VAGO
Victorian Auditor-General's Office

ICT Provisioning in Schools

April 2022

Independent assurance report to Parliament
2021–22: 16

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Ordered to be published

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The Hon Nazih Elasmar MLC
President
Legislative Council
Parliament House
Melbourne

The Hon Colin Brooks MP
Speaker
Legislative Assembly
Parliament House
Melbourne

Dear Presiding Officers

Under the provisions of the *Audit Act 1994*, I transmit my report *ICT Provisioning in Schools*.

Yours faithfully

Andrew Greaves
Auditor-General
6 April 2022

The Victorian Auditor-General's Office acknowledges the Wurundjeri Woi Wurrung People as the traditional custodians of the land on which our office is located. We pay our respects to their Elders past and present.

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Audit snapshot

Are the Department of Education and Training (DET) and government schools equipped with the ICT (information and communications technology) infrastructure and resources necessary for ICT-facilitated teaching and learning?

Who and what we examined

How DET provides ICT infrastructure, resources and services to government schools. We also interviewed nine schools.

Why this audit is important

Victoria introduced digital technologies to the school curriculum in 2017 to run alongside literacy and numeracy. It is therefore important that all schools are equipped to deliver ICT-facilitated teaching and learning. It is also important to prepare students for further education, training, life and work in a digital world.

What we concluded

DET and Victorian Government schools are equipped with a base level of ICT infrastructure and resources. However, not all schools have access to the same ICT, particularly internet speed. DET also cannot be sure that the ICT infrastructure, resources and services it provides meet all schools' ICT-facilitated teaching and learning needs.

DET's focus has been on maintaining and enhancing its existing school ICT infrastructure and services. It has also been working on a strategy to support digitally enabled education and recently finalised its 10-year Digital Roadmap for Schools. This sets out its vision, objectives and outcomes for the first foundational stage of the roadmap. It is too early to determine if DET's roadmap will meet schools' future needs.

What we recommended

We made four recommendations to DET, including about:

- improving ICT to meet schools' needs
- DET's guidance and support to schools
- how DET oversees schools' ICT
- DET's roadmap for digitally enabled education.

Key facts

DET provides a base level of ICT, but it is not the same for all schools. DET is working to address gaps.

1,500+

schools can make their own ICT decisions beyond DET's base.

The statewide average is more than one device per student across all schools. However, 42% of schools have less than one device per student.*

DET recently developed a strategy to support digitally enabled education.

Note: *A one-to-one learning program means that each student has ongoing access to a digital device for educational purposes. DET's *Digital Learning in Schools* policy does not require schools to implement a one-to-one learning program and individual schools decide if they will adopt a one-to-one device policy.

What we found and recommend

We planned to survey all principals and teachers to understand the use, access and adequacy of ICT provisioning at the Department of Education's (DET) schools. Due to the coronavirus (COVID-19) pandemic and the consequent pressure on schools, we instead interviewed school principals and a small selection of teachers from nine schools. We consulted with DET and considered its views when reaching our conclusions. DET's full response is in Appendix A.

Improving existing ICT

Internet speed

DET has acted to improve schools' internet access, but its performance data shows that some schools' internet access is below its minimum internet speed allocations. Most of these schools are in lower socio-economic areas. However, these limitations are due to existing infrastructure issues and DET is working to address them.

DET's internet speed project reporting update in December 2021 shows that a quarter of all school campuses have not received upgrades to meet its 2020–21 internet speed target of 300 kbps per student. DET aims to complete its upgrade program by May 2022.

Allocating technical support

DET's technical support to schools program (TSSP) allocates technical support to each school based on the number of enrolled students it has. Each school receives a minimum allocation of four hours per week.

DET's data shows that the technical support hours it allocated to schools match student enrolment numbers. However, there are some gaps in how DET provides technical support, including:

- schools do not receive their new allocation at the start of the school year when they need it—they must wait until April, when their allocation is updated to reflect any increased enrolment
- schools can save allocated hours to use throughout the year, but it is not clear if schools can roll over allocated hours from the previous year (December to January) to mitigate the gap.

DET's guidance shows that all schools must wait until April. DET advised us it provides additional technical support allocations to 'growth' schools earlier than April, to address increased enrolment needs. However, this is not included in this guidance.

Our interviews with nine schools highlighted that most of these schools hire their own technicians to provide technical support in addition to their DET allocation. Schools also heavily rely on teachers or other staff who have technical knowledge.

School spending

Government schools manage and fund the critical ICT they need to meet their ICT needs beyond DET's provisions using their individual school budget or community fundraising. From 2016 to 2020, schools spent an average of over $76 million per year on ICT-related items. This increased from $61.7 million in 2016 to $85.2 million in 2020.

Schools in major cities have the highest average ICT spending per year overall, followed by schools in remote locations. Schools in the most disadvantaged areas spend more per student than other schools.

Recommendation about improving ICT to meet schools' needs

We recommend that:		Response
Department of Education and Training	1. addresses gaps and issues in existing ICT provisions by: • improving internet speed allocations for schools receiving less than the department's current target of 300 kbps per student (see Section 2.1) • identifying the extent and purpose of technical support that schools are accessing beyond its technical support to schools program to better understand their support needs and continually improve the program (see Section 2.2).	**Accepted**

DET's ICT guidance

ICT planning

DET lacks full insight into schools' ICT capability, maturing strategies and planning.

Beyond its ICT provisioning, DET's School ICT Progression Strategy (SIPS) helps schools identify their needs and improve their overall ICT capability and maturity through a planning process.

DET's data shows that 98 per cent of schools have a medium to high level of ICT capability and maturity due to the SIPS process. However, schools decide how they use the SIPS process, so it is unclear if these scores accurately represent their ICT capability and maturity.

DET does not require schools to upload their completed SIPS plans in its PRISM system, which is an ICT dashboard that DET provides to all schools for ICT monitoring and planning.

While not all schools have a SIPS plan, we found that from January 2014 to May 2019, on average 44 per cent of schools that had completed a SIPS uploaded their plans. DET advised us its visibility of these plans is adequate for it to understand ICT needs and purchasing trends across the school population to inform ICT planning and procurement, although it cannot be sure this provides a representative view of all schools' needs and purchasing trends.

Out-of-date guidance

DET gives schools access to ICT information and resources through several platforms. However, DET has not updated key parts of some documents available in these platforms since 2014, including guidance on planning and sustaining access to ICT. This means guidance available to schools is significantly out of date in some instances.

Recommendation about DET's school guidance and support

We recommend that:		Response
Department of Education and Training	2. monitors, evaluates and reports on its ICT support and guidance and how schools use it to: • understand its take-up, including how schools use its School ICT Progression Strategy and PRISM • ensure all guidance is up to date • continuously improve and modify its guidance and support to meet schools' needs (see Section 2.2).	**Accepted**

DET's oversight of school's ICT

DET's health checks

DET conducts ICT health checks to assess schools' ICT against technical specifications and standards. However, we found that DET only checks ICT infrastructure of up to 6 per cent of schools per year, which DET advised is due to resourcing limitations. It is not clear if it has considered alternative methods for conducting these checks. This means that it would take approximately 14 years to check all existing schools.

School asset management system

DET's information technology asset management system (ITAM) holds data about schools' ICT infrastructure and hardware, including both centrally provided and school-procured assets. However, ITAM does not accurately record all schools' ICT assets. In particular:

- at least 4 per cent of recorded assets had information gaps
- 31 per cent of recorded assets did not have a unique identifier, which increases the risk of duplicate entries
- there is limited information recorded for BYO devices, which make up 32 per cent of student devices (for example, their age).

Monitoring schools' ICT spending

Government schools spent $85.2 million on ICT in 2020. This includes schools purchasing through DET-managed supplier panels and through their own means. However, DET cannot accurately monitor their purchasing trends. This is because the financial management system it provides to schools (CASES21) does not identify all ICT purchases.

In particular, CASES21 does not:

- identify when schools make purchases outside of DET-managed supplier panels
- provide standardised descriptions for ICT purchases.

DET only checks 0.10 per cent of schools' ICT procurement activities per year (for purchases above $2,500). DET only requires schools to complete procurement documentation for purchases above $2,500, in accordance with its financial manual for schools' policy.

By not fully understanding schools' ICT purchasing trends, DET cannot know if their procurement activities provide value for money and if there are potential opportunities for savings.

Understanding school policies

DET requires schools to have a digital technologies policy. DET gives schools support and guidance on how to prepare this policy. However, its guidance does not include any technical specifications or performance standards to ensure that all devices used at a school support its teaching and learning needs. This means that device quality may vary between classrooms or schools.

DET advised us that if a school implements its digital technologies policy as intended:

- students will have sufficient access to devices within the priority areas of the curriculum, which schools determine at a local level
- devices used at the school will meet implementation standards.

DET does not monitor schools' ICT policies or how they implement them. It also does not know if schools ensure that all students have access to devices for learning activities, which is a requirement if a school chooses to adopt a one-to-one device policy.

A **one-to-one device policy** means each student has access to a device. In Victoria, individual schools determine if they will adopt a one-to-one device policy.

Each year, DET conducts a computer census that measures the student-to-device ratio in schools. DET's 2020 computer census reported a statewide average ratio of more than one device per student. However, our analysis of DET's data from May 2021 shows that while the statewide average is more than one device per student, 647, or 42 per cent, of all schools have a ratio of less than one device per student. This is made up of 54, or 22 per cent, of all secondary schools, 553, or 49 per cent, of all primary schools, 20, or 25 per cent, of all combined primary/secondary schools and 20, or 25 per cent, of all special schools.

