



Performance Reporting Systems in Education



VICTORIA

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Auditor-General

Performance Reporting Systems in Education

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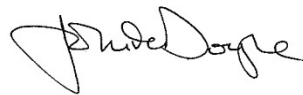
Dear Presiding Officers

Under the provisions of section 16AB of the *Audit Act 1994*, I transmit my report on the audit *Performance Reporting Systems in Education*.

Performance information is one of governments' most valuable assets and is essential for oversight, democratic accountability, and improving operational efficiency. Assuring the quality and integrity of public sector information, and its full utilisation, is a critical responsibility of government departments.

This audit sought to understand the effectiveness of the Department of Education and Early Childhood Development's (DEECD) systems, processes and controls for managing information. My overall conclusion is that while most systems we examined were soundly managed, inconsistent practice across the department has led to weaknesses in others. As a department, DEECD has long been constrained by its inability to use information well. While its current work to address this is encouraging, it has not followed through on previous attempts to improve the way it manages information. It is therefore essential that DEECD takes concrete action to ensure that the goals and objectives of its new draft strategy are realised in a timely way.

Yours faithfully



John Doyle
Auditor-General

18 September 2013

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Auditor-General's comments



John Doyle
Auditor-General

In recent years, my office has undertaken a range of audits to determine the adequacy of public sector performance reporting. In 2010, it examined the development and reporting of performance indicators across multiple government departments, and in 2011 focused on performance reporting within the local government sector. In this audit, we turn our attention to the Department of Education and Early Childhood Development—Victoria's principal agency for overseeing delivery of learning and development services to millions of Victorians across their lives.

My office's work within the department over the past three years has raised doubts about the reliability of some information, and more significantly, about how well information is valued and used to drive better services and better outcomes for Victorians. In this audit, I looked at the department's overall approach to managing performance information and examined the processes and controls applied to six of its information systems. Collectively, these systems provide data for more than half of the department's output targets each year.

I have gained assurance that the majority are soundly managed—of the six systems we examined, four had fundamentally sound processes and controls, but there were multiple weaknesses in the other two. However, the department has operated for several years without a strategy to guide its information management practices. This has resulted in some inconsistencies in the way it manages information and has limited its ability to drive improvements in how information is valued, managed and used.

Encouragingly, the department has been working throughout the course of this audit to develop a new information strategy.

I have made two straightforward recommendations that, if adopted will improve the way the department manages information. They will also put it in a strong position to ensure that its new information strategy delivers the desired improvements.

It is pleasing that the department has accepted my recommendations. However, I note that it has provided no advice on when or how it intends to implement these actions. I have given it some more time to consider the actions it might take to address these recommendations and will follow-up on its progress in three months' time. I will publish its response alongside this report on my website.

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I would like to thank departmental staff for their assistance and engagement on this audit. I look forward to continuing to work with the department on this important issue.

A handwritten signature in black ink, appearing to read "John Doyle". The signature is fluid and cursive, with the first name "John" and last name "Doyle" clearly distinguishable.

John Doyle
Auditor-General
September 2013

Audit summary

Performance information helps an organisation understand whether it is operating efficiently, and whether its activities are achieving the desired outcomes. In addition to allowing organisations to see how well they are operating, performance information that is reported to the public can be used to hold organisations to account for their performance.

For government agencies that rely heavily on third parties to deliver their services, such as the Department of Education and Early Childhood Development (DEECD), robust and up-to-date performance information is even more important. The flow of information from service providers to DEECD and vice versa is essential for the department to fulfil its obligations and ensure that education money is spent wisely. Well managed information systems that ensure the integrity of data are the foundation of this.

DEECD is Victoria's main education agency. It is a large organisation, with six divisions spread across three portfolios and it manages an annual budget of \$11.5 billion. It oversees the delivery of learning and development services to almost two million Victorians each year, including:

- **maternal and child health (MCH) services**—delivered by 79 councils to more than 400 000 children and families
- **primary and secondary schooling**—delivered by 1 537 schools to more than 850 000 government school students
- **vocational education and training**—delivered by over 450 training organisations to more than 645 000 students.

This audit sought to assess the effectiveness of DEECD's information management systems, processes and controls. We asked whether information management practices:

- are informed by an overarching information management strategy and align with whole-of-government information management principles
- fully reflect the requirement of whole-of-government guidance on managing data to ensure its integrity.

To establish a response to these questions, we looked at DEECD's approach to managing information. We also took a sample of six departmental information systems, which together provide data for more than half of the performance indicators listed for DEECD in *Budget Paper No.3: Service Delivery*.

We tested the processes and controls applied to them to see whether they are being managed appropriately, however, the audit did not assess the validity and integrity of data itself. By focusing on the processes and controls applied to each system, we sought to establish whether DEECD's management of information is sufficiently robust to assure it is supplied with accurate, reliable, quality information.

Conclusions

DEECD has an inconsistent approach to managing information. This has led to good practice in some instances, but notable shortfalls in others. These inconsistencies are in part a result of DEECD not having an information strategy. Without a strategy it has no way to drive better practice in how it manages and uses the significant volume of information it collects. This includes ensuring that a consistent set of data standards and controls apply across all of its systems, and deriving the maximum possible value from its information resources.

