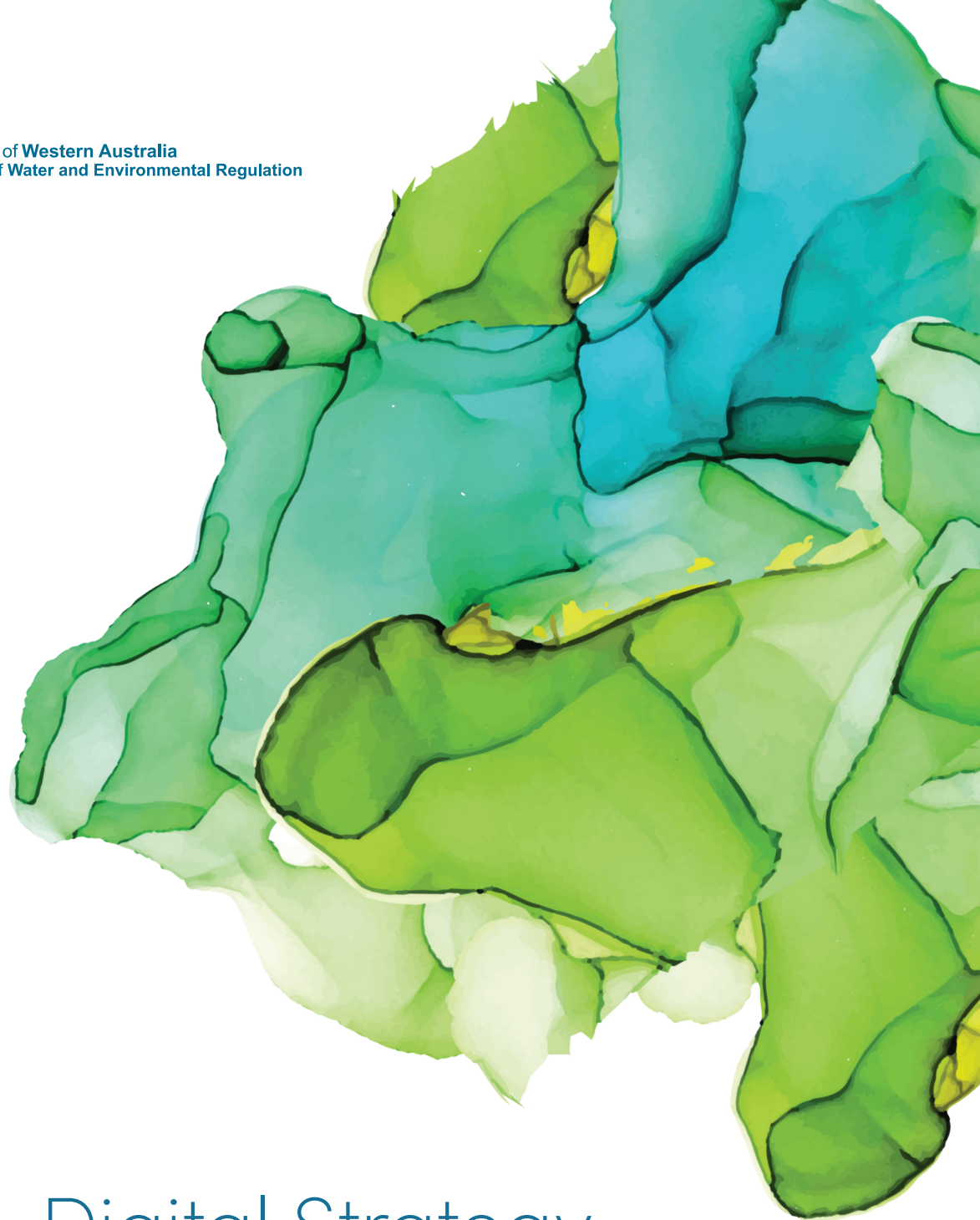


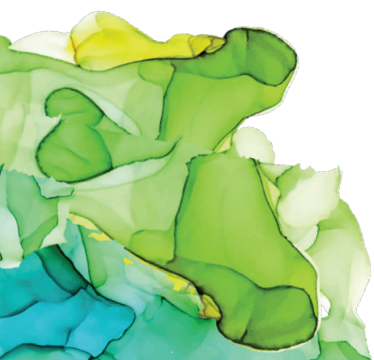


Government of **Western Australia**
Department of **Water and Environmental Regulation**



