Department of Education

GOVERNMENT OF WESTERN AUSTRALIA

2020 – 2024

INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) STRATEGY

Contents

Introduction

ICT has the power to transform the way students think and learn and give them greater control over how, where, and when they learn.

To participate in a knowledge-based economy and to be empowered within a technologically sophisticated society now and into the future, students need the knowledge, skills and confidence to make ICT work for them at school, at home, at work and in their communities.

This ICT strategy focuses on the foundation technologies and ICT services that deliver connected professional autonomy - to all public schools, and in our work of supporting schools. Enabled with a common, equitable, affordable, cyber safe, and reliable ICT foundation, each school can explore and leverage applications, systems and tools to meet the particular needs of their students and school community.

This ICT strategy broadly aligns with the Western Australian Government's whole-of-government ICT Strategy as it applies to ICT services for schools and the use of technology in the classroom.

The Organisation for Economic Co-operation and Development estimates "…about 14% of workers are at a high risk of having most of their existing tasks automated over the next 15 years" while "another 30% will face major changes in the tasks required in their job and, consequently, the skills required"

Challenges and dimensions

Our schools serve diverse student communities across one of the largest geographical education jurisdictions in the world. Schools in remote, rural and regional locations face the greatest challenges of access to enabling technologies. This includes availability of effective bandwidth and local support as well as having a greater need for technology that brings teachers and their teaching tools into the classroom in a virtual context.

It is our responsibility to find, validate and deliver solutions for **all** public schools by continually combining, adapting or evolving technologies to meet their needs and those of their students. Schools reflect the communities they serve, and while they have a common core purpose and base curriculum, they are not a homogeneous entity. Their use of ICT varies according to their local needs, locally available resources and infrastructure, and the digital capability of their staff, among other factors.

This ICT Strategy seeks to deliver an equity based outcome for schools, regardless of size, location or type and builds upon our history of pioneering new technology solutions and products with partner organisations to do so.

Strategic alignment

Aligned to *Every student, every classroom, every day: strategic directions for public schools 2020-2024,* our ICT services are designed to:

1. Provide every student with a pathway to a successful future.
2. Strengthen support for teaching and learning excellence in every classroom.
3. Build the capability of our principals, our teachers and our allied professionals.
4. Support increased school autonomy within a connected and unified public school system.
5. Partner with families, communities and agencies to support the educational engagement of every student.
6. Use evidence to drive decision-making at all levels of the system.
7. Support stakeholders that the Department provides stewardship and services to through the provision of timely, accurate and accessible information.

Our strategic approach

Customer centricity and the concept of 'teacher time'