We assessed six information systems and found that four are managed appropriately. However, two systems had notable deficiencies, which means there is no assurance that the information they contain is consistent and reliable. Weaknesses in these systems raise doubts about the quality of some the information DEECD relies on to make important policy and resource allocation decisions.

We found encouraging signs that DEECD is working to improve how it manages information. It is developing an information strategy that, if implemented fully, will drive a consistent, better-practice approach to managing information right across the department. DEECD is also working to make better use of the information it collects by developing new interactive ways for people to access data. It is important that DEECD follow through on this work.

Findings

Strategic approach to managing information and alignment with whole-of-government information principles

Efficient and effective organisations manage and use information well. The Department of Treasury and Finance (DTF) has published *Whole of Victorian Government Guideline: Information Management Principles* that, if adopted, will help government departments and agencies to do so. The principles underscore the importance of information and provide a framework for departments to monitor their activities, understand their impact and drive better services and outcomes. An information strategy is a practical way for departments to put these principles into practice.

DEECD developed a *Knowledge Management Strategy* in 2007. However, it did not fully implement its actions and, as a result, missed many of the potential benefits it sought to achieve. Without an up-to-date information strategy, DEECD does not have a way to embed DTF's information management principles into its practices. Information, therefore, has primarily related to service delivery rather than being seen as a strategically managed resource capable of being used to enhance operational efficiency and effectiveness.

While lots of information is gathered it is not always the most useful information and is not always easy to discover and use.

We reviewed nine separate performance audits of DEECD from the past three years and found a recurrence of information management related issues, including:

- inconsistent data collection methods and controls that have led to the reliability of some data being compromised
- lack of information transfer between the early childhood and school sectors
- lack of access to, or use of, important data in a range of different areas.

As a result of these repeated issues, DEECD and those who deliver services on its behalf cannot effectively:

- evaluate programs, determine resourcing requirements and develop policy
- undertake longitudinal studies based on robust and complete student data
- identify and target resources towards the most vulnerable children in their critical transitions from early childhood into school
- determine if program funding has been well spent and provides value for money.

Managing key information systems

We assessed the processes and controls associated with six of DEECD's key information systems. DEECD uses different processes and standards to control the data in each system. However, controls applied to four of the six systems were robust. We found multiple weaknesses in two of the systems examined—MCH and the Census of Computers in Schools. These weaknesses pose serious questions about the reliability of the information used and reported publicly from them.

Maternal and Child Health

The 79 local government authorities in Victoria operate MCH services, but DEECD provides 50 per cent of total funding. MCH services collect a wide range of information about infants and young children and use this information for case management. DEECD relies on this information to fund MCH services, but does little to verify and validate the data, and does not enforce consistent data definitions. Therefore, it has no assurance that the data it is basing its funding decisions on is accurate.

DEECD only has access to a very limited selection of the data collated by MCH services. Without access to the broader data, DEECD can't effectively evaluate the services being provided on its behalf. It also has limited information that it can analyse and feed back to the MCH services to assist them in their role.

Census of Computers in Schools

The Census of Computers in Schools gathers information on the number of computers available for teaching in individual schools. DEECD reports this information in *Budget Paper No.3: Service Delivery*, and uses it to inform national statistics, licence software and evaluate policy.

Given the importance of information and communications technology (ICT) to delivering a modern curriculum, it is critical that schools and DEECD accurately understand and monitor the age and composition of the school computer fleet.

Schools use different methods to collect data and do not consistently interpret data definitions. This means that there is a risk that obsolete assets are being included in the data reported and used by schools, which limits the usefulness of this information to both schools and DEECD.

Recent focus on improving information management

DEECD has acknowledged that there are issues with how it manages information and is taking steps to address these issues. It recently developed a new ICT strategy, is currently developing a four-year information strategy based on whole-of-government better-practice principles, and is further developing its capability to link separate information systems through a single data repository.

It is critical, however, that DEECD follow through on this work. Previous attempts to implement an information strategy have been unsuccessful. As a result, critical issues with information—its quality and its use—identified repeatedly over the years have persisted. If DEECD does not address these issues, its ability to understand the performance of its schools and other service providers will remain restricted, as will its ability to make well-informed decisions.

Recommendations

Number	Recommendation	Page
	That the Department of Education and Early Childhood Development should:	
1.	adopt system-wide processes and controls that ensure that all of its information systems are regularly reviewed, managed to consistent standards and contain reliable and accurate data	20
2.	develop a detailed project plan for the implementation of its information strategy that describes the scope of activities, required resources and time lines, and implement actions in accordance with this plan.	20

Submissions and comments received

In addition to progressive engagement during the course of the audit, in accordance with section 16(3) of the *Audit Act 1994* a copy of this report was provided to the Department of Education and Early Childhood Development with a request for submissions or comments.

Agency views have been considered in reaching our audit conclusions and are represented to the extent relevant and warranted in preparing this report. Their full section 16(3) submissions and comments are included in Appendix A.

1 Background

1.1 Introduction

The Department of Education and Early Childhood Development (DEECD) is administratively responsible for Victoria's early childhood services, school education, and tertiary and further education. Early childhood and post-compulsory education services were previously administered by other departments, but machinery of government changes in 2007 and 2010 brought these divisions together under DEECD. These changes were underpinned by a policy agenda that sought to support a lifelong approach to learning and development.