Digital Strategy 2023–2026

To empower the department through agile and
innovative information and technology solutions





From the Director General

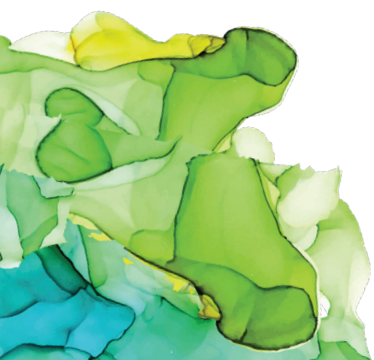
Digital technologies are changing the way we live, the decisions we make, and the opportunities we can access. New channels are opening for service delivery, business process improvement and the secure sharing of information.

This Digital Strategy represents a bold vision for digital reform in the Department of Water and Environmental Regulation. It provides a framework for harnessing new technologies to deliver improved digital-first services to Western Australians that are energy efficient, and carbon and water-use neutral.

It represents an exciting step into the future for our department as we strive to care for our precious water resources and environment.

Michelle Andrews

Director General



Acknowledgement of Country

We acknowledge the Traditional Owners of the land upon which we live and work throughout Western Australia, and pay our respects to their Elders past and present.

We recognise the practice of intergenerational care for Country and its relevance to our work as water and environmental managers.

We seek to listen, learn and genuinely engage and build strong partnerships. We aim to provide sustainable opportunities for Aboriginal people within our workforce and through our business.

Working with the community, we move forward with a shared commitment to protect and conserve Country for future generations, recognising Country is a term used by Aboriginal people to describe the lands, waterways and seas to which they are intrinsically linked, and to which their wellbeing, law, place, custom, language, spiritual belief, cultural practice, material sustenance, family and identity belong.



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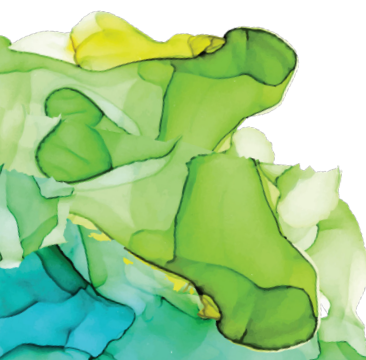
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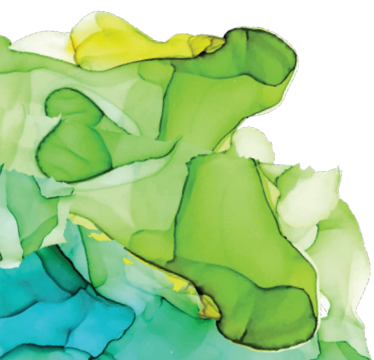
Our strategy

This Digital Strategy supports the Department of Water and Environmental Regulation's vision of a low-carbon Western Australia with a healthy environment and secure water resources for future generations, and its mission of protecting and managing our environment and water resources.

We will do this by effectively using corporate data, and information and communications technology (ICT) to meet regulatory requirements, improve decision-making, increase efficiency, and better understand and manage the environment and our water resources.

Providing the necessary technology, skills, security and management processes will enable the department to achieve its strategic goals of "improving regulatory capability, better managing the environment and pursuing strategic solutions to big environmental challenges".

The Digital Strategy also supports the State Government's ICT vision of convenient, smart and secure services for all West Australians while ensuring a digital-first approach in the services we provide.





Future directions

On 28 June 2022, our Corporate Executive published a *Future Directions for our Department* statement in response to the findings from the Agency Capability Review 2022.

This statement outlines the focus areas our department will need to consider in order to achieve its strategic goals. Together with our [Strategic Plan 2022-26](#) and our Reform Program, these will guide our agency into the future and inform where we invest our effort and resources.