Recommendation about overseeing schools' ICT

We recommend that:		Response
Department of Education and Training	3. improves its oversight and monitoring of school ICT policies, provisioning and purchasing to understand: • school purchasing trends, including purchasing outside existing panels, to determine if panels require improvement or expansion to meet schools' needs and provide improved value for money • if schools are implementing their ICT policies, including digital technology policies, as intended • if ICT assets owned by government schools meet its minimum technical specifications and standards where specified, including considering alternative methods for conducting checks (see chapters 2 and 3).	**Accepted**

Planning for future school ICT

DET's future vision for ICT in schools

In the last two years, DET has engaged two consulting firms to undertake work to develop options for a future state and roadmap for digitally enabled education. This work considered three potential future-state options.

In November 2021, DET's executive board endorsed the vision articulated in the Digital Roadmap for Schools: 'a world-class, digitally enabled education system that gives every learner the best chance of thriving and achieving their potential in learning and beyond'.

The board approved objectives and outcomes for the foundational stage of the roadmap, with emphasis on the next two years. This is one of three stages identified in the strategy. DET advised us that some actions are already underway to support

delivery of the roadmap, and that it will continue to work with schools to identify and confirm further initiatives to deliver on this future strategy.

DET intends the roadmap to provide a long-term plan and articulate how it will develop and deliver the digital foundations and technology, including applications and infrastructure, it needs.

Engaging with schools

DET has undertaken some engagement with schools as part of its future ICT planning. DET developed the roadmap in consultation with a small number of schools, departmental representatives and a range of stakeholders. However, consultation with schools was limited due to the COVID-19 pandemic. DET advised us the next phase in implementing this roadmap will involve deeper engagement with schools in the co-design of initiatives. This is important to ensure it is fully understanding schools' and other stakeholders' needs.

DET needs to interact with schools more to inform the rollout of its roadmap, particularly because it does not have full visibility of all schools' ICT activities and policies.

Recommendation about DET's roadmap for digitally enabled education

We recommend that:		Response
Department of Education and Training	4. ensures that implementation of its Digital Roadmap for Schools includes: • engaging with schools to fully understand their needs, aspirations and future directions for digitally enabled education, including through using available data in school ICT plans and school capability assessments • specifying the department's and schools' future ICT requirements to enable contemporary digital learning at all schools • assessing the scope of its existing policies and provision of ICT infrastructure, resources and services in light of schools' future needs • developing clear governance and communication arrangements to support ICT delivery, including clarifying roles and responsibilities for itself and schools (see chapter 3).	**Accepted**

1. Audit context

ICT-facilitated teaching and learning is a key part of a quality education.

School-based ICT includes the digital devices, tools, applications, services and systems that students and teachers use for learning and teaching. This includes any DET-issued software and locally sourced devices, tools and systems.

ICT in schools can help students learn how to access information and prepare them for work and life in a highly digital environment. ICT can also help teachers develop students' critical thinking, evaluating and synthesising skills.

This chapter provides essential background information about:

- The Victorian education system
- ICT in schools
- DET's school ICT framework

1.1 The Victorian education system

Under the *Education and Training Reform Act 2006* (the Act), the Minister for Education is responsible for Victoria's education system, which includes government, Catholic and independent schools.

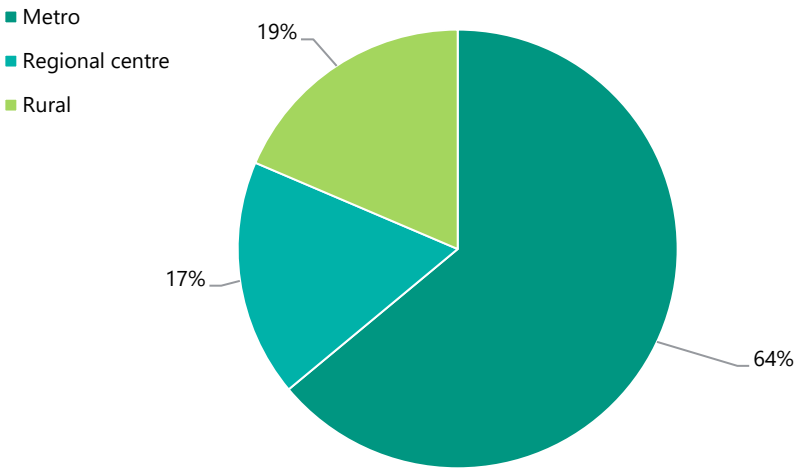
Under the Act, DET is accountable to the minister for administering the education system and running and maintaining government schools. DET is also responsible for government schools' performance and compliance responsibilities.

One of the Act's underlying principles is that all Victorians, regardless of the institution they attend, where they live or their social or economic status, should have access to a high-quality education that realises their learning potential and maximises their education and training achievements.

Victorian Government school population

According to the most recent school census data, there were 1,543 government schools made up of 1,602 school campuses in 2020. As Figure 1A shows, most schools are in the Melbourne metropolitan area (64 per cent), followed by rural (19 per cent) and regional centres (17 per cent). See Figure E1 for more detailed information.

FIGURE 1A: **Proportion of school population by geographic location**



Source: VAGO, based on DET's 2020 school census.

1.2 ICT in schools

The Australian Curriculum identifies digital technologies as a general capability that should be integrated across all areas of the curriculum from foundation to year 10.

The Australian Curriculum, Assessment and Reporting Authority (ACARA) outlines the value of integrating ICT for both students and teachers in its 2018 report on the National Assessment Program (NAP) for ICT literacy:

> 'ICT, when integrated into the classroom, adds immense value to the quality of teaching, making it a holistic learning experience for the students … It gives students an opportunity to become a part of the global technology village, enhancing their technical and communication skills'.

The Victorian Curriculum and Assessment Authority (VCAA) sets the curriculum for schools in Victoria. VCAA introduced digital technologies to the curriculum in 2017 as both a curriculum learning area and a general capability along with literacy and numeracy. This means that schools must embed ICT, along with literacy and numeracy, across the curriculum.

ACARA developed the **Australian Curriculum**, which all state and territory education ministers endorsed in 2015. It also developed the **NAP**, which comprises the National Assessment Program—Literacy and Numeracy (NAPLAN) and NAP sample assessments. These assessments test students' knowledge of what is in the Australian Curriculum.

The VCAA's **curriculum learning areas** include English, mathematics, science, languages, technologies, humanities, the arts, health and physical education.

1.3 DET's school ICT framework

Victoria's $10.8 billion Education State initiative commenced in 2019 and aims to build 'a world-class education system and transform Victoria into the Education State' to improve outcomes for all students. The Victorian School Building Authority's *Building Quality Standards Handbook* highlights DET's commitment to this vision and its role to 'help equip Victorian children and young people with the skills they need to succeed in a world that is increasingly digital, mobile and global'.

DET's *Digital Learning in Schools* policy

DET's *Digital Learning in Schools* policy states that 'the use of digital technologies is a mandated component of the Victorian Curriculum F–10 and must be substantially addressed by every school in their curriculum program'. The policy requires:

Schools to …	**and DET to …**
ensure their ICT and other digital technologies support and enable learning and are safe, balanced and appropriate	support schools to strategically plan their ICT and digital technology use through its online ICT planning tool and ICT strategic planning workshops.
develop their own local policy on how students should use ICT and other digital technology, including the internet	

Note: DET's *Digital Learning in Schools* policy does not require DET to follow up on schools' local policy or their implementation.

The **curriculum F–10** refers to the Australian Curriculum taught for foundation to year 10 students. The curriculum is mandated by VCAA and defines what schools must teach.

DET defines **digital learning** as any type of learning that is facilitated by technology and any instructional practice that is effectively using technology to strengthen and/or transform the learning experience.

The policy does not require schools to implement a one-to-one learning program. It also does not mandate a preferred provisioning model for student devices. However, schools can choose to implement a one-to-one learning program as long as they:

- provide students with equitable access to devices
- invite financial contributions from families that is consistent with DET's parent payments policy.

Each school council is responsible for approving the financial and contractual arrangements for a one-to-one learning program, including any contributions from families. It must consider the school community's views when doing this.

The principal is responsible for monitoring the effectiveness of a one-to-one learning program.

DET's and schools' ICT provisioning

As Figure 1B shows, DET categorises school ICT into four tiers. DET and schools both provide ICT items within each tier. Refer to Figure D1 for more information.

FIGURE 1B: **School ICT tiers**

Tier	Description	ICT provisions
Tier 1 Infrastructure and connectivity	Infrastructure is the core of all ICT systems. It acts as the brain and nervous system to enable reliable and resilient access to resources within the school and online.	• Servers • Wired and wireless networks • Storage • Backups • Cabling
Tier 2 ICT devices and software	Appropriately selected and configured ICT devices enable staff and students to access systems anytime, anywhere.	• Notebooks • Tablets • Desktops • Software • Cloud services
Tier 3 Peripherals and innovation	Peripherals comprise ICT equipment that capture or present information for learning tasks.	• Projectors and screens • Printers and photocopiers • Videoconferencing • Video cameras • Digital microscopes
Tier 4 Technical support and professional learning	Technical support is required throughout all phases to: • set up, operate and maintain ICT equipment according to best practice • provide resilient and reliable access to ICT for staff and students.	• TSSP • Local support resources • ICT strategic planning workshops • Strategic planning online tool workshops • Professional learning opportunities

Source: VAGO, based on DET's *ICT Design Model for Schools*.