By incorporating these additional portfolio responsibilities, DEECD assumed responsibility for providing services, every year, to more than:

- 400 000 children and families in early childhood programs
- 850 000 government school students
- 645 000 tertiary and further education students.

DEECD oversees the delivery of these services with an annual budget of more than \$11.5 billion, but in a highly devolved environment, where it relies on councils, schools and vocational education and training providers to deliver services.

Effective performance reporting is critical for DEECD to demonstrate to Parliament and the public that it is achieving its objectives and providing equitable access to services that are appropriate, high quality, cost effective and that provide value for money.

DEECD also needs timely access to high-quality information to understand how efficiently, effectively and economically services are being delivered, to know where and when to intervene to address poor performance, and to make sure that service providers are well informed and able to appropriately plan and deliver services.

1.2 Reporting requirements

Section 45 of the *Financial Management Act 1994* (the Act) sets out compulsory reporting requirements for government departments and public bodies. It requires them to prepare annual financial statements and submit them to the Auditor-General for audit. Section 46 of the Act requires them to submit a report of operations and audited financial statements to the relevant ministers for tabling in Parliament. While financial statements provide a basis to assess departments' management of their finances, the report of operations provides an indication of whether agencies are delivering intended outputs and fulfilling objectives.

The Act is supported by the *Standing Directions of the Minister for Finance*. Standing Direction 4.4 requires government departments to set performance indicators and targets that report against their objectives. These must align with guidance published by the Department of Treasury and Finance (DTF).

Budget Paper No. 3: Service Delivery (BP3) outlines the government's priorities for goods and services. It details the government's budget decisions and explains how these decisions support the delivery of core services and infrastructure. It includes a breakdown of output funding, associated performance targets and historical performance against those targets.

1.2.1 Other reporting obligations

In addition to DEECD's reporting commitments under the Act, it is required to provide performance information to the Commonwealth Government, under the *National Education Agreement*, the *Intergovernmental Agreement on Federal Financial Relations 'Public Accountability and Performance Reporting'* and to the Australian Curriculum, Assessment and Reporting Authority.

In order to meet these reporting obligations, DEECD must assure that data-related risks are managed. This extends to assuring that risks associated with third parties' provided data are properly managed.

1.3 Department of Treasury and Finance guidance on information management

DTF identifies quality data as one of the most valuable assets in the public sector and that the completeness, consistency, validity, accuracy, timeliness and secure flow of data are essential to:

- meet public commitments
- fulfil legislative requirements and obligations
- support decision-making and policy making
- underpin service performance, development and maintenance
- support and assess political and legislative initiatives and programs
- measure program and service performance against strategy, objectives and key performance indicators.

It has published the *Whole of Victorian Government Guideline: Information Management Principles* and *VPS data integrity manual* (2010) which describes expected behaviours and best practice, and provide high-level guidance on how information should be managed to meet government accountability requirements. Figure 1A outlines DTF's information management principles.

Figure 1A
Information management principles

Principle	Rationale
1. Information is recognised as a valuable asset	Information assets are critical to decision-making and service delivery in government. Like other assets, information needs to be managed, maintained and have its value maximised.
2. Significant information assets are managed by an accountable custodian	Unmanaged information can lead to agencies breaching their legal or statutory obligations. Assigning custodianship responsibilities ensures that significant information assets are managed appropriately.
3. Information meets business needs	Information is used for a variety of purposes. The way that information is developed and managed should be based on its strategic importance. When reusing an existing information asset, users should assess if it is fit for purpose. A key factor in this decision is often data quality. A data quality statement is an effective mechanism for communicating information about how data can be used.
4. Information is easy to discover	Government is largely a knowledge-based industry. For government to function effectively the public, government employees and partner organisations must be able to find the information they need.
5. Information is easy to use	Applying agreed standards to information makes it easier to use and interpret. Standards help to determine how information will be collected, described, defined, stored and shared.
6. Information is shared to the maximum extent possible	The more an information asset is used, the more its value increases. Sharing information assets across government: <ul style="list-style-type: none"> • reduces the burden on organisations providing information • reduces the overall cost of information development and management • improves collaboration and creates a more connected government. Information sharing with the public: <ul style="list-style-type: none"> • promotes government transparency • stimulates innovation and commercial activity • gives researchers access to more primary data.

Source: Department of Treasury and Finance, *Whole of Victorian Government Guideline: Information Management Principles*.

These principles provide a sound framework against which agencies can base their own information management practices and policies. They also align with public sector information principles published by the Australian Information Commissioner in 2011, particularly around effective information governance and open access to and use of information.

Figure 1B details the five elements of data integrity as defined by DTF in its *VPS data integrity manual*.

Figure 1B
Data integrity requirements

Data integrity component	Definition
Completeness	A measure by which all required data is included. This includes the following characteristics: <ul style="list-style-type: none"> • data has been included from all required/expected sources in the population—i.e. no missing sources • all the records that should be included for each source have been included—i.e. no missing records • individual records included are complete/all required data fields are included—i.e. no null or blank data fields.
Consistency	A measure by which data adheres to a common definition for its meaning and use.
Validity	A measure by which data adheres to defined business rules, accepted values and accepted formats.
Accuracy	A measure by which data contains correct values. Accurate data not only adheres to integrity constraints and measurement rules but is data that reflects actuality.
Timeliness/availability	A measure by which data can be accessed when required and by the appropriate people. It is current and up-to-date at the time of release/use.