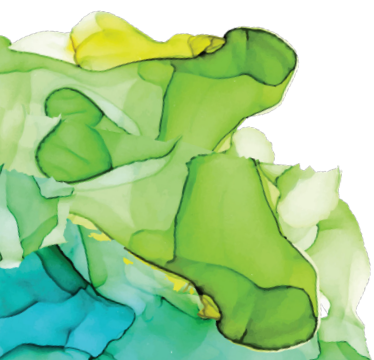
Digital Futures Committee

The Digital Strategy outlines the agency's approach to information technology (IT) and provides a roadmap for achieving its goals. The Digital Futures Committee will provide governance and oversight for the implementation of the strategy.

The Digital Futures Committee will ensure alignment with the Future Directions statement by providing a framework for the development and management of IT systems and services that supports the department's mission, goals, and objectives.

Our values

The values-based culture of our department is reflected in the Digital Strategy through the emphasis on innovation, collaboration, flexibility and continuous improvement.





Our drivers, challenges and opportunities

Reform

Our department is embarking on a significant program of reform. A key aspect of this is the requirement to have modern supporting systems that enable our agency to meet its strategic goals. This includes better integration with Streamline WA initiatives, responding to the Agency Capability Review and implementing a new portfolio structure.

Our people

Technology is rapidly and constantly evolving, and so are the skills and capabilities required to use that technology to successfully transform our business, streamline existing processes and deliver better outcomes which improve our customer and stakeholder experience.

Into the future, economic and other external factors will continue to influence peaks and dips in levels of development activity. Our agency will need smart, analytical and flexible staff and workforce strategies to remain responsive and agile. The global pandemic has demonstrated that our workforce – its resilience, capability and professionalism – is essential to our agency's success.

We must strive for greater diversity and flexibility, invest more effort in workforce planning and professional training, and pay greater attention to succession planning so we don't lose important corporate knowledge.

Cybersecurity

Managing increasingly evolving and sophisticated cybersecurity risks, particularly around social engineering (aimed at exploiting the weaknesses of human behaviour rather than subverting technical defences) is a challenge all public sector agencies face.

The threat is ever-expanding and changing. It is imperative that we proactively protect against these threats and continuously expand our capabilities in cyber-resilience while taking a risk-based approach to how we manage our information.

Although moving to cloud-based technology provides many opportunities it is not without risk. Data sovereignty and residency must be considered to ensure our sensitive and culturally important information is protected from foreign interference, influence and control.



Our data

Our data is a strategic asset which has tangible value to the department and the state of Western Australia. It is critical that our data is well understood, trusted, readily accessible and widely used to support evidence-based decision-making. The department needs to strengthen data governance and improve how we manage, curate and share essential data around water, waste and the environment in line with State Government policy and Streamline WA.

Government reforms and Streamline WA are also providing opportunities to contribute to statewide data collection, curation and sharing initiatives such as Open Data WA, Environment Online and the biodiversity data repository (Dandjoo).

Advances in machine learning, analytics and artificial intelligence provide our agency with the opportunity to exploit our vast collection of data to identify patterns and trends, garner new insights and make conclusions which can be used to help solve our big environmental issues and challenges such as climate change.

We currently collect culturally significant information and data through our monitoring programs and other initiatives. This presents us with an opportunity to use this information to further our reconciliation actions. Aboriginal culture, language and history can be further recognised and preserved by making this information more visible and widely used throughout all our regulatory and business processes.