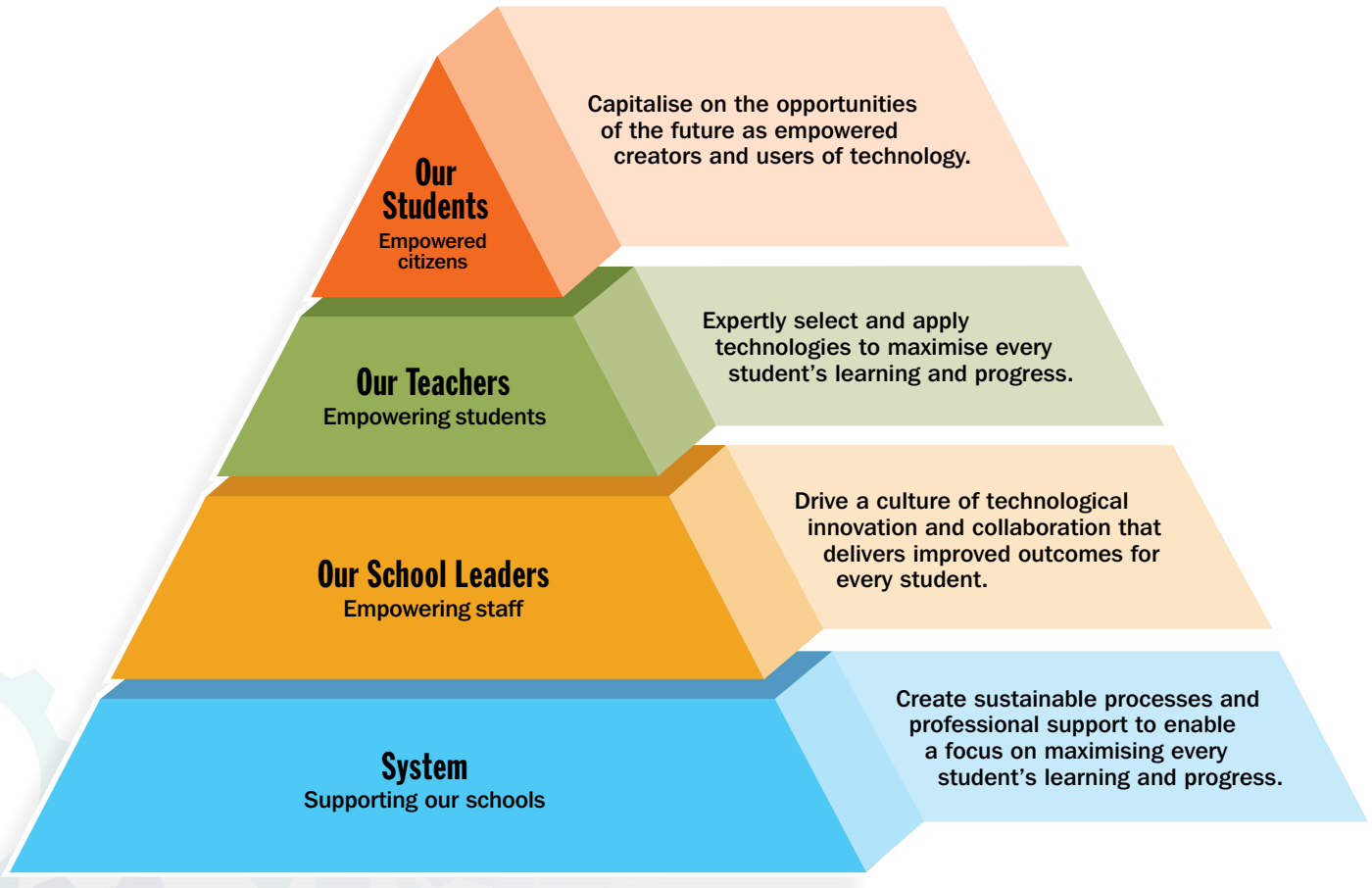
No single resource is more valuable, nor more scarce, to a teacher than time, which is an essential ingredient in 'optimising student outcomes'. The 'teacher time' view of our strategy, allows us to make customer-centric decisions that align more effectively to support our purpose – the education of our students.

Pursuing simplicity in design, choice and delivery of ICT services is key to achieving this and demands that we challenge our decisions against the impact it will have in the classroom, directly or indirectly. Given the scale of the Department, small changes can magnify beneficially and detrimentally. Technology changes can impact the amount of time a teacher, or teaching support staff member, has available to be in front of their students.

Building digital capability

Providing strong infrastructure, systems, processes and supports will only have an impact where staff are equipped with the capabilities to access and analyse data to support and transform student learning effectively through the use of technology.

Underpinning the success of this ICT strategy will be training, tools and professional learning for staff and a system-wide culture of strategic digital innovation.



Our key strategic areas

Digital capability

- Students strategically use and create technologies to optimise opportunities in learning, work and life and manage their wellbeing.
- School leaders establish an ICT focus and strategy for their school including monitoring and managing the impact on the wellbeing of students, staff and the school community.
- As flexible, fluent, and agile digital consumers in partnership with students, teachers foster student creativity and engagement in real world problems.
- Staff are confident digital citizens with the skills to effectively use technologies relevant to their role.
- Students take an active and strategic role in using technology to achieve learning outcomes.