Source: Victorian Auditor-General's Office from the Department of Treasury and Finance's, *VPS data integrity manual*.

The *VPS data integrity manual* provides sound guidance on the effective management of information. This audit used both the *Whole of Victorian Government Guideline: Information Management Principles* and *VPS data integrity manual* to assess the effectiveness of DEECD's information management practices.

1.4 Audit objectives and scope

The objective of this audit was to assess the effectiveness of DEECD's information management systems, processes and controls. Specifically, whether:

- DEECD's information management practices are informed by an overarching information management strategy and align with the *Whole of Victorian Government Guideline: Information Management Principles*
- DEECD's information management practices fully reflect the requirements of DTF's *VPS data integrity manual* on managing data to ensure data integrity.

1.5 Audit method and cost

The audit examined six of DEECD's key information systems to determine the extent to which they conform with the *Whole of Victorian Government Guideline: Information Management Principles* and *VPS data integrity manual* (see Figure 1C). We did not undertake to test and verify the data itself, but rather focused on the processes and controls DEECD applies to systems to ensure the data they contain is robust. Our assessment consisted of a detailed review of system documentation, of reviews conducted by DEECD and DEECD internal audits, plus interviews with DEECD staff and users of the systems.

The systems selected provide over half of the measures reported in BP3.

Figure 1C
DEECD information systems subject to audit

Purpose of system	BP3 measures derived from system
Census of Computers in Schools	
Contains information provided by schools on the number of computers available for curriculum use.	Computer/student ratio in primary and secondary school.
Maternal and Child Health	
Captures maternal and child health data from local government maternal and child health services.	Children enrolled at maternal and child health services from birth notifications—0–1 month Clients receiving enhanced maternal and child health services—with children age 0–1 Total number of maternal and child health service clients—aged 0 to 1 year.
CASES21	
The main school administration and finance software system which captures a large amount of school data, including school attendance.	Average Prep–Year 2 class size Average rate of student attendance at Years 5, 6, 11, 12 Number of school students enrolled in Victorian Certificate of Applied Learning Average rate of student attendance in Years 7–10 Statewide rate of transition from Year 10 to Year 11.
Centaur	
Analysis of CASES21 school census data to determine school funding and to assist with school planning and policy development.	Number of school enrolments.
Skills Victoria Training System (SVTS)	
Captures data on vocational education and training activity. DEECD uses SVTS to calculate and confirm eligibility, participation and concessions related to a training organisation's claims for payments for training delivered.	Government funded student contact hours of training and further education provided Annual government—funded module enrolments Number of government—funded course enrolments in Diploma level or above No. of pre-accredited module enrolments through adult community education organisations—government funded Participation rate of 15–24 year olds in training and further education in Victoria Participation rate of 25–64 year olds in training and further education in Victoria Vocational education and training graduates who rate quality of training as four or more out of five (per cent)
On Track	
A large-scale survey designed to monitor the destination of school leavers six months after leaving school. The data is captured by an external body and provided to DEECD.	School leavers completing intermediate/senior Victorian Certificate of Applied Learning in a school progressing to further education, training or work (per cent) School leavers completing Victorian Certificate of Education or vocational education and training programs in school progressing to further education, training or work (per cent)

Note: The BP3 measures highlighted in bold were specifically examined as part of this audit.

Source: Victorian Auditor-General's Office.

The audit was performed in accordance with the Australian Auditing and Assurance Standards. Pursuant to section 20(3) of the *Audit Act 1994*, unless otherwise indicated any persons named in this report are not the subject of adverse comment or opinion.

The total cost of the audit was \$305 000.

2 Information management

At a glance

Background

The Department of Education and Early Childhood Development (DEECD) delivers services to almost two million people at a cost of more than \$11.5 billion. It needs timely access to accurate performance information to effectively deliver these services.

Conclusion

Despite managing information systems inconsistently, DEECD's controls over these systems are largely effective. However, adopting consistent processes to manage, control and review information systems would provide DEECD with more reliable and accurate data.

Findings

- DEECD does not have an operational information strategy to drive the best possible management and use of information across the department.
- Of the six systems we examined, processes and controls over data integrity were fundamentally sound in four, but there were multiple weaknesses in two.
- Previous performance audits highlight missed opportunities for DEECD to make the best use of data to inform program reviews and policy decisions.
- There are encouraging signs that DEECD is working to enhance the management and use of information.

Recommendations

The Department of Education and Early Childhood Development should:

- adopt system-wide processes and controls that ensure that all of its information systems are regularly reviewed, managed to consistent standards and contain reliable and accurate data
- develop a detailed project plan for the implementation of its information strategy that describes the scope of activities, required resources and time lines, and implement actions in accordance with this plan.

2.1 Introduction

Timely access to high-quality performance information is fundamental to the effective and efficient delivery of services. It provides a robust evidence base to underpin decision-making around policies and programs, and to achieve public accountability for the services delivered.