Our ICT landscape

We have made significant progress in IT service management and cybersecurity while advancing our governance and information system controls to meet or exceed government expectations. However, there are still issues which need to be addressed and improved upon, including the following:

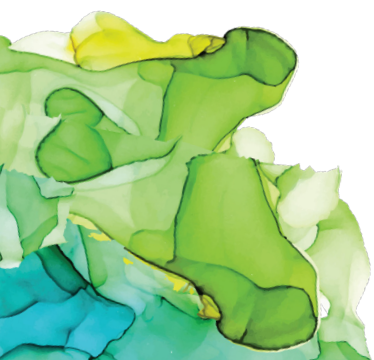
- Legacy systems that are outdated, unsupported, disparate and disconnected. This results in poor customer experience, high cost of ownership and multiple sources of information with no 'single source of truth' or consistency around how our data is shared, accessed and managed. Progress is often stalled, hampered by the constraints of legacy systems and ineffective processes. This affects our ability to integrate services and data to meet our commitments to deliver to existing legislation, meet statutory reporting obligations and make prudent strategic decisions based on high-quality data.
- A mixture of computer hardware (e.g. laptops) slows down support to end users.
- Lack of automation and reliance on manual workarounds.
- The cost of private cloud services, which is unsustainable and does not support the innovation and flexibility required in the long term.
- An information management practice that is largely focused on record-keeping compliance. We need to improve how we identify, categorise, secure and manage our information assets.
- A need to better educate and engage with our colleagues to manage information and technology demands in line with our architecture principles, while addressing the use of unauthorised software and hardware (shadow IT) which presents security risks to our organisation and our data.



Our vision

Empowering the department through agile and innovative information and technology solutions

This is a vision that aims to improve the performance and efficiency of the agency and ensure that our IT and geographic information systems (GIS) are secure and sustainable, and the needs of the agency and its customers are met.





Our approach

Better Value Sooner Safer Happier (BVSSH) is an approach that aims to continually improve ways of working and outcomes for our department, the community, our customers, and partners.

Better

By adopting common integrated, secure platforms and developing and implementing innovative IT and GIS solutions in collaboration with our customers, we will be able to deliver better quality and more effective and efficient services.

Value

By delivering products driven by the priorities in our agency's strategic goals, business plans, reform program and Environment Online, we will maximise value for our department and our stakeholders.

Sooner

By continuing to build an agile, adaptable and resilient workforce and fostering a culture of innovation, collaboration and continuous improvement, we will be able to deliver incremental IT and GIS solutions faster and sooner, which means a quicker return on investment and earlier benefits for the department.

Safer

By ensuring that our IT and GIS solutions are secure and compliant with relevant laws, regulations, policies and standards, we will be able to better protect our IT systems and data, resulting in a safer environment for the agency and our stakeholders.

Happier

By continuously and collaboratively improving our services and products we will create better outcomes and a great experience for our customers and our community = happier customers and community. By setting clear goals and fostering a culture which empowers and supports our people and provides opportunities to learn, grow and innovate, we will create a progressive and productive work environment = happier staff. And by living our values we will make a positive difference to everyone we interact with.



Our strategic goals

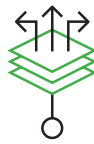
As there are many challenges and unknowns ahead, we will ensure our technical initiatives are maintained and updated quarterly while aligning with and supporting the reform roadmap and agency business plans. The three-year strategic goals to the right will act as a guide and cascade down to all operational and work development plans.



We will invest in our staff and build internal capability



We will drive a culture of innovation, collaboration and continuous improvement



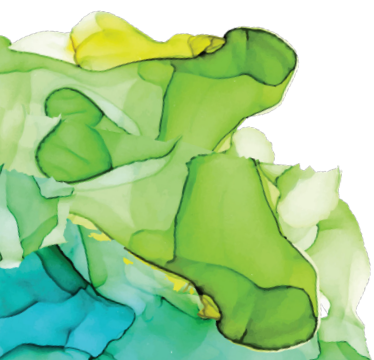
We will better utilise our data



We will modernise our systems



We will increase our security and governance posture





Our goal

We will invest in our staff and build internal capability

Modernising systems and enabling the delivery of the reform roadmap will require greater investment in our people, to keep up with the rapid pace of technology change and build a versatile and diverse workforce to help meet current needs and future challenges.

The requirement for new skills and capabilities are constantly emerging, as evidenced in our flagship Environment Online program. This has seen us adopt new platforms, systems, processes, methodologies and ways of working, and required a swift and significant uplift in IT skills to ensure our regulatory one stop shop is developed, implemented, supported and governed appropriately from an IT perspective. As Environment Online matures and its capability grows, additional skills and capabilities which do not currently exist in the department will be required.