Delivered through:

- Curriculum delivery that explicitly addresses the changing nature of workplaces and enables students to successfully transition into post-school options.
- Digital technologies curriculum that complements the ICT general capability.
- Professional learning in digital technologies and integration of digital capabilities in curriculum and assessment for teachers and school leaders.
- ICT platform and systems support differentiated learning.
- Leveraging the expertise and experience of SIDE to provide professional learning for teachers in effective flexible delivery.

Outcome: Digital literacy is embedded into daily practice for teachers, students and all staff.

Support emerging learning technologies

- Staff discover, explore and apply new technologies in a safe and supported environment.
- Teachers strategically select and use appropriate learning technologies, including assistive technologies, and monitor their impact on student performance and progress.
- Students personalise their learning and use technology to generate ideas and new ways to learn.
- Students develop adaptable skills in technology for careers of the future.
- Technology is utilised to meet the learning needs of particular student groups eg. Gifted and Talented, Aboriginal students, and students for whom English is an additional language or dialect.

Delivered through:

- Improved leaders' understanding of emerging technologies.
- Early identification and assessment of emerging technologies.
- Advice and tools to support the selection, evaluation and implementation of ICT in schools, including integrating assistive technologies in classrooms.
- ICT platform and systems support differentiated learning.

Outcome: A platform for contemporary technologies that supports enhanced teaching, learning and service delivery.

Our strategic approach

Better connected schools

- Schools in diverse geographic and demographic settings collaborate in delivering a broad range of curriculum.
- School communications and community engagement is strengthened.
- Technology facilitates student engagement, inclusion and equity.

Delivered through:

- Core network and centrally provided bandwidth.
- Robust Standard Operating Environment (SOE).

Outcome: Access to rich online resources, virtual classrooms, enhanced collaboration and remote learning.

Keeping cyber safe

- Teachers and students model positive and responsible use of technology, focusing on wellbeing, cyber safety, global citizenship, cultural competence and ethical practices.
- Principles related to technical, social and ethico-legal aspects of digital technologies are embedded across the Department.
- Users are informed of the requirements and implications of their online behaviour and develop proactive cyber safety culture

Delivered through:

- Robust platforms such as the Standard Operating Environment (SOE).
- Department systems that are safe and secure.
- Guidelines and professional learning in the responsible and safe use of technology.
- Visibility and management of digital security risks.

Outcome: Access to appropriate learning resources, in a safe online environment.

Opportunity through automation

- Greater productivity, including teacher time focused on lesson planning.
- Staff identify and contribute to business improvement.
- Processes and systems align to avoid duplication and manual intervention.
- User-centric design is adopted regardless of process/data ownership.
- Improved experience for all stakeholders.

Delivered through:

- Transitioning existing services and paper-based processes to digital.
- Building a culture of continuous improvement.
- Generating awareness of successful transitions.

Outcome: Self-service options and process automation free up teacher and stakeholder time.

Increased mobility, flexibility and availability

- Students can learn anywhere and at any time.
- Staff and stakeholders have access to systems and information on all devices.
- Home schooling and other flexible delivery is supported.

Delivered through:

- Improved identity management and security.
- Cloud services to improve mobility and access.
- Support for managed and supported devices.

Outcome: Greater flexibility for students, parents, staff and all other stakeholders.

Access to quality data

- Staff can access information to work efficiently and effectively.
- Data is shared across schools and the system to support learning outcomes, identify support services and manage transitions for both individual students and future trend identification.
- Achievement data is used to improve learning outcomes, attendance and wellbeing.
- School improvement planning, analysis and reporting is improved.
- Teachers use our systems to analyse data to accelerate student progress.
- Support stakeholders that the Department provides stewardship and services to through the provision of timely, accurate and accessible data.

Delivered through:

- Systems capable of providing data visualisation, interrogation and report generation.
- Common frameworks that enable data sharing and minimises duplication of data entry.
- Professional learning on data analysis.

Outcome: Information enables evidence-based decision-making and enhanced collaboration.