The timely flow of quality information is essential to many aspects of the Department of Education and Early Childhood Development's (DEECD) oversight of its portfolio responsibilities:

- **Early childhood**—Maternal and child health (MCH) services are administered by local government authorities, but are co-funded by DEECD. DEECD needs access to timely and accurate information about numbers of families accessing services to determine funding allocations.
- **Schools**—DEECD requires high quality and timely information about how well schools are being managed and how students are progressing. Without this information it cannot provide timely and targeted support to schools, and will not know when or how to intervene in poorly performing schools.
- **Further education and training**—For Victoria's market-led vocational education and training system to work effectively, DEECD must have access to robust information about what training is being delivered, to whom, and by which training providers.

This Part of the report examines the effectiveness of DEECD's information management systems, processes and controls and asks two questions:

- Are DEECD's information management practices informed by an overarching information management strategy and do they align with the *Whole of Victorian Government Guideline: Information Management Principles*?
- Do DEECD's information management practices reflect the best practice requirements of the Department of Treasury and Finance's (DTF) *VPS data integrity manual* on managing data to ensure data integrity?

2.2 Conclusion

DEECD's information management systems, processes and controls are largely effective, despite considerable variations in how it manages individual systems.

Its information management practices are not informed by an information management strategy and, as a result, DEECD has no way to drive better practice and greater consistency in how it manages and uses the significant volume of information it collects.

Four of the six systems examined reflect the requirements of the *VPS data integrity manual*. However, the two remaining systems had some inherent weaknesses that limit DEECD's ability to use this information to good effect.

DEECD is currently developing a new information strategy which, if fully implemented, will address some of the issues identified in this audit and drive better practice. However, previous attempts to implement an overarching information strategy have been unsuccessful and the implementation of this new strategy will need to be carefully managed to make sure that past mistakes are not repeated.

2.3 DEECD's information management

DEECD has not had an operational information strategy in place for several years.

In a large department such as DEECD, with six major divisions spread across three portfolios, a whole-of-department approach to information management is critical to ensure that information is managed and used well. An overarching information strategy is an important component of this.

When designed and implemented effectively, an information strategy should enable consistent and rigorous management of multiple information systems across an organisation. It should also allow organisations to embed better-practice information management principles at a strategic level, signalling the importance an organisation places on its information resources, and a commitment to maximising the usefulness and value of its information.

DEECD's new information strategy is unlikely to overcome its long-term information management challenges, because as at September 2013, the following key elements are missing:

- a long-term, high-level commitment to improving information management across all areas of the department
- clear leadership, accountability and governance arrangements not only for the strategy, but also for the operation, maintenance and development of the information systems
- detailed implementation and resource plans supported by appropriate funding
- robust and well-defined project management practices.

2.3.1 Absence of an information strategy

In 2007, the then Department of Education developed a Knowledge Management Strategy for the period 2007–11 to address issues it had identified with its management and use of information. The strategy sought to overcome issues such as:

- the fractured nature of information systems, which limit the department's capacity to link information together
- difficulty sourcing relevant information from the large volumes of available data
- challenges in applying learning outcomes data in program planning and evaluation
- barriers to community members accessing information on education options.

Although objectives and action areas were identified in the strategy, it was not comprehensively implemented and was not updated in 2007 or 2010 to reflect machinery of government changes when the department took on responsibility for early childhood development services and vocational education and training. As a result, many of DEECD's information management systems have operated in isolation and have lacked coordination.

2.3.2 Implications of not having an information strategy

As a result of not having an adequate information strategy in place to facilitate integration between systems and to drive a consistent, rigorous approach, DEECD has lacked the leadership needed to drive better practice in information management. Within government, better practice is characterised by adherence to the overarching principles that information:

- is recognised as a valuable asset
- meets business needs
- is easy to discover and use
- is shared to the maximum extent possible.

The absence of a strategy has not prevented divisions and work groups within DEECD from valuing and using information in a manner that is consistent with better practice. Later sections of this report highlight some instances of good practice we identified in our review of six key information systems.

Nine separate VAGO performance audits of DEECD, undertaken over the past three years show a recurrence of information management related issues, including:

- inconsistent data collection methods and controls that have led to the reliability of some data being compromised
- lack of information transfer between the early childhood and school sectors
- lack of access to, or use of, important data in a range of different areas.

These recurring issues compromise the reliability of information and limit DEECD's ability to make the best use of the information it does have, impacting its ability to discharge its responsibilities effectively and efficiently. It also creates challenges for DEECD to determine if program funding has been well spent and provides value for money.

Figure 2A highlights in further detail the information management issues identified by these performance audits.