Highly skilled IT specialists with both technical and non-technical skills (such as critical thinking, collaboration, communication and adaptability) are in great demand as organisations rely more heavily on technology – this has seen our agency face challenges in recruiting staff.

We need to place greater emphasis on continuously developing our internal capability and servant leadership, and creating a culture and environment which strengthens our ability to retain and attract diverse, highly skilled IT professionals who are aligned with our culture and values.

Expected outcomes

1. Our staff have the necessary skills and knowledge to take full advantage of new technologies and ways of working to improve how we manage and protect Western Australia's environment and water resources.
2. Our staff are able to stay competitive in the rapidly evolving IT and geospatial landscape, improving productivity, employee engagement, attraction and retention.
3. Our managers value, encourage and support continuous learning and development which helps achieve the goals of the Information Services Branch (ISB) and succession planning.
4. Our leadership team displays a high degree of trust, healthy conflict, commitment, accountability and focus on achieving collective results.



Our goal

We will drive a culture of innovation, collaboration and continuous improvement

Modern technology is accelerating innovation. Technologies such as artificial intelligence, machine learning, data mining and field capture applications are providing extraordinary insights and opportunities to better address environmental challenges such as climate change, habitat restoration and biodiversity conservation, and improve regulatory compliance.

Our move to cloud services, the introduction of agile methodologies and tools through Environment Online, and investment in applications which support flexibility and collaboration, provide greater opportunities for cross-functional teams and stakeholders to work together to solve problems, transform processes, share new ideas, skills and knowledges, and test new ideas quickly. This virtuous circle of collaboration, innovation and continuous improvement will deliver better services and products to support the delivery of our strategic goals.

IT will also partner with State and Australian Government agencies and strive to adopt the use of State Government shared ICT services. This will help us use this technology to its full potential, maximise our investments and enhance the value and experience for our customers, community and staff.

Expected outcomes

1. Our staff feel inspired and empowered to experiment with innovative technologies (such as artificial intelligence, machine learning, data mining and field capture applications).
2. Department and ISB priorities are aligned. ISB is considered a trusted and respected business partner and enabler that creates value for our agency and customers.
3. Our staff proactively engage and collaborate with department colleagues, other State and Australian Government agencies, and the community to share expertise, knowledge and ideas, and co-design solutions.
4. Our staff successfully use technology and information to improve team and cross-functional communication, collaboration and knowledge sharing.

Our goal

We will better utilise our data



We have a vast collection of environmental data that is created or collected through various business processes. This data covers water, land and air, and includes information such as biodiversity surveys, river monitoring, flood modelling, land clearing and air pollution. This information is critical to our regulatory and other processes to ensure decisions and approvals are backed by trusted scientific evidence. By undertaking robust analysis and having a deep understanding of our natural world, we can be confident we are effectively managing and protecting our water resources and the environment for future generations.

We recognise the importance of the culturally significant information that may be collected through our monitoring programs and other initiatives, and acknowledge this information can also play a part in our reconciliation actions. Preserving the history and continuation of Aboriginal connection to Country, land and water is important as we, as a community, acknowledge and embrace the history and continued endurance of First Nations cultures.

Although the department values our data and information assets, we also recognise there are gaps in the way it is stored, managed and used. Specifically, information gathered through regulatory processes is currently siloed and underutilised, and the value of this information is not fully realised.

Working collaboratively across our department and with other State and Australian Government agencies and stakeholders, we will improve our overall

data and information management and strive to remove barriers to accessing and sharing information. Integrated and freely accessible quality information will help us streamline and improve our regulatory capability, better manage the environment and pursue solutions to our big environmental challenges.

