comms-connect.com.au



A COLLABORATIVE APPROACH TO INNOVATION

LEARNING FROM THE PAST WHILE EMBRACING THE FUTURE IS A KEY PART OF THE JOURNEY FORWARD.

Craig Wooldridge, A/Executive Director, Urban Mobility, WA Department of Transport, began his career at WA's Main Roads agency. He progressed through a variety of roles, "learning from some outstanding technical experts", before heading up Traffic Services and Operations. He said all of the roles he took on provided him "with a diverse and strong range of operational skills and knowledge", including for a dozen years being the face and voice of Main Roads in the media.

TELL US ABOUT YOUR CURRENT ROLE AND WHAT IT ENTAILS?

In 2011, I moved to the Department of Transport to expand my strategic planning skills and knowledge by leading a range of strategic plans around the movement of people. During this time, I have also taken on leadership roles with external bodies, including National President of the Australian Institute of Traffic Planning and Management and Chair of Cycling and Walking Australia and New Zealand. The external roles have been critical to expanding my network and developing broader leadership skills at a national level.

CAN YOU DESCRIBE A CURRENT OR RECENTLY COMPLETED PROJECT?

One of the most interesting and challenging recent projects would be electric scooters. In Australia and New Zealand, up until mid-2018, the modern form of electric scooter was illegal due to power, speed and time-of-day regulatory restrictions. The regulatory provisions were put in place for what were essentially toy scooters, but technology has changed significantly since the regulations were written in the late 1990s.

Then, only two to three years ago, along came a range of start-up



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companies with the idea of share electric scooters that can travel up to 25 km/h during the day and night. Many cities around the world have been eager to sign up quickly without exploring the impacts, particularly for pedestrians. Not a day goes by without a media article somewhere in the world with a wide range of views.

In Perth, we have taken a collaborative approach by working with the potential suppliers, a range of state government agencies and local governments. Collaboration always results in outcomes and we have been able to review the learnings from

elsewhere and develop a proposal for Perth that should enable new technologies to be trialled and refined, but with strong safety measures in place. At the time of writing, the trial options were being considered by the Ministers for Road Safety and Transport.

WHAT DID YOU LEARN FROM THIS PROJECT?

The regulatory environment has been set up to safeguard the community against adverse impacts, but the current system is not set up for a world of rapid change. Further work at a

national level is underway to enable a more flexible approach for electric mobility in the future, which will enable the safe adoption of new technologies. The learnings from the electric scooter work are feeding into the future approach and I am looking forward to the outcomes.

WHAT EXCITES YOU MOST ABOUT THE FUTURE?

Simply the unknowns and the opportunity to be part of shaping what the future may be. I take the approach of valuing and learning from the past, while also embracing the future, championing innovation and ensuring that staff and stakeholders are a key part of the journey forward. This should and must result in positive outcomes for the state and community.

WHAT ADVICE WOULD YOU GIVE SOMEONE LOOKING TO FURTHER THEIR CAREER IN GOVERNMENT?

Take up the opportunity to help shape the future and deliver real and tangible community outcomes. The public service provides a great diversity of experiences that are essential for any career.

WHERE DO YOU LOOK FOR FURTHER EDUCATION?

I explore a variety of sources from academia, LinkedIn, Twitter, experts visiting from other countries and many articles emailed through from professions. The challenge is choosing the materials that are most valuable to build the mind.

Craig Wooldridge spoke at Public Sector Network's recent Smart Mobility summits. Visit <https://events.publicsectornetwork.co/events/> for the full list of upcoming government ICT conferences, workshops and summits.



DIGITAL MARKETPLACE CONTINUES TO GROW

Dylan Bushell-Embling

The Digital Transformation Agency's Digital Marketplace procurement portal is continuing to grow, adding more sellers and government agency buyers at a strong pace.

Since the launch of the platform in August 2019, as of July 2019 a total of \$514.9 million worth of contracts had been awarded through the marketplace. Participating government entities have listed 1837 total opportunities on the platform, with 134 added in June alone.

In the six months since GovTech Review's last review into the Digital Marketplace, 12 more government buyers have registered for the platform, taking the total up to 287. Just under half (47%) of these are federal government agencies, while the remainder are mostly state and territory and local government agencies.

Meanwhile, 280 new sellers have joined the Digital Marketplace over the same period, with 42 new sellers registered during June. There are now 1408 sellers registered to offer digital services over the platform across 12 categories.

The statistics also show that a lower proportion of contracts awarded through

the marketplace is going to SMEs.