Figure 2A
Findings of recent performance audits

Year	Performance audit	Findings
2011	<i>Early Childhood Development Services: Access and Quality</i>	<ul style="list-style-type: none"> • DEECD does not sufficiently understand or effectively manage demand for early childhood services. • Local governments collect information and data on children and families that could better inform DEECD's understanding of demand, but DEECD does not use it. • Inconsistent data collection methods, unreliable data on population projections and the department's narrow definition of vulnerability means that DEECD is not in a position to know whether the information it has accurately reflects real demand.
2011	<i>Indigenous Education Strategies for Government Schools</i>	<ul style="list-style-type: none"> • There are no reporting mechanisms that provide a picture of the overall status of the Wannik strategy. • DEECD does not have reliable attendance data to assess how many Koorie students are regularly absent from school, their profile and the reasons.
2012	<i>Casual Relief Teacher Arrangements</i>	<ul style="list-style-type: none"> • DEECD does not have accurate data on casual relief teacher supply and demand. • The number, location, skills and experience of casual relief teachers is unknown. • DEECD is not well placed to develop evidence based policy and make informed strategic decisions.
2012	<i>Science and Mathematics Participation Rates and Initiatives</i>	<ul style="list-style-type: none"> • DEECD does not have basic data about the number of science and mathematics teachers needed or currently employed.
2012	<i>Programs for Students with Special Learning Needs</i>	<ul style="list-style-type: none"> • Since 2006, DEECD has distributed more than \$2.6 billion to schools through the Program for Students with Disabilities (PSD). However, DEECD does not have the information it needs to determine whether PSD funding is being used efficiently and effectively. • The department knows very little about PSDs impact on the outcomes of supported students after more than five years of the program's operation. • DEECD does not know how many students in Victoria have unfunded special learning needs. It cannot identify these students, nor can it determine if they are being adequately supported by schools.
2012	<i>Student Completion Rates</i>	<ul style="list-style-type: none"> • DEECD does not collect data that could be used to analyse outcomes of current practices and model the impact of changes to the system. • Without data to analyse, DEECD cannot make this information available to schools to facilitate their making more informed choices about which programs to implement or cease.

Figure 2A
Findings of recent performance audits – *continued*

Year	Performance audit	Findings
2013	<i>Implementation of School Infrastructure Programs</i>	<ul style="list-style-type: none"> • Until 2012, DEECD did not have a comprehensive understanding of the condition of school buildings, and therefore could not adequately prioritise investment in repairing and rebuilding schools. • While all schools visited during the audit advised that they spend more on building maintenance than DEECD allocates each year, DEECD’s lack of accountability over expenditure means it has no way of knowing if that is the case.
2013	<i>The State of Victoria’s Children: Performance Reporting</i>	<ul style="list-style-type: none"> • DEECD does not apply any data quality assurance to the Victorian Child and Adolescent Monitoring System (VCAMS) data supplied by other departments. • State of Victoria’s Children reports do not define or focus on the most vulnerable children.
2013	<i>Management of Staff Occupational Health and Safety in Schools</i>	<ul style="list-style-type: none"> • DEECD has access to a range of data about school health and safety including audit compliance results, staff recorded incidents and hazards, and more critical incidents, yet the information is not uniformly quality checked and is underutilised. • DEECD does not monitor additional costs associated with WorkSafe claims and does not know if costs have increased or decreased each year. • Despite return to work information being available, DEECD has not investigated the causes for the significant difference in return to work rates.

Source: Victorian Auditor-General's Office.

Not collecting important information and not analysing the information it does collect limits the extent to which DEECD can:

- appropriately target policy initiatives
- monitor the effectiveness of policies and strategies
- demonstrate the outcomes of government investment.

These issues compromise the efficient and effective operation of aspects of DEECD's work, and go to the heart of what the *Whole of Victorian Government Guideline: Information Management Principles* are about—that information meets business needs and is shared to the maximum extent possible.

The recurrence of these issues across multiple areas of DEECD's activity illustrate how a lack of strategic management of information resources, and a lack of adherence to better-practice principles, can compromise a department's ability to deliver on its responsibilities.

Unique student identifier

DEECD begins providing services to the community at the moment of birth—initially through MCH care. It continues to provide services throughout people's lives through kindergarten, school and post-compulsory education. These distinct areas of service have, at varying times, been the responsibilities of different government departments. They were brought together under DEECD to reflect their integrated nature and the prevailing belief that foundations laid in the earliest years of life impact on an individual's performance at school, further education and beyond. It also reflects the growing belief that identifying and intervening to address underperformance in the early years is more effective than interventions made later in life.

Given this, it is particularly important for DEECD to understand the impact of its activities from a holistic perspective, as well as a sector by sector or program by program point of view. Linking and analysing information between the different sectors contributes to this understanding, however, tracking individuals' progress over time is equally important. Doing so would allow the department to identify the long-term impacts of early learning and early intervention programs and target resources accordingly.

Currently, DEECD does not have this capability. Despite its service responsibilities commencing at birth, it does not have a unique identifier for individuals that carries information related to their progress from early childhood services to schools and then onwards to further education. While the links between school and post-compulsory education are more established, data collected on young people before they enter school is not automatically transferred, and therefore can be lost as they transition.

We see potential for DEECD to extend the use of the Victorian Student Number (VSN) to facilitate this kind of analysis. The VSN currently allows individuals' progress to be monitored across the school and post-compulsory education sectors, but does not apply before school and ceases at 24 years of age.

DEECD is undertaking important work to invest in early years programs. However, by not tracking individuals over time, or effectively linking information between the different education sectors, it does not have an opportunity to fully understand the impact of its work over an extended period of time. This needs to change for the department to genuinely understand the outcomes of the \$11.5 billion it spends each year.

2.4 Management of key performance information systems

There are notable variations in the management and controls applied to information systems across DEECD. While some were managed to a high standard, others had weaknesses that compromised the reliability of the information they contained.