Expected outcomes

1. Our data is reliable, trusted and widely used to support informed decision-making.
2. Our staff are skilled and empowered to gather, analyse, and use data effectively, including having the ability to appropriately interpret Aboriginal rights and cultural data.
3. Our data is shared appropriately and protected where necessary.
4. Our data is integrated and well understood to enable the use of advanced analytics and machine learning techniques to garner new insights.
5. Culturally significant information will be displayed and used more prominently to encourage the use and recognition of Aboriginal language and culture.
6. We use location-based data and earth-observation technology to aid assessments and decision-making.
7. Our staff are empowered to do basic to medium complexity geospatial analysis and mapping to provide timely science and decision-making material.

Our goal

We will modernise our systems



Our systems are critical to our day-to-day operations and ensuring our agency is effectively protecting, managing and regulating WA's environment and water resources.

Modernising our suite of outdated, disconnected legacy applications will provide a more scalable, secure and flexible foundation to support our operational requirements and reform program. It will enable the department to deliver integrated, streamlined and efficient services and better outcomes for our customers and the WA community.

We will shift from owning and operating ICT infrastructure to consuming ICT as a service (cloud services) and work in partnership with our department and customers to take full advantage of emerging technology such as artificial intelligence, machine learning, and geospatial and remote sensing technology. These technologies will help expedite approvals for renewable energy projects, increase monitoring and analysis of environmental changes and provide a greater understanding of potential climate impacts.

Modernising our systems will also help decrease the environmental impacts of traditional information and communication technologies and products, by reducing the emissions and waste generated throughout their lifecycle – from manufacture and distribution to usage and disposal. Similarly, moving to digital services will reduce the emissions associated with printing and postage.

Enabling the agency to reform business processes and make holistic data-driven decisions will support improved regulatory

compliance, better management of our environment and the pursuit of strategic solutions to environmental challenges such as climate change, habitat restoration, and biodiversity conservation.

Expected outcomes

1. We have developed Green IT policies and standards which aim to improve ICT sustainability, energy efficiency and emissions.
2. We have contributed to a healthier environment by adopting cloud platforms that are both carbon and water-use neutral.
3. Our legacy systems have been replaced by adhering to our technical architecture principles and adopting common platforms to ensure interoperability of data, applications and technology.
4. We have developed solutions incrementally and in partnership with our end users.
5. Our systems have been developed and deployed in a repeatable and consistent manner, using automation wherever possible.
6. Our systems are more sustainable for maintenance, change and cost effectiveness.
7. Our systems are more secure by including security in the design from the beginning and embracing modern and automated cybersecurity practices.
8. We are more transparent about the true cost of technology used by the department.



Our goal

We will increase our security and governance postures

We collect, store and processes a vast amount of data in order to make decisions that will affect people, companies and the state. This data needs to be protected at every stage of its life cycle. Information and cybersecurity programs should protect the enterprise by reducing information and cybersecurity risk to an acceptable level. The changing face of technology, not only in cyber security but also data collection methods, as well as the growing cyber threat requires a proactive approach to risk identification, prioritisation and remediation.

As we move towards more cloud-based infrastructure, additional consideration must be given to data sovereignty and residency. Information stored offshore or hosted by an international company may be subject to international laws and foreign entities may be able to exert authority over the information. The department must ensure that our sensitive and culturally significant data is adequately secured and protected, and Australia retains sole rights to that information.

The department will need to create and sustain a culture of cyber-risk awareness at all levels of the organisation and ensure decisions and investments are made based on sound risk management. The creation of a culture of cyber-risk awareness further serves as a force multiplier in keeping the state cyber-secure.

Expected outcomes

1. We are compliant with relevant laws, regulations and policies pertaining to IT and data protection and have adopted best practice governance frameworks.
2. Cybersecurity is prioritised and robust security controls are protecting our systems, data and infrastructure from cyber threats.
3. Risks facing the agency, including cyber risks, are proactively managed to reduce the likelihood and severity of impact.
4. Sensitive or culturally significant data and information is identified and protected from foreign influence or claim.
5. We meet or exceed the minimum General Computer Controls Capability Maturity model expected for State Government agencies.
6. We comply with and support the State Government's Cyber Security Policy.
7. ICT, GIS and information management strategies and governance frameworks are aligned with the overall Digital Strategy.



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