DET's resources on eduSTAR provide schools with various centrally funded ICT services and equipment to help them develop an appropriate ICT platform. As the table below shows, schools must provide some parts of their ICT system.

eduSTAR (School Technology Architecture and Resources) is the main intranet site where schools access the resources DET provides.

DET provides ...	Schools provide ...
• curriculum and admin servers • CASES21 server backups • CASES21 workstations • cable infrastructure • internet access, including the network core, local area network, wireless access points and wide area network • cybersecurity • teacher and principal devices • videoconferencing (Webex) • technical support (TSSP) • software through the standard operating environment (SOE).	• local servers • curriculum data backups • network edge • local cybersecurity • student devices and computer labs • printers, screens, projectors and photocopiers • landline and mobile phones • local technical support • staff professional development in ICT • other digital tools (such as microscopes and cameras) • other software.

DET manages ICT-related supplier panels, including the:

- hardware panel, which offers ICT hardware that schools can purchase
- TSSP panel, which provides technical support services to each school for any DET-provided ICT services or equipment.

While DET does not offer a software supplier panel, it does provide schools with various software licences at no cost.

Schools' ICT planning

DET's SIPS is a three-step annual planning process that each school is meant to use to assess, progress and improve its ICT planning, capability and maturity.

Schools should complete the SIPS process with input from specialist technicians, whom they can engage through the TSSP. As Figure 1C shows, it has three stages—assess, review and plan.

FIGURE 1C: **The SIPS process**

Stage	Process includes	What it involves
Assess	ICT survey and computer census	The school completes an online survey to self-assess its existing ICT. This includes collating data on the number and age of all the devices it has.
	Network and device performance check	The school conducts a speed test to assess its network, internet speed and device performance.
Review	PRISM school dashboard review	The school reviews its existing ICT infrastructure and resources.
Plan	SIPS plan	The school prepares an online ICT plan and budget.

Source: VAGO, based on DET SIPS process guidance.

Through the SIPS process, each school receives an ICT capability score out of 100 that relates to one of the following DET ratings:

- emerging: basic immediate ICT infrastructure, resource and maintenance needs are met
- embedding: the school's ICT infrastructure, resources and maintenance planning include current and some future ICT needs
- excelling: the school's ICT systems, resources, infrastructure and maintenance programs are guided by continuous review and proactive strategic planning to ensure they meet its current and future ICT demands.

DET expects each school to use its SIPS plan to strategically progress its ICT capability along this rating scale.

2. How DET provides ICT to schools

Conclusion

DET provides a base level of ICT infrastructure, hardware and software to all schools. Schools need to supplement these provisions, and what they provide varies depending on their ICT capability, needs and available funding. This results in significant variation between schools.

DET proactively maintains and enhances its existing infrastructure provisions, including improving schools' internet speed and replacing ageing infrastructure. Although some of DET's minimum provisions vary between some schools, it is working to address gaps.

DET also provides or offers a range of systems, guidance, software, training and support services to schools. Much of this aims to help schools plan their ICT and improve their overall ICT capability and maturity. However, the uptake and value of these services to schools varies.

This chapter discusses:

- DET's infrastructure, hardware and software provisioning to schools
- DET's support and guidance for schools
- Providing additional ICT during the COVID-19 pandemic

2.1 DET's infrastructure, hardware and software provisioning to schools

As we discuss in Section 1.3, DET provides schools with a base level of ICT infrastructure, hardware and software under its eduSTAR program on an ongoing basis. Through various initiatives over the last few years, DET has sought to either maintain or upgrade ICT provided to schools, including:

- improving internet speed
- replacing ageing infrastructure
- adjusting the provision of software licences
- managing the standard of teacher and student devices
- supplementing its provisions.

We assessed DET's ICT-related funding proposals for these initiatives over a five-year period. We found that its business cases and equivalent documentation have clear objectives and generally consider alternative options and expected benefits. Overall, DET's planning for the ICT initiatives we examined is evidence-based.

Improving internet speed

DET provides internet access to schools through its VicSmart Local Area Network (VLAN), which Telstra supports. DET has acted to improve schools' access to internet provisions, including:

In ...	DET identified that ...	and addressed this issue by ...
2017–18	rural and regional schools and primary schools had inequitable internet speed provisions	increasing internet speed for rural schools to align with metropolitan schools and secondary schools.
	schools' internet speed needs increased due to the introduction of ICT to the curriculum in 2017	increasing wi-fi hotspots in classrooms and the minimum internet speed to 75 kbps.
	schools' wi-fi infrastructure would become obsolete by 2018	making changes to VLAN for approximately 1,500 schools (97 per cent of all schools) in 2018.
2019–20	since its 2017–18 upgrade, 131 schools (8 per cent of all schools) still did not meet its minimum internet speed of 75 kbps	increasing the minimum internet speed from 75 kbps to 150 kbps per student for 1,340 school campuses (almost 82 per cent of campuses) that were eligible for an internet speed upgrade and had less than the 150 kbps per student.
	schools' internet use increased due to 87 per cent of student devices being mobile	
	allocating internet speed per school, rather than per student, disadvantaged larger schools	

In …	DET identified that …	and addressed this issue by …
	schools were experiencing slow internet speed due to a 400 per cent increase in internet downloads and over 400 schools' networks were pushed beyond their capacity	increasing internet speed for schools with high usage.
2020–21	ICT use had increased in schools and it needed to increase internet speed at all schools	starting a program to increase all schools' internet speed to 300 kbps per student, which it plans to be completed by May 2022.

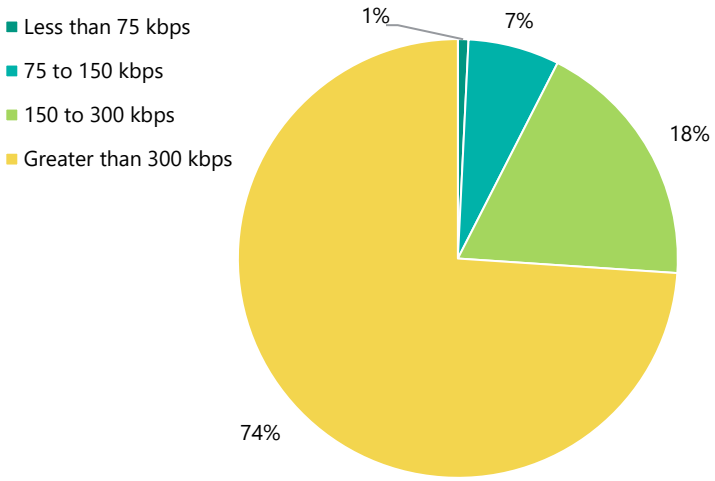
DET prioritises its upgrades for schools with high use relative to their internet speed and works with Telstra to improve back-end infrastructure.

DET is upgrading all schools' internet speed to meet its 2020–21 target of 300 kbps per student. DET also advised, in February 2022, that it is working towards a new target of 1 Mbps per student. However, it is unclear how DET determined these targets.

As at December 2021, DET's internet speed reporting update shows that 435 school campuses, or 26 per cent of all school campuses (some schools have more than one campus and internet speed allocation), have not been upgraded to 300 kbps per student, which Figure 2A shows. This includes:

- 1 per cent of schools that have less than 75 kbps
- 7 per cent of schools that have between 75 kbps and 150 kbps
- 18 per cent of schools that have between 150 kbps and 300 kbps.

FIGURE 2A: **School campuses by internet speed allocation**



Note: kbps refers to kbps per student.
Source: DET's December 2021 bandwidth data.

The 1 per cent of schools that have not yet received an upgrade to 75 kbps per student are waiting on hardware or infrastructure upgrades and are spread across different geographic locations and socio-economic areas.

Of the 26 per cent of schools that have not reached their 300 kbps per student target, around half are in the disadvantaged or most disadvantaged socio-economic areas according to the 2016 SEIFA ranking, with around two-thirds in the Melbourne metropolitan area, as shown in Figure E2.

Of the 8 per cent of schools that DET has not upgraded to 150 kbps per student, 62 per cent are in the two lowest socio-economic areas in Victoria.

DET advised us that it expects all schools to be upgraded to 300 kbps by May 2022.

Our interviews with schools highlighted that they often have issues with the consistency of their internet connection, particularly in rural or regional areas. To mitigate this, schools told us that they plan activities around internet use. For example, they reduce internet use throughout the school during mandatory online testing, such as NAPLAN, or purchase additional wi-fi on top of DET's provisions to meet their needs.

Socio-Economic Indexes for Areas (SEIFA) is a product developed by the Australian Bureau of Statistics (ABS) that ranks Australian locations in five areas from the most disadvantaged to most advantaged. The indexes are based on information from a five-yearly census.

In its most recent SEIFA ranking (from the 2016 census), 48 per cent of the school population sits in the disadvantaged to most disadvantaged categories (24 per cent in each).

Replacing ageing infrastructure

In 2017–18 DET identified that most school servers were reaching the end of their life. To maintain schools' existing infrastructure, DET received $7 million to replace school curriculum servers, along with wi-fi controllers and wireless access points. DET advised us it was also able to replace the administration servers at schools through this process.