In the Digital Marketplace Monthly Report for December 2018, the DTA revealed that 72% of the dollar value of contracts awarded through the Digital Marketplace since August 2016 had been awarded to SMEs. But by the time of the June monthly report, this had fallen to 64%.

But half of the top sellers by contracts awarded during FY19 were SMEs, and 71% of the total volume of contracts awarded during the month of June also went towards SMEs.

Half of all opportunities posted on the Marketplace have been open to all registered sellers in that category, and 61% have been opportunities for digital specialists.

The categories with the largest number of specialists and other providers listed include software engineering and development (759), agile delivery and governance (683), user research and design (500), strategy and policy (497) and change and transformation (441).

The remaining categories include cybersecurity (379), support and operations (378), data science (360), emerging technologies (306), training, learning and development

(303), content and publishing (300) and marketing, communications and engagement (274).

Median daily rates sellers have bid for digital specialist roles range from around \$900 for content and publishing specialists, up to around \$1600 for cybersecurity experts.

Meanwhile, the top five categories for opportunities posted since August 2016 are software engineering and development (329), agile delivery and governance (281), user research and design (149), support and operations (78) and cybersecurity (74).

The top sellers over the platform during FY19 included Hays Specialist Recruitment (42), Data#3 (22), HiTech Group (22), Talent International (21) and AUREC Group (19).

Finite IT Recruitment (14), Oakton (14), Peoplebank Australia (14), Cordelta (13) and Paxus Australia (13) round out the top 10.

During the month of June, the top five government buyers in terms of opportunities posted were the Department of Human Service (16), the National Disability Insurance Agency (15), the Digital Transformation Agency itself (12), the Department of Defence (9) and the Department of Finance (8).

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DIGITAL CAREER PATHWAYS PROGRAM LAUNCHED

Dylan Bushell-Embling

PART OF THE BUILDING DIGITAL CAPABILITY, THE PATHWAYS PROJECT AIMS TO BOOST IT SKILLS AND STEER CAREERS THROUGHOUT THE PUBLIC SERVICE.



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The Digital Transformation Agency is working with the Australian Public Service Commission (APSC) to develop new Digital Career Pathways. The agency's Building Digital Capability team and the Commission aim to use the initiative to allow APS employees to explore their career potential.

The APSC and DTA plan to hold workshops and conduct user research to determine the typical roles and responsibilities of APS employees across numerous areas including data science, cybersecurity, enterprise architecture and performance analysis, as well as content and design operations.

The program will be based on the global Skills Framework for the Information Age (SFIA) standard, the world's most widely adopted skills and competency framework.

First published in 2000, the SFIA is now in its seventh iteration. The framework describes the skills and competencies required for ICT, digital transformation and software engineering roles across seven levels of responsibility.

The APSC has licensed the SFIA framework from the SFIA Foundation under a whole-of-government non-

commercial licence covering all commonwealth entities covered by the Public Service Act.

In a blog post, DTA Content Designer Steve Hibbins and Digital Skills Subject Matter Expert Grant Nicholson said the Digital Career Pathways will be designed to help APS employees discover how to use their existing skills in other roles, and what new skills they might need to excel in those roles.

"The approach provides clarity and understanding of the pathways between roles and disciplines. This makes it easy to identify skills gaps," they said.

"As well as movement between roles within the digital profession, the career pathways model helps people interested in transitioning from non-digital roles to digital roles. It also shows the specific skills they need to develop. For example, people who know how to draft or read legislation will usually have a good appreciation for how to write and read rules, which is a core foundation for developing software code."

The Digital Career Pathways will also be able to help connect APS staff with the best training or opportunities they need to meet their career goals.

"The digital career pathways will help people to understand the different roles

in the various disciplines," Hibbins and Nicholson said.

"For example, what is the difference between a technology architect and a solution architect? The Digital Career Pathways show that solution architects do a few things that technology architects don't, for example, designing software and helping businesses change their processes."

The process can also help with workforce planning by identifying potential skills deficiencies at an agency and suggesting areas for future skill development.

"We believe working with both agencies on the career pathways is a truly collaborative partnership model. It helps to keep both organisations coordinated, informed and working for the benefit of the whole APS," Hibbins and Nicholson said.

"The Building Digital Capability program, of which the digital career pathways is just one component, seeks to attract, build and retain the skills of Australian public servants to assist with digital transformation. The added benefit of staff who are realising their potential is that government services will continue to become simpler, clearer and faster."



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