Effective governance and support

- Ensure continuation and minimal disruption to student learning.
- All applications, business systems and online content are compliant with WCAG 2.0 level AA.
- Policy and governance frameworks provide equitable access to technology for all staff and students.
- Schools are supported to adequately protect the collection and storage of data they hold on students, staff, parents and other members of their school communities.
- Evaluation frameworks assist schools in the selection of appropriate learning and other technologies.
- Staff and students are aware of security protocols regarding their access to supported systems.
- Systems of record provide assurance for stakeholders.

Delivered through:

- Guidelines and training on access to systems.
- Development of appropriate Disaster Recovery Plans.
- Professional learning in development of accessible systems and online content.
- Appropriate data segregation and controls.

Outcome: Contemporary tools and services promote and support effective governance.

Our strategic approach

Our ICT services

These include:

- The Core Network - centrally provided bandwidth
- The Standard Operating Environment (SOE)
- Corporate and centrally provided applications and infrastructure, including those used by external stakeholders
- Desktop and mobile device support for managed and supported devices
- ICT advice on school-based purchases such as bring your own device (BYOD) programs
- Network support and tools such as the ICT Dashboard
- Training in tools, programs and ICT initiatives (e.g. NAPLAN Online, SOE)

We will deliver ICT services that:

- Apply an approach that is based on the principle of equity.
- Provide effective technology supporting the goals of teachers and students.
- Deliver a consistent, but appropriately flexible core ICT platform that applies appropriate standards.
- Deliver an ICT platform that facilitates local school choices while ensuring students, staff and other stakeholders use ICT in a safe and secure manner.
- Provide timely, accurate and accessible data to all Department stakeholders that use them.

Service principles

As part of the broader Department approach ICT follows principles that support Every student, every classroom, every day and its six key improvement drivers by providing technology, technical services and advice that help our stakeholders.

ICT follows the Education Business Services principles:

- **Responsive** to customer requirements
- **Flexible** in meeting customer requirements through innovation
- **Transparent** in our decision making processes
- **Accountable** to clear standards
- **Collaborative** with customers and stakeholders

The core network

Our core network can be regarded as the circulatory system for classroom technology. It is critical to connecting classrooms, teachers and students to the outside world, to innovation and the effective adoption of emerging technologies that can deliver enhanced education outcomes.

The Department's network stretches further than any other agency in the State and indeed any other state or territory in the country, and would circle the Earth over six times.

Our new 'Bandwidth Blueprint' takes the best of what we currently have, exploits new and emerging opportunities, and continues to provide flexibility and options for those schools that want to push even further.

This involves combining the use of different technologies to deliver services deployed on commercial grade internet with service levels and guarantees that better align with the needs of our schools.

In its initial phase, over 500 schools will see a tripling of effective bandwidth per user. Moving to a mixed service model and from incremental improvement to a step change approach provides greater ability for expansion now and into the future.

1. We will aim to deliver 5 to 10 times the effective per user capacity of the 2018 model over the next 5 years.
2. We will continue to strive to deliver location independent equity.
3. We will maintain the ability for schools to supplement centrally funded capacity with school funded capacity through School Managed Internet.

Standard Operating Environment

The Standard Operating Environment (SOE) has evolved over time to become a very effective foundation network and security baseline platform that allows service at scale to be delivered across the diverse school environments we serve, allowing local additions and rules to be applied by the school in line with its specific needs.

While we currently have 99.5% of our schools utilising the SOE, we plan to have **all** schools (100%) using the SOE within 5 years. With the SOE we will:

1. continue to develop the SOE platform to benefit all schools
2. pursue efficiencies and improvements through the SOE that reduce the technology workload on schools
3. directly engage with focus groups from schools in the ongoing lifecycle of the SOE
4. continue to ensure an effective security model based on SOE combining central management with appropriate local control.

ICT processes and automation

ICT processes will be streamlined and automated to the full extent possible over the next 5 years to help reduce the administrative burden on schools and other users and provide self-service options where appropriate.
As a result, more consistent and effective governance around these processes will also be delivered.