There were two options for these upgrades: migrating two servers into one or replacing existing servers. According to DET's progress reports, between January 2020 and October 2021:

- DET completed the required server migration for 1,037 schools (63 per cent of schools eligible for server migration)
- 845 schools (81 per cent of schools eligible for replacement) completed a decommissioning process for old servers.

Adjusting the provision of software licences

DET purchases commonly used software and currently provides approximately 97 software titles to schools. This includes some software that schools need to purchase a licence for and some that is free of charge. DET reviews these titles every four years to align with curriculum needs—most recently in 2019–20. It provides a software package on all student and school devices, known as the SOE. DET intends to limit the number of software licences it purchases to only provide enough to meet the number of teachers or students who need access.

In 2019, DET commissioned an evaluation of its software offering. The evaluation found that the software package DET provides potentially saves schools over $27 million.

However, it also found that DET was spending over $883,000 on some licences that schools did not need. While DET over-catered for some schools' requirements, some

licences were not meeting other schools' needs. We also found evidence of schools making unnecessary software purchases when they could have received licences from DET for no cost, shown in Figure 3A.

DET responded to the evaluation in 2019–20 by revising its software offering and adjusting its software licences. In particular:

Evaluators found that …	DET responded by…
some software had licence restrictions on its use.	tailoring and increasing its software licensing models to reflect actual use.
schools were self-procuring software that DET did not provide.	including software titles with high demand and introducing new licences for 'bring your own device' (BYOD) access.
some titles were not being used much.	removing titles with low demand or no use.

Devices used by students include desktop computers, laptops and tablets. Under a **BYOD** provisioning model, parents/carers purchase or lease devices for students.

Managing the standard of teacher and student devices

In 2016–17, DET received $75.5 million of funding to establish its Teacher and Principal Notebook Program (TPN Program). The TPN Program provides teachers with free devices and offers replacement devices every four years. However, DET does not supply any devices for student use. It instead directs schools to make their own decisions on student devices that meet their individual preferences and curriculum delivery needs.

Our interviews with schools highlighted that most teachers find their TPN Program devices are of low quality, do not support some software programs and usually do not last to the end of their four-year cycle. To mitigate this, teachers told us that they often use their personal device to meet the needs of their role.

DET requires schools to have a digital technology policy that covers student wellbeing, using the internet and using digital devices. It provides supporting guidance through its policy and advisory library accessed through the internet. Although DET's guidance recommends schools to consider technical requirements for devices in their planning process, it does not have any minimum technical specifications or performance standards. This means it cannot ensure that all devices used at a school can support the software, speed requirements or memory capacity that students and teachers need to complete learning activities and device quality may vary within each classroom or between schools.

Despite its lack of statewide guidance on minimum standards, DET does provide schools with access to a suite of devices they can purchase that meet predetermined technical specifications and minimum standards set through its curriculum computer panel.

Our interviews with schools highlighted that when students' device types and capabilities vary, such as devices that have different memory capacities, speed, battery power or operating systems, it often disrupts classroom activities because teachers

spend more time fixing issues, tailoring instructions for different operating systems or repeating tasks, rather than conducting a lesson.

Conversely, schools that set standards for devices reported that devices lasted longer (usually for the duration of high school) and they could resolve technical issues faster.

Supplementing DET's provisions

Schools fund other critical ICT to provide an ICT solution beyond DET's provisions and meet their needs through their school budget or community fundraising. This includes additional internet speed allocation, cabling, equipment (such as TVs and projectors), additional software and technical support.

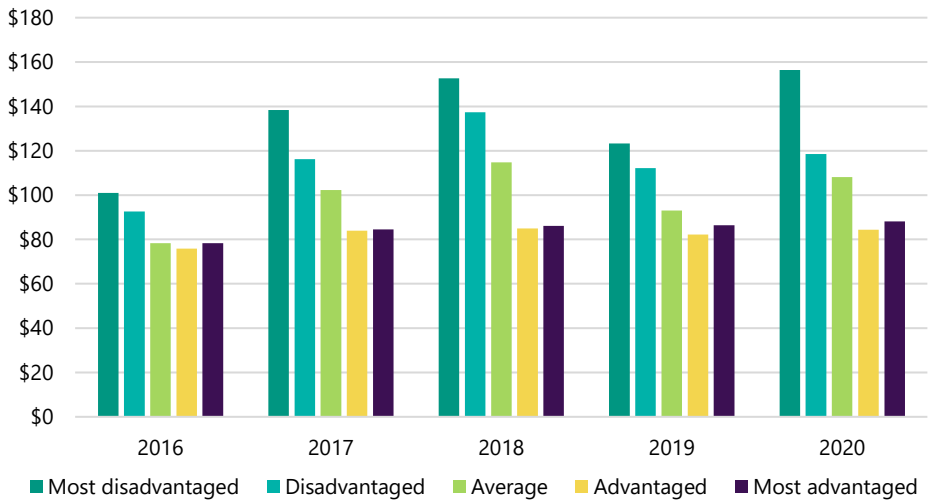
We assessed school ICT spending over a five-year period from 2016 to 2020 and found that:

- schools spend approximately $76 million on average per year on ICT-related items, which increased from $61.7 million in 2016 to $85.2 million in 2020 (see Figure F1)
- schools' overall ICT spending has increased each year, with secondary and language schools spending the most overall (see Figure F2).

As Figure 2B shows, schools in the most disadvantaged areas spend more per student on ICT than other schools. This includes schools that receive additional government funding through the Student Resource Package (SRP).

The government funds all schools through the **SRP**. Schools that are disadvantaged or have higher needs due to their location, student demographic or infrastructure needs, receive additional loading in their funding allocations.

FIGURE 2B: **Median school ICT spending per student by SEIFA category from 2016 to 2020**



Note: Average figures are based on the median of all schools' expenditure over five years (2016 to 2020).
Source: VAGO, based on CASES21 data 2016 to 2020.

Our interviews with schools highlighted that while some schools procure their ICT products from DET's suppliers (through eduSTAR), some procure their own products

elsewhere. These schools reported that they could obtain the same product cheaper or a better product for the same cost than what was available on eduSTAR.

Schools also reported that DET's engagement to determine their ICT needs was often ineffective, which resulted in DET supplying products that schools do not need and not supplying products they do need.

Between 2016 to 2020, schools in major cities had the highest average ICT spending ($39,511), followed by schools in remote locations ($18,720) (see Figure F3). This is most likely because larger schools in metropolitan areas have higher student populations and schools in remote locations receive SRP loading allocations.

2.2 DET's support and guidance for schools

Beyond its ICT provisioning, DET gives schools guidance and support for ICT planning to help them identify their needs and improve their overall ICT capability and maturity. However, some of this guidance and support has limitations that weaken its impact.

Technical support

DET allocates technical support to schools based on the number of students they have enrolled. DET uses the annual school census to identify this number. Each school receives a minimum allocation of four hours per week.

DET's data shows that the technical support hours it allocates to schools match student enrolment numbers, which are calculated in February each year. DET's guidance shows that all schools must wait until April for their allocation to be updated to reflect any increased enrolment. DET advised us that it provides additional technical support allocations to 'growth' schools earlier than April to address increased enrolment needs. However, this is not included in DET's guidance. As most schools do not receive their new allocation until April, their allocation may not be enough if their student numbers increase in the first part of the year. It is also not clear if schools can mitigate this gap by using accumulated hours from the previous year.

Our interviews with nine schools highlighted that most of these schools hire their own technicians to provide technical support in addition to their DET allocation. Schools also heavily rely on teachers or other staff who have technical knowledge.

Some schools told us that some TSSP technicians did not have enough knowledge to meet their needs, particularly in rural and regional areas where it is often difficult to attract and retain technicians.

DET advised us that following a review in 2016–17, funding for schools to procure their own local support was incorporated into their SRP funding. This was previously provided as a grant through the TSSP.

ICT guidance and planning

As schools make their own decisions on how they deliver the curriculum and their resulting ICT needs, they need to plan to supplement any ICT beyond what DET provides.

DET offers ICT planning guidance and support through eduSTAR to help schools meet their individual ICT maturity and capability goals. For example:

DET provides …	through …	which helps schools to …
planning support	its ICT dashboard (PRISM)	view and monitor their own ICT provisions, such as data on devices, technical support, software and internet speed.
	SIPS	annually review their ICT capability by accessing all ICT data in the PRISM dashboard and develop a plan to raise it.
	workshops	improve their ICT planning. These workshops include targeted workshops for schools that DET assesses as having low ICT capability through the SIPS process. However, DET has not provided workshops since March 2020 due to COVID-19.
procurement support	supplier panels	access hardware and software under government contracts that provide standardised pricing and warranties.
guidance	its policy and advisory library	access a library of policy and guidance material for all school activities.

DET has not updated key parts of some documents since 2014 (such as guidance on planning and sustaining access to ICT), which leaves schools with out-of-date information. DET has introduced some new online platforms to provide schools with access to up-to-date ICT information and resources, including:

- ARC (Access Resource Collaborate), which is the primary source for staff including school leaders (principals) and teachers to access applications and services
- FUSE (Find Use Share Educational resources), which is a sharing platform for education-related digital content and resources
- eVA (electronic Virtual Assistant), which is a learning chatbot designed to assist schools with a broad range of frequently asked questions, including:
  - troubleshooting
  - accessibility
  - advice for individual schools or students
  - managing policies and permissions.