2.4.1 Data integrity assessments

In the absence of an overarching information strategy, our audit looked at six of DEECD's key information systems to develop an understanding of how its information management works in practice. We assessed these systems to determine the extent to which they comply with the *VPS data integrity manual*. Together these systems represent more than half of the output measures reported by DEECD in *Budget Paper No.3: Service Delivery* (BP3). Figure 2B contains a summary of data integrity findings for each system.

Figure 2B
Audit assessment of the data integrity of information systems

Strong	<p>Centaur</p> <p>Strengths in:</p> <ul style="list-style-type: none"> • completeness • validity • timeliness • consistency • accuracy 	<p>On Track</p> <p>Strengths in:</p> <ul style="list-style-type: none"> • completeness • validity • timeliness • consistency • accuracy
Medium	<p>Skills Victoria Training System</p> <p>Strengths in:</p> <ul style="list-style-type: none"> • completeness • consistency • validity • accuracy <p>Weaknesses in:</p> <ul style="list-style-type: none"> • timeliness 	<p>CASES21</p> <p>Strengths in:</p> <ul style="list-style-type: none"> • completeness • validity • timeliness <p>Weaknesses in:</p> <ul style="list-style-type: none"> • consistency • accuracy
Weak	<p>Maternal and Child Health</p> <p>Weaknesses in:</p> <ul style="list-style-type: none"> • completeness • validity • timeliness • consistency • accuracy 	<p>Census of Computers in Schools</p> <p>Strengths in:</p> <ul style="list-style-type: none"> • validity • timeliness <p>Weaknesses in:</p> <ul style="list-style-type: none"> • completeness • consistency • accuracy

Note: Definitions of assessment criteria are located in Figure 1B on page four.

Source: Victorian Auditor-General's Office.

Figure 2B highlights some positive findings about the way DEECD manages individual information systems. It shows that—even without a department-wide strategy governing information management—four of the six systems had fundamentally sound processes and controls.

The Centaur and On Track systems were assessed as having the highest standards of data integrity. This means that there is strong assurance that the information they contribute to DEECD's public reporting is consistently accurate and robust.

Similarly, the Skills Victorian Training System (SVTS) and CASES21 systems were found to have accurate and reliable publicly reported information, with some minor weaknesses:

- DEECD relies on data from a separate system to verify the information entered into SVTS by service providers. This verification data is not consistently updated in a timely way.
- The issues with CASES21 related to some incidences of confusion around data definitions, leading to weaknesses in the accuracy and consistency of information.

Despite these weaknesses, we found their overall management nevertheless allows for reliable assurance as to the accuracy and reliability of publicly reported information.

Collectively, these four systems are responsible for one-third of the measures DEECD reports in BP3. Their robust management points towards veracity of the information they contain, which is a positive result.

2.4.2 Key information system weaknesses

Figure 2B also identifies multiple weaknesses in two of the information systems examined, raising questions about the reliability of the information they contain.

Maternal and Child Health

There are notable issues with the collection and use of MCH information which reduces assurance that DEECD is obtaining accurate, complete, consistent, valid and timely data on the delivery of these services.

While MCH care is provided by the 79 local government authorities in Victoria, DEECD provides 50 per cent of total funding. Each MCH service collects information about infants and young children primarily to facilitate case management, but passes some data on to DEECD, who then use it as the basis of funding allocation. At the individual service level, we found issues with how this information is collected, stored and then reported to DEECD. Specific issues include:

- each MCH service uses one of three programs to house the information it collects and DEECD does not have direct access to or control over these systems—this creates inefficiencies and, without full access, limits DEECD's ability to undertake meaningful analysis of data
- high levels of manual data entry—increasing the risk that data is entered incorrectly and casting doubts on the reliability of data

- inconsistencies in data definitions—leading to different MCH services recording the same information in different ways
- minimal verification and no validation of data—meaning DEECD cannot be assured that it is reliable and accurate.

Further, the most commonly used system—used by 61 councils—has a recognised flaw that causes errors when totalling figures, requiring staff to manually override the data. While this is a well-known problem amongst maternal and child health services, this additional manual manipulation of the data compromises its integrity and reduces the efficiency of administration and data collection.

Issues with these MCH information systems have been identified numerous times both by VAGO and by DEECD:

- VAGO's 2007 performance audit *Giving Children the Best Start in Life* and its 2011 performance audit *Early Childhood Development Services: Access and Quality* both noted that multiple systems and high levels of manual data entry leads to inefficiencies and increases the risk of transcription errors, which, in turn increases the need for better quality assurance measures. VAGO recommended that a single statewide database be developed and while this recommendation was accepted, to date no such database has been developed.
- A DEECD internal audit, conducted in 2010, found that there are significant and long-term risks with MCH information systems, however, these have not been addressed.

Almost one-third of the early childhood development performance indicators DEECD reports through BP3 come from MCH data. It is therefore central to DEECD's accountability for its early childhood development activities. Further, data collected by MCH services is a valuable resource to assist DEECD to identify and target services to vulnerable children. This is a particularly important capability for DEECD given the widely acknowledge importance of early intervention programs. DEECD has commenced work to overcome issues with MCH data accuracy and consistency, and to enable more extensive analysis of MCH data.

Census of Computers in Schools

The Census of Computers in Schools collects information on the number of computers available for teaching at individual schools. DEECD uses this information to:

- develop school, sector and state-level student-to-computer ratios
- inform BP3 performance measures
- inform national statistics
- comply with software licence requirements
- inform infrastructure planning, provision and support
- monitor implementation of policy initiatives
- monitor the age and composition of its computer fleet.