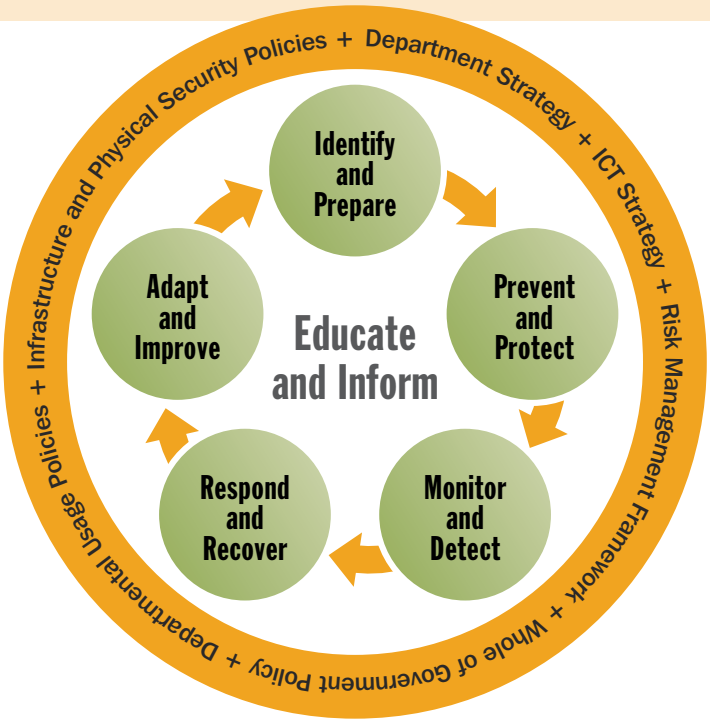
The capture of data and information in more structured automated ways will also provide better information sources that can be used to improve services to schools and other users over time.

The approach will focus on minimising user effort to achieve the required outcome driven by clear business rules. ICT will develop, with its customers, standardised interfaces, language and approaches that maximise effectiveness through familiarity and consistency, while minimising the time and effort required by users and providing opportunities for enhanced mobility.

Cyber security

Our approach to cyber security is aligned to the 'Western Australian Whole of Government Digital Security Policy'[1] with appropriate regard to the operational demands and environment of schools, and the diverse user base of the Department. Our focus is on practical approaches for the safe and secure use of core technologies and services that we deliver centrally to our stakeholders.

Enabled with a safe, secure, common, equitable, affordable, and reliable ICT foundation, each school can explore and deploy other applications, systems and tools to meet the particular needs of their students, teachers, and the wider school community.



Key concepts in our approach to keeping cyber safe include:

- **Cyber security is everybody's responsibility:** The most expensive lock in the world is useless if you leave the key in the door or let the burglar in!
- **Education and awareness:** Establish a cost effective method for improving security and cyber awareness for staff, students, suppliers and stakeholders.
- **Security and the concept of 'teacher time':** Seek options that provide protection and defence against cyber threats with the minimum impost on teacher time.
- **Cyber security needs a holistic approach:** Adopt a model that considers cyber security as a framework and that considers people, process, and systems as a whole. Technical tools and policy alone will not be enough.
- **Practical usability:** Consider the practical application, viability and varying contexts in which a cyber security measure is deployed, for example what works in a central service setting may be impractical in a school setting.
- **Credential streamlining:** Simpler credential management across a wide range of applications has operational efficiency benefits and improves security consistency.

[1] Digital Security Policy https://www.wa.gov.au/sites/default/files/2018-06/digitalsecuritypolicy.pdf

Innovation

We are committed to developing, adopting and fostering a culture of strategic innovation wherever there are opportunities to deliver greater value, fit for purpose services and the ability to enable schools and other stakeholders to better meet needs that are unique to their local communities while still benefitting from being part of a system. Innovation is critical to ongoing success.

Innovation will be focused, managed and measured in accordance with the following themes:

- **Risk management -** Embrace a digital future for the Department acknowledging that all innovation involves risk and will be managed to provide greater value to all stakeholders including teachers and students.
- **Information management -** Maximise the value of agency information from acknowledged single sources of truth for different types of information.
- **Online service delivery -** Make our services and systems securely and consistently accessible at times and places convenient to users, securely, and using an agreed variety of digital devices.
- **Solution design -** Our business solutions will be based on a sound understanding of systems and process requirements and meet both agency and Government needs.
- **Digital business systems -** Technology solutions will be scaled to the size of the need, built on top of common technology platforms, and suitable for use on the type of common devices our customers prefer to use.
- **Use of technology -** Use the most appropriate technology available to deliver and support services to all of our customers with services designed to automatically configure to suit the device they are accessed from.