As we discuss in Section 1.3, schools self-assess their ICT capacity and maturity rating through the SIPS process.

Our interviews with schools highlighted that they have variable levels of ICT capability and maturity and while some schools find DET's planning guidance and processes helpful for understanding their ICT goals and future planning, others do not use them at all. All schools told us that they highly value DET's policy and advisory library.

Some schools also told us that teachers would use more ICT if they had the confidence to do so, which could be addressed by attending training, sharing knowledge, or having more technical support readily available to troubleshoot issues.

In 2020, 1,543 government schools with 1,602 campuses had individual SIPS ratings. Of these schools, more than half (53 per cent) sat within the 'excelling' ICT rating. As Figure 2C shows, only 2 per cent were within the lowest bands of 'emerging' or 'embedding'. DET provides ICT planning workshops to assist schools with uplifting their ICT capability and maturity.

However, schools decide how they use the SIPS process, so it is unclear if these scores accurately represent their ICT capability and maturity. Outside its ICT health checks (which we discuss in Section 3.1), DET does not have a process to assess the accuracy of schools' assessments, which could also be used to improve how schools undertake these assessments.

FIGURE 2C: **School campus SIPS ratings by category for 2020**

SIPS categories				*School campuses in SIPS categories*	
SIPS score	Star rating	ICT capability	ICT rating	Number of campuses	%
0–20%	★	Emerging	Emerging	14	1%
21–40%	★★	Embedding	Embedding	15	1%
41–60%	★★★	Standard		217	14%
61–80%	★★★★	Accomplished	Excelling	862	53%
81–100%	★★★★★	Excelling		494	31%
Total				1,602	100%

Source: VAGO, based on schools' SIPS scores as at September 2020.

2.3 Providing additional ICT during the COVID-19 pandemic

DET improved its ICT provisioning for students to learn from home during the COVID-19 pandemic beyond its usual remit. It also sought funding and began initiatives to further support learning from home.

Additional devices

From March 2020, DET began initiatives to provide technology to students learning from home, which aimed to reduce disadvantage for students with less access. This included:

- providing 28,417 devices to students in need, which included directing schools to loan school-owned devices
- providing 29,556 internet access devices to students
- prioritising technology deliveries to bushfire-affected, disadvantaged families and families with senior secondary students.

Additional technical support

DET also made its technical support model more flexible in response to COVID-19. DET found that under its existing model, schools that had less than one day of technical support per week required more to meet their learning-from-home needs. It identified that 1,433 schools (roughly 92 per cent of schools) had a technical support allocation of less than eight hours per week.

In April 2020, DET implemented a remote technical support model to provide flexible onsite and remote support to students and staff. This involved providing schools with additional technical support hours during learning from home, where previously specialist technicians were restricted to individual schools and a fixed visitation schedule.

3. How DET oversees school ICT

Conclusion

DET has a range of systems and processes to monitor and understand schools' ICT. However, it does not have full visibility of all schools' ICT policies, provisioning, planning and purchasing. This limits DET's ability to understand schools' needs and purchasing trends and if they implement DET's ICT policies as intended.

DET recently developed a digital roadmap that will need to address schools' current and future needs, including the ICT infrastructure, resources and services they require to provide high-quality contemporary digital education. In implementing its roadmap, DET needs to ensure there is equity between schools, and the gap does not widen. It is too early to determine if DET's roadmap will meet schools' future needs.

This chapter discusses:

- DET's understanding of the current ICT landscape in schools
- How DET plans for schools' future ICT needs

3.1 DET's understanding of the current ICT landscape in schools

DET's monitoring of schools' ICT provision

DET uses a number of sources to understand and monitor schools' ICT, including:

- ITAM, which is a key repository that holds data about schools' ICT infrastructure and hardware, including both centrally provided and school-procured ICT assets
- its annual computer census, which measures schools' student-to-device ratio
- the biennial stocktake of school-owned assets recorded on ITAM
- the school architecture document and PRISM dashboard, which both provide information on schools' ICT environments
- the monitoring tools that DET's network communications team uses to understand the availability and performance of schools' internet connectivity.

ITAM's limitations

When DET supplies ICT assets to a school, it adds them to ITAM. It also removes old assets that are at the end of their useful life. Schools add ICT they have procured themselves. However, DET cannot be sure that ITAM accurately represents schools' ICT, because ITAM:

- does not include all ICT assets on DET's financial transaction recording system for schools (CASES21). We tested if school-purchased ICT assets shown in CASES21 had been entered into ITAM at three schools and found that at least 4 per cent of assets were missing (93 devices out of 2,279), with a 95 per cent confidence interval between 3.3 and 5 per cent
- provides limited information on BYOD assets, which make up almost one-third (32 per cent) of all assets on ITAM, such as device age and type. DET uses device age information to determine schools' SIPS scores
- allows users to add devices without unique serial numbers, which increases the risk of duplicate entries for the same device. We found that 31 per cent of assets on ITAM did not have unique identifiers
- links devices to the school rather than individual students, which means it is not possible to determine the number of students that have a device.

A **confidence interval** provides a range of values including the true population value to a certain probability. In this case, with a 95 per cent confidence interval, there is a 95 per cent chance that the true population asset missing rate is between 3.3 and 5 per cent.

Schools' digital technologies policies and monitoring

DET does not monitor schools' ICT policies, how they implement them and if they provide all students with access to devices if they choose to implement a one-to-one learning program. DET instead relies on schools to do this in accordance with its *Digital Learning in Schools* policy.

Each year DET conducts a computer census that measures the student-to-device ratio in schools. As DET does not record devices against individual students, it measures this ratio by dividing the total number of devices per school by the number of students.

DET's 2020 census reported a statewide average of more than one device per student. However, our analysis of DET's data from May 2021 shows that 647, or 42 per cent, of schools have a ratio of less than one device per student. This is made up of 54, or 22 per cent, of all secondary schools, 553, or 49 per cent, of all primary schools, 20, or

25 per cent, of all combined primary/secondary schools and 20, or 25 per cent, of all special schools.

DET advised us that if schools implement their digital technologies policy as intended, they will have sufficient access to devices in the curriculum priority areas and these devices will meet implementation standards.

However, as DET does not oversee or monitor schools' compliance with their digital technologies policy, it cannot assure itself that students have equitable access to devices for learning activities if schools have chosen to implement a one-to-one learning program.

Our interviews with schools highlighted that while all schools have a digital technologies policy, not all schools have chosen to implement a one-to-one learning program. While some schools described very rigorous processes to ensure that all students have access to a device, others have minimal oversight and monitoring.

Most schools advised us that they have reasonable equity of access to devices within their school, but not all students always have a device or the same quality of device. Schools were also aware of large variations in device quality between other schools in their area.

ICT health checks

Before COVID-19, DET conducted manual ICT health checks at a small number of schools to assess their ICT against its technical specifications and standards.

DET advised us that it plans to prioritise these assessments to address issues with higher-risk schools. DET assesses schools as higher risk if they have a lower ICT capability or if DET or a school principal has raised an issue.

DET uses these checks to examine the root causes of any ICT issues at schools and recommend steps to resolve them and prevent them from recurring.

When it conducts health checks, DET performs approximately two health checks a week. This means that it conducts at most 104 health checks per year, which is 6 per cent of the 2020 school population. This means that it would take approximately 14 years to check all existing schools. DET advised us that resourcing levels limit the number of reviews it conducts, although it is not clear if it has considered alternative methods for conducting these checks.

DET told us that it provides a report to each school but only keeps a copy of high-priority reports for itself. It is therefore unclear to DET what issues its health checks are finding. This limits DET's ability to:

- follow up with schools to check if they have addressed identified issues
- identify systemic issues that may be impacting many schools.

Monitoring schools' ICT planning

When a school uploads its SIPS plan to PRISM, DET can see the school's ICT progression strategy, including risks, goals and budget implications, in more detail beyond its ICT capability. However, not all schools have a SIPS plan.

DET does not require schools to publish their completed SIPS plans. From 2014 to May 2019, an average of 44 per cent of schools that had completed a SIPS uploaded

their plan to PRISM. DET advised us that its visibility of these plans is adequate for it to understand ICT needs and purchasing trends across the school population to inform ICT planning and procurement. However, DET lacks full insight into schools' ICT capability, maturing strategies and planning and it cannot be sure the uploaded SIPS plans provide a representative view of all schools' needs and purchasing trends.

This means DET does not know the extent to which schools use SIPS plans. Consequently, it does not have full visibility of all schools' planning activities and goals, which limits its understanding of their ICT needs.

Monitoring schools' ICT purchasing

DET's monitoring of schools' ICT purchasing is minimal, but it is considering ways to improve its oversight.

Verifying schools' ICT financial transactions

Under its school financial assurance framework, DET's financial services division (FSD) monitors schools' financial transactions to confirm their accuracy and compliance with DET's procurement policy and procedures. This involves FSD randomly selecting a group of schools each quarter to spot check three of their transactions, which may include ICT.

However, these checks have minimal coverage because:

- FSD selects only 12 to 24 schools per year, which DET advised is due to resourcing constraints. This is at most 1.6 per cent of all schools
- they do not identify purchases (including ICT) that schools make outside DET's supplier panels, which makes it difficult for DET to fully understand schools' purchasing trends and if its supplier panels provide value for money.