Pursuing innovation will enable business needs to be met faster, capacity for scaling up and down quickly in response to changing demand, and services no longer required to shut down faster.

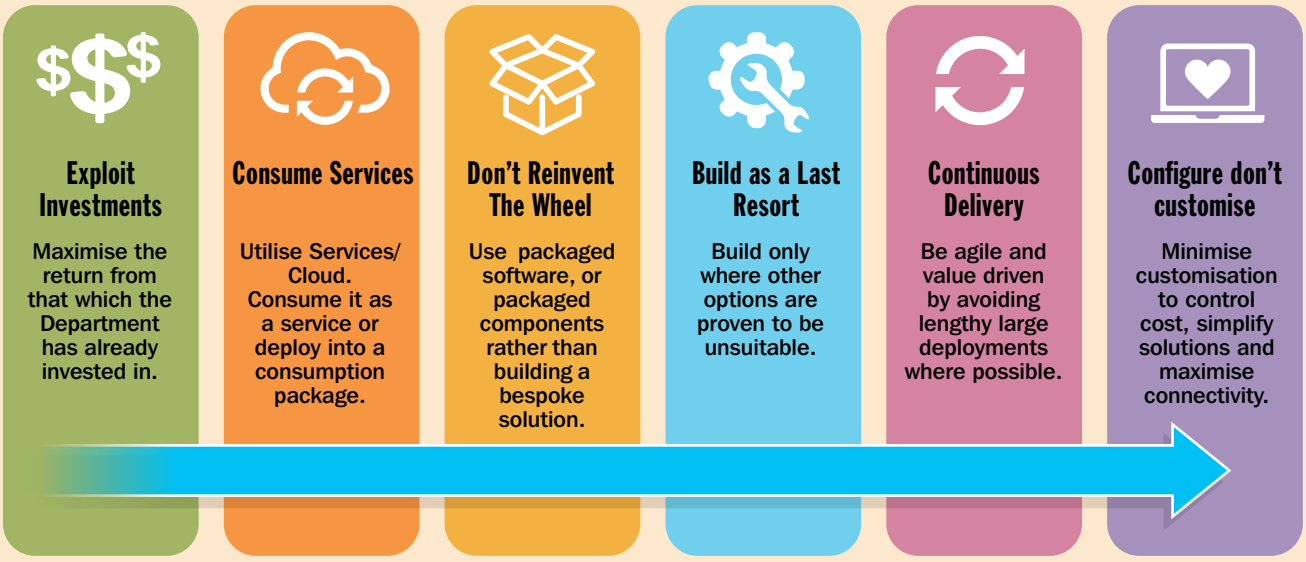
Technology choice and design principles

Demand for online services is expected to significantly increase as the impetus for information technology to support learning, collaboration, management and Government services grows.
An increasingly digital world will drive the need for cost effective online services that are cyber safe and appropriate to the Department's needs and stakeholders.

Our technology choice and design principles are the basis for the future applications landscape and guide modernising the existing legacy platforms to deliver improved services and opportunities. To do this we will:

- implement common applications for whole of Department challenges to provide efficiencies, reduce duplication and support common needs
- improve application services for staff and stakeholders through the provision of more contemporary systems
- implement methodologies and architectures that reduce delivery time and are responsive to change
- consolidate, rationalise, modernise and decommission existing applications where appropriate.

In a broader sense, and respecting the above principles, technology choices made will be aligned to the Government's Digital WA strategy, with operational choices influenced as follows:



This approach is designed to ensure effective investment, faster response times to business needs and alignment with modern practice.

We will continue to maintain a lean approach to central ICT spending with the primary driver of cost effective service delivery and support of schools and employ solutions and strategies to minimise the cost.