If FSD can only assess 24 schools per year at most and only selects three transactions per school, it is assessing 72 transactions per year, or 0.10 per cent of the total number of school transactions recorded from 2016 to 2020 on ICT-related items over $2,500. This is not enough to provide any meaningful insights.

Additionally, as FSD's spot checks cover all school transactions and are not designed to assess their ICT procurement compliance, the level of testing does not provide DET with any meaningful insights into schools' ICT procurement.

FSD advised us that it is aware of these monitoring limitations. It has started looking at ways to establish an e-procurement system that it says will improve its ability to monitor school ICT purchasing.

Understanding schools' ICT purchasing trends

DET cannot accurately monitor all schools' ICT spending to understand purchasing trends. This is because CASES21 does not:

- identify all ICT spending, particularly when schools make purchases outside DET-managed supplier panels
- provide standardised descriptions for ICT purchases. For example, CASES21 data under the 'equipment' code from 2016 to 2020 included 1,203 unique descriptions for transactions relating to one specific model of laptop.

This means that while schools spend over $76 million on average each year on ICT, DET cannot fully understand their purchasing trends. It also cannot fully understand if schools' ICT procurement provides value for money and if there are potential opportunities for savings—for example, through bulk purchasing arrangements.

Examples of potential waste in school purchasing

Schools do not enter all of their transactions in CASES21 with the same description or level of detail. In some cases, multiple products are included as one transaction.

As a result, it is difficult for DET to track transactions and identify disparities between school purchases that indicate potential waste. For example, as Figure 3A shows, we found that there were 1,762 school transactions from 2016 to 2020 for software titles that are available to schools for free through DET's licensing agreements. These purchases are therefore potentially not necessary. DET explained that it does not provide Adobe software for school administration staff, which may explain some of the transactions. However, we are unable to verify this explanation based on DET's data.

FIGURE 3A: **Examples of school software purchases from 2016 and 2020**

Software	Number of transactions	Number of schools	Total spend
Adobe[(a)]	1,055	314	$333,230
Minecraft	85	42	$15,937
Microsoft	622	269	$767,621
Total	**1,762**	**625**	**$1,116,788**

Note: [(a)]Adobe licences are not available to school administration staff.
Source: VAGO, based on CASES21 data.

We also found examples of schools paying different prices for one specific type of tablet device, which is available under standard pricing to all schools through eduSTAR. Across seven school purchases during 2016 and 2017, the difference between the cheapest price and the most expensive price for the same device was $117.91, or almost 25 per cent. DET advised us that this disparity may be due to purchases that include other products. However, its data gives no indication that this is the case.

3.2 How DET plans for schools' future ICT needs

In the last two years, DET has engaged two consulting firms to carry out work related to digitally enabled education and develop options for a future state and roadmap.

It engaged one firm in 2020 to determine the 'digital foundations' (or services and technologies) that DET needed to provide 'safe, reliable and integrated digital services … to improve student outcomes and optimise school performance'. This work is complete.

A group of 16 schools and other DET stakeholders co-designed the deliverables from the first 2020 consultant engagement, but students were not involved due to COVID-19. During this engagement, the consulting firm considered the complex stakeholder landscape, developed a business motivation model to capture stakeholders' diverse priorities and agreed to six guiding strategic goals:

- define digital services to meet the needs of schools and school communities
- ensure digital services are safe and secure and protect privacy
- provide equitable access to digital services regardless of individual school circumstances
- provide a single view of student and school data to enable evidence-based decision-making
- remove/reduce administrative burden on schools
- inspire community confidence and trust in the education system.

DET's first engagement also highlighted the challenges it faces in transitioning to a digitally enabled future, including that:

- existing communication channels are not well-suited to timely collaboration and feedback between DET and its schools
- DET needs to improve its digital leadership capability to determine what digitalisation in education could and should look like and how it can be integrated into an already full curriculum
- DET needs to determine who should own and govern new digitally enabled services
- DET gives schools autonomy and agility to make their own decisions, but this makes it difficult to ensure equitable access to students within and across all schools, value for money and the need to manage risk.

It engaged a second firm in March 2021 to help determine three future-state options and a roadmap for transitioning to a 'safe, appropriate and enabling digital environment … to transform learning outcomes'. The options for a future state are:

- minimum standard (foundational) for digital technology in schools that is aligned to other OECD countries
- a more ambitious standard for digital technology in schools that lifts the bar of the minimum OECD standard and maintains Victoria's Education State ambitions
- 'blue sky' standard that uses digital technology to support the transformation of education in Victorian schools.

These options outline the major elements that DET needs to deliver high-level architecture, timeframes and costs. This work was delayed due to the COVID-19 pandemic, but the second firm completed its 10-year Digital Roadmap for Schools report in November 2021.

Next steps

In November 2021 DET's executive board endorsed the vision articulated in the Digital Roadmap for Schools: 'a world-class, digitally enabled education system that gives every learner the best chance of thriving and achieving their potential in learning and beyond'.

The board approved objectives and outcomes for the foundational stage of the roadmap, with emphasis on the next two years. This is one of three stages identified in the strategy. DET advised us that some actions are already underway to support delivery of the roadmap and it will continue to work with schools to identify and confirm further initiatives to deliver on this future strategy.

The roadmap has five digital objectives:

- enable improved teaching and learning
- champion equity and inclusion
- foster a safe education environment
- optimise school operations
- support scalable and sustainable use of data.

DET advised us that the roadmap is intended to provide a long-term plan and articulate how it will develop and deliver the digital foundations and technology, including applications and infrastructure, it needs.

The roadmap was developed in consultation with a small number of schools, departmental representatives and a range of stakeholders. However, consultation with schools was limited due to the COVID-19 pandemic. DET advised us that the next phase in implementing this roadmap will involve deeper engagement with schools in the co-design of initiatives.

Our interviews with schools highlighted that schools are working on their own to develop their individual digital capability and learning by trial and error. Some schools are well advanced on a journey to provide sophisticated, digitally enabled education, while others are less advanced.

There is significant opportunity for DET to apply learnings from more advanced schools to support less advanced schools and inform its roadmap. This is an important part of its system leadership role. However, it is too early to determine if DET's roadmap will meet schools' future needs.

APPENDIX A

Submissions and comments

We have consulted with DET and we considered its views when reaching our audit conclusions. As required by the *Audit Act 1994*, we gave a draft copy of this report, or relevant extracts, to DET and asked for its submissions and comments.

Responsibility for the accuracy, fairness and balance of those comments rests solely with the agency head.

Responses were received as follows:

Response provided by the Secretary, DET

Department of
Education and Training

Office of the Secretary

2 Treasury Place
East Melbourne Victoria 3002
Telephone: 03 9637 2000
DX210083

BRI2297522

Mr Andrew Greaves
Auditor-General
Victorian Auditor-General's Office
Level 31, 35 Collins Street
Melbourne VIC 3000

Dear Mr Greaves

Proposed report: ICT provisioning in schools

Thank you for the letter of 15 March 2022 and the opportunity to comment on the proposed report for this performance audit.

The department is committed to ensuring government schools are equipped with the ICT infrastructure and resources necessary for ICT-facilitated teaching and learning.

The department has reviewed the proposed report and accepts all the recommendations. An action plan that addresses the recommendations is attached.

If your team would like to discuss the content of this response further, please contact Bella Stagoll, Executive Director, Integrity, Assurance and Executive Services Division on (03) 7022 0120 or bella.stagoll@education.vic.gov.au.

Yours sincerely

Jenny Atta
Secretary
Department of Education and Training
25 / 03 / 2022

Your details will be dealt with in accordance with the *Public Records Act 1973* and the *Privacy and Data Protection Act 2014*. Should you have any queries or wish to gain access to your personal information held by this department please contact our Privacy Officer at the above address

VICTORIA State Government

DET action plan: ICT Provisioning in Schools

#	Recommendations: That DET:	Response	#	The department will:	By the end of:
1	addresses gaps and issues in existing ICT provisions by: • improving internet speed allocations for schools receiving less than the department's target of 300 kbps per student • identifying the extent and purpose of technical support that schools are accessing beyond its technical support to schools' program, to better understand their support needs and continually improve the TSSP program.	Accept	1.1	Complete the internet bandwidth rollout to all schools, providing more than 1 Mbps per student per school.	May 2022
			1.2	Review the technical support needs of schools and make recommendations on how to evolve the technical support in schools program. NB: Any approved recommendations will be implemented subject to budget and agreed milestones as appropriate (independent to this action's deadline).	Nov 2023
2	monitor, evaluate and report on its ICT support and guidance and how schools use it to: • understand its take-up, including how schools use its School ICT Progression Strategy and PRISM • ensure all guidance is up to date • continuously improve and modify its guidance and support to meet schools' needs	Accept	2.1	Develop a monitoring, evaluation and reporting process to capture school completion and maintenance of School ICT plans and usage of department ICT support tools.	July 2023
			2.2	Document all sources of ICT guidance to schools and put in place a process to monitor the maintance of any guidance provided.	Feb 2023
3	improves its oversight and monitoring of school ICT policies, provisioning and purchasing to understand: • school purchasing trends, including purchasing outside existing panels, to determine if panels require improvement or expansion to meet schools' needs provide improved value for money • if schools are implementing their ICT policies, including digital technology policies, as intended • if ICT assets owned by government schools meet its minimum technical specifications and standards, where specified, including considering alternative methods for conducting checks.	Accept	3.1	Implement annual reporting from the ITAM & CASES21 databases to identify school purchasing trends, including potential significant off-panel procurements, to support school engagement, to understand why and determine if panel changes are required.	May 2023
			3.2	Include within the School ICT progression annual reporting a requirement for schools to report on the status of implementation of ICT policies, including digital technology policies.	May 2023
			3.3	Update the ITAM database to include a report to monitor minimum technical specification for those assets that have a defined minimum.	May 2024
			3.4	Review existing or new school environment monitoring capabilities to determine if there is an economical solution for addressing below specification assets.	Nov 2023

DET action plan: ICT Provisioning in Schools

#	Recommendations: That DET:	Response	#	The department will:	By the end of:
4	ensure that implementation of its Digital Roadmap for schools includes: • engaging with schools to fully understand their needs, aspirations and future directions for digitally enabled education, including through using available data in School ICT plans and school capability assessments • specifying the departments and schools' future ICT requirements to enable contemporary digital learning at all schools • assessing the scope of its existing policies and provision of ICT infrastructure, resources and services in light of schools' future needs • developing clear governance and communication arrangements to support ICT delivery, including clarifying roles and responsibilities for itself and schools.	Accept	4.1	Mobilise the Digital Roadmap for Schools program as approved by the Executive Board in Nov 2021, including terms of reference, program governance and stakeholder management plans.	Dec 2022

APPENDIX B

Acronyms and abbreviations

Acronyms

ABS	Australian Bureau of Statistics
ACARA	Australian Curriculum, Assessment and Reporting Authority
BYOD	bring your own device
DET	Department of Education and Training
FSD	financial services division
ITAM	information technology asset management system
NAP	National Assessment Program
NAPLAN	National Assessment Program—Literacy and Numeracy
OECD	Organisation for Economic Co-operation and Development
SEIFA	Socio-Economic Indexes for Areas
SIPS	School ICT Progression Strategy
SOE	standard operating environment
SRP	Student Resource Package
TSSP	technical support to schools program
VAGO	Victorian Auditor-General's Office
VCAA	Victorian Curriculum and Assessment Authority
VLAN	VicSmart Local Area Network

Abbreviation

the Act	*Education and Training Reform Act 2006*
COVID-19	coronavirus
TPN Program	Teacher and Principal Notebook Program

APPENDIX C

Scope of this audit

Who we audited	What the audit cost
DET	The cost of this audit was $895,000.

What we assessed

The audit used the following lines of inquiry and criteria:

Line of inquiry	Criteria
DET ensures that schools have equitable access to core ICT infrastructure, resources, and services.	1. DET clearly defines technical specifications, performance standards and service levels for minimum core ICT infrastructure, resources and services based on the needs of all government schools.
	2. DET ensures all government schools have access to its core ICT infrastructure, resources and services at predefined technical specifications, performance standards and service levels.
DET and schools obtain value for money in their procurement of ICT hardware, software and services.	1. DET's ICT procurement is underpinned by a business case/s (or equivalent documentation) that outlines alternative solutions, expected outcomes/benefits and cost savings and an evaluation strategy specifying when and how the achievement of outcomes will be measured.
	2. DET's supplier contracts have clear scope and deliverables, reporting requirements and performance measures and DET monitors performance against contract requirements.
	3. DET oversees and monitors all ICT procurement to track expenditure, purchasing trends and the use of contract panels, and to measure the realisation of expected outcomes.
DET supports schools to strategically plan for current and emerging ICT needs.	1. DET collects and maintains data on all DET and school ICT assets that is accurate, comprehensive and up to date.
	2. DET has a strategy to transition schools from legacy ICT infrastructure and service provision to contemporary solutions, such as cloud computing services.

Audit scope

The audit examined if DET and government schools are equipped with the ICT infrastructure and resources necessary for ICT-facilitated teaching and learning.

In addition to DET, we planned to survey all principals and teachers to understand the use, access and adequacy of ICT provisioning at DET's schools. Due to COVID-19 and

the consequent pressure on schools, we instead interviewed school principals and a small selection of teachers from nine schools. We chose these schools based on a range of different school types, such as primary and secondary, low and high SIPS scores, large and small, and metro and regional.

We conducted our audit in accordance with the *Audit Act 1994* and ASAE 3500 *Performance Engagements*. We complied with the independence and other relevant ethical requirements related to assurance engagements. We also provided a copy of the report to the Department of Premier and Cabinet.

APPENDIX D

DET's and schools' ICT responsibilities

FIGURE D1: **School ICT responsibility by each tier**

		Responsibility	
	ICT tier	**DET**	**Schools**
Tier 1: infrastructure and connectivity			
Servers	DET curriculum server	✓	
	DET administrative server	✓	
	Local school server		✓
	CASES21 server backups	✓	
	Curriculum data backups		✓
Cabling	Cable infrastructure	✓	
Switching	Network core	✓	
	Network edge		✓
Wireless	local wireless (local area network, WAPs)	✓	
Security	Identity management	✓	
	Cybersecurity (firewalls, filtering)		✓
	Cybersecurity (wide area network level)	✓	
Internet	WAN and internet (VicSmart, iiNet)	✓	
Tier 2: devices and software			
Desktops/notebooks	Device policy and implementation (one-to-one student devices)		✓
	Shared devices (computer labs)		✓
	Admin devices (CASES21 workstation)	✓	
	Staff devices (TPN)	✓	

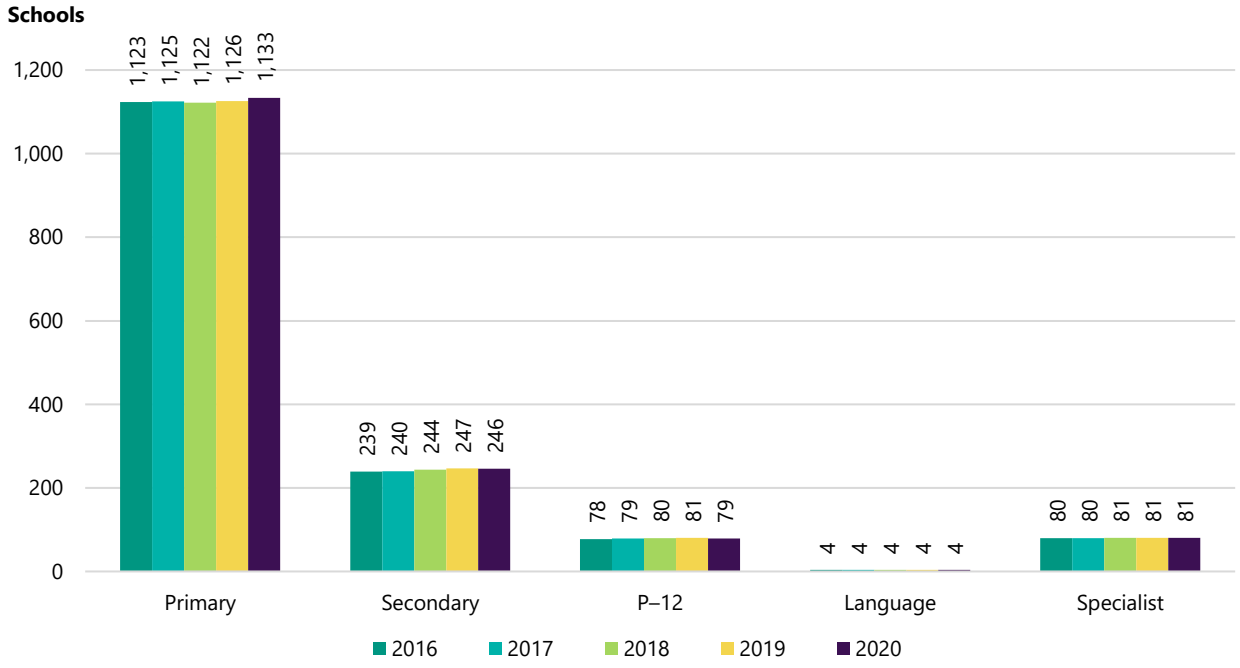
		Responsibility	
	ICT tier	**DET**	**Schools**
Software	Cloud (SOE: Office 365 and G-Suite)	✓	
	Microsoft licences (Office 365, Windows)	✓	
	Software solutions (eduSTAR)	✓	✓
	Website (default: iiNet hosted)	✓	
Tier 3: peripherals and innovation			
Printers	Printers and photocopiers		✓
Collaboration tools	Videoconferencing (Webex boards, system-wide licensing)	✓	
	Digital tools (microscopes)		✓
Telephony	Telecommunications Purchasing and Management Strategy (previously Telstra IP Telephony)		✓
	Mobile phones		✓
Projectors	Screens and projectors		✓
Tier 4: technical support and professional learning			
Technical support	Local support (local SRP-funded technicians and ICT managers)		✓
	TSSP	✓	
Professional development	ICT strategic planning (planning workshops)	DET assists	✓
	Professional learning (ICT systems training, personal development plans)	DET assists	✓

Source: VAGO, based on DET data.

APPENDIX E

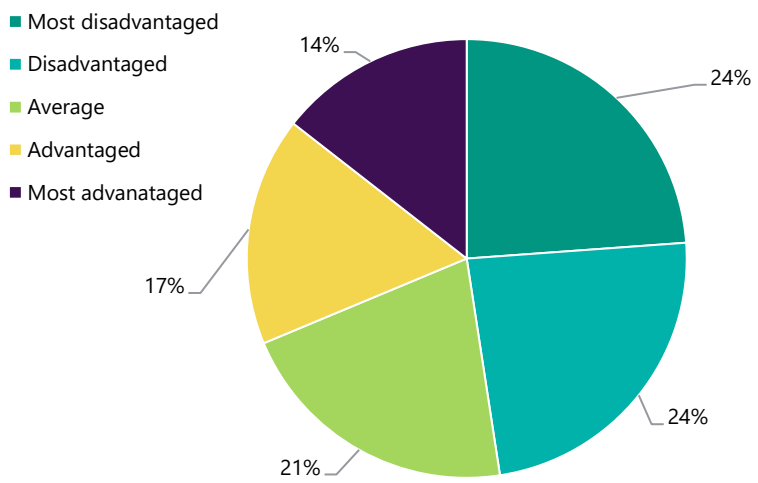
School population data

FIGURE E1: **Government school population by school type from 2016 to 2020**



Source: VAGO, based on DET data.

FIGURE E2: **School population by SEIFA quintile**

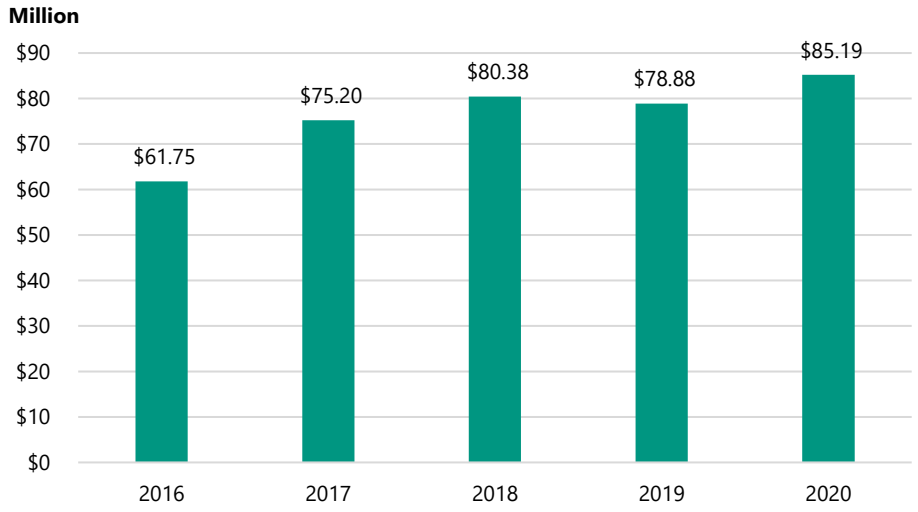


Source: VAGO, based on 2016 ABS and SEIFA data.

APPENDIX F

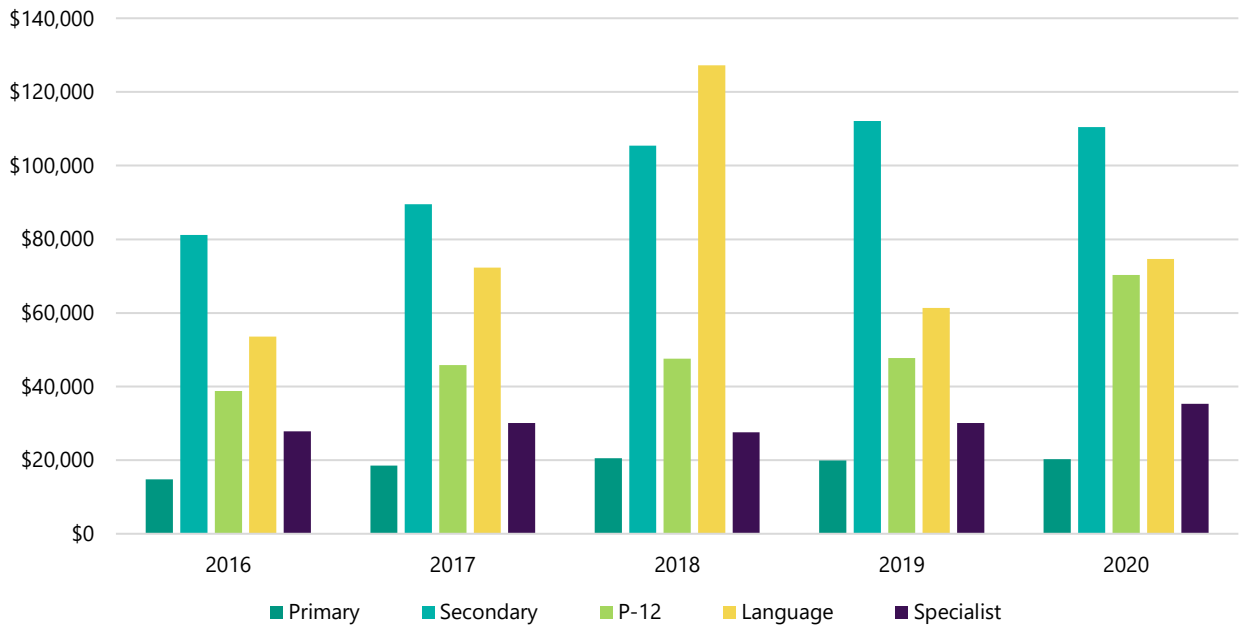
School ICT spending data

FIGURE F1: **Annual school ICT spending**



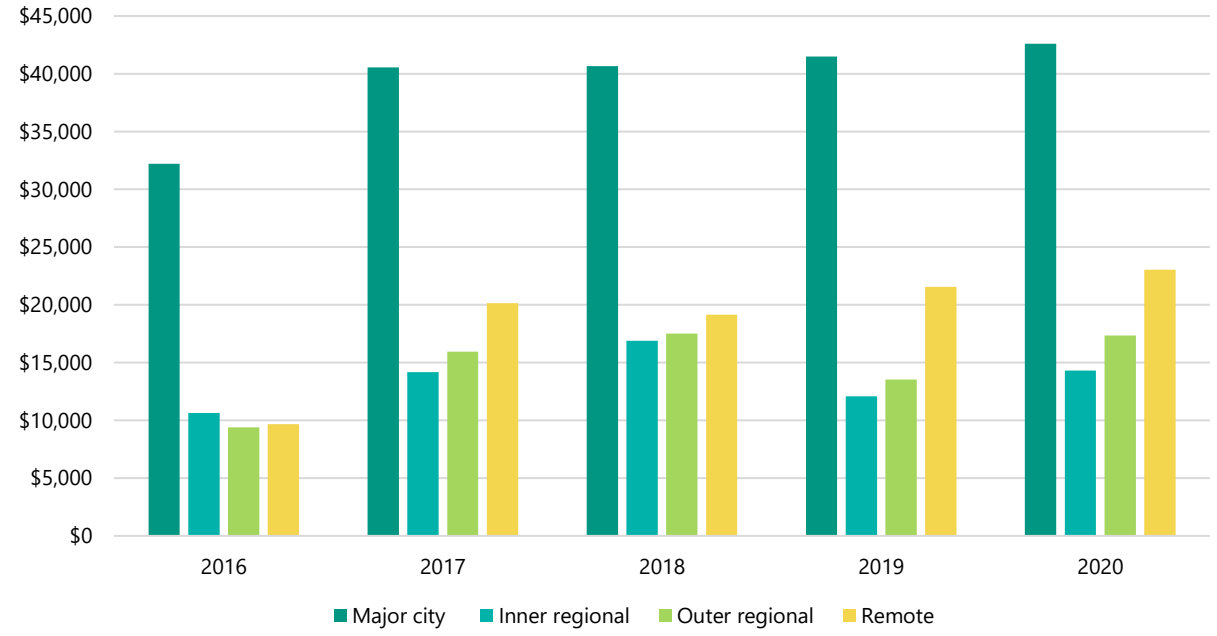
Source: VAGO, based on CASES21 data.

FIGURE F2: **Median school ICT spending by school type**



Source: VAGO, based on CASES21 data.

FIGURE F3: **Median ICT expenditure by geographical location**



Source: VAGO, based on CASES21 data.

Auditor-General's reports tabled during 2021–22

Report title	
Integrated Transport Planning (2021–22: 01)	August 2021
Major Infrastructure Program Delivery Capability (2021–22: 02)	September 2021
Clinical Governance: Department of Health (2021–22: 03)	September 2021
Managing Conflicts of Interest in Procurement (2021–22: 04)	September 2021
Major Projects Performance (2021–22: 05)	September 2021
Administration of Victorian Courts (2021–22: 06)	October 2021
Protecting Victoria's Biodiversity (2021–22: 07)	October 2021
Management of Spending in Response to COVID-19 (2021–22: 08)	October 2021
Supplying and Using Recycled Water (2021–22: 09)	November 2021
Auditor-General's Report on the Annual Financial Report of the State of Victoria: 2020–21 (2021–22: 10)	November 2021
Results of 2020-21 Audits: Local Government (2021–22: 11)	December 2021
Council Waste Management Services (2021–22: 12)	December 2021
Business Continuity During COVID-19 (2021–22: 13)	February 2022
Effectiveness of the Navigator Program (2021–22: 14)	March 2022
Government Advertising (2021–22: 15)	April 2022
ICT Provisioning in Schools (2021–22: 16)	April 2022

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