However, there are weaknesses in the way that schools input information into the system—specifically, inconsistent interpretation of data definitions, which are not addressed by any verification testing by DEECD.

These issues mean the figures that schools report to DEECD could be based on different assumptions, making them potentially unreliable as a measure of students' access to functional information and communications technology (ICT) equipment. While the age of computers is reported, this is a crude measure of functionality. A lack of data verification and testing by DEECD means that these inconsistencies are not addressed.

While this system contributes information to only two of the performance indicators DEECD reports in BP3, the lack of assurance about the reliability of the data it contains is still concerning. DEECD advised that this data remains an input into policy and service planning, and therefore its accuracy is important to underpin prudent decisions.

The importance of ICT to delivering a modern curriculum means it is essential that schools and DEECD have an accurate understanding of student-to-computer ratios so they can plan appropriately. VAGO's 2012 audit *Obsolescence of Frontline ICT: Police and Schools* found that secondary school learning goals that depend on ICT assets are at risk due to insufficient oversight by DEECD, despite it knowing that schools do not routinely take into account the lifecycle costs of ICT assets. The processes and controls associated with the Census of Computers in Schools information system mean that, currently, the accuracy of the data it contributes to DEECD performing this oversight cannot be assured.

2.5 The future of DEECD's information management

DEECD has acknowledged the need to improve its information management practices, and has initiated a series of programs and strategies to address issues it has identified.

2.5.1 Recent work to enhance information management

In early 2013, DEECD commenced work on an information strategy, an ICT strategy, and activity to better link separate information systems. These initiatives have the potential to enhance DEECD's information management practices if effectively implemented.

Development of a department-wide information strategy

In its *2012–16 Strategic Plan* DEECD acknowledged the need for an information strategy, and committed to develop one. This work is currently underway. The strategy is expected to be completed in late 2013 with implementation to occur over four years to 2017.

DEECD intends the strategy to address a range of critical information-related issues which it has identified, including:

- the absence of clear policy and practice on sharing information, both within the department and with external stakeholders

- a lack of consistent governance and data standards applied across the department
- inadequate data management and analysis leading to disjointed data and poor evidence-based decision-making
- the need to connect data sets to create a life-long picture of people's education and development, and support collaboration across the department.

DEECD commenced work on the information strategy in February 2013 and has made considerable progress to date. It has established four key principles for the strategy that broadly align with the *Whole of Victorian Government Guideline: Information Management Principles*, specifically information that is:

- open for sharing and reuse
- valued as an important resource
- well governed and managed
- easy to find, access and use.

DEECD has also developed five strategic priorities for the strategy, and extending from these priorities are 46 individual initiatives which include actions such as building a register of key information resources, developing a metadata model and assigning information security roles and responsibilities.

DEECD anticipates that the strategy will be finalised in the near future. However, it has not developed a comprehensive implementation plan for it, or detailed project plans for each of the 46 initiatives. Nor has it secured funding to implement these initiatives. If these issues are not addressed within the critical 6–12 month window following the release of the strategy, it is unlikely that the intent of the strategy will be realised.

Development of an ICT strategy

DEECD developed a new ICT strategy which it intends to launch alongside its information strategy. It sets out a framework to enhance the use of ICT to deliver the department's services. The ICT strategy has six priorities, specifically pursuing:

- improved decision-making
- support for provider autonomy
- enhanced productivity
- support for core business
- sustainable ICT
- flexible and cost effective ICT.

The ICT strategy identifies 43 actions to pursue these priorities, however, it does not set out how or when they will be implemented. In total, across the two strategies being launched, DEECD will be committing to 89 individual initiatives. Unless DEECD develops and implements sound governance, ownership and accountability arrangements, accompanied by detailed project plans, there is a significant risk that these initiatives will not be realised.

Further developing the Enterprise Reporting Business Intelligence data warehouse

In 2009, DEECD developed an Enterprise Reporting and Business Intelligence (ERBI) data warehouse in an attempt to bring disparate sources of data from across the organisation together in one place. ERBI draws on data from a range of information systems such as school finance information, National Assessment Program—Literacy and Numeracy (NAPLAN) results and attendance data, and places it in a single location for departmental staff to access and analyse according to their needs. ERBI is intended to support evidence-based decision-making within the department. While it initially contained data related to the school sector only, it has grown over the years to include information from other divisions, including the early childhood division.

In 2013, DEECD started work to further develop ERBI by increasing the range of analytical tools that can be applied to its data. This will allow departmental staff and school administrators to make better use of the information it collects. Again, this work is aligned with the information strategy currently underway and, while in its early stages, is a positive development in the way the department values and uses information.

2.5.2 Maximising the potential of new approaches

DEECD's progress on developing its information strategy, ICT strategy and expanding ERBI is encouraging.

Though still in draft form, the principles are closely aligned with the *Whole of Victorian Government Guideline: Information Management Principles* which indicates a positive strategic direction for information management. Further, DEECD has undertaken considerable work to identify priorities and associated initiatives that are necessary to develop and enhance its information management.

These initiatives range from straightforward activities such as 'refreshing DEECD's information asset register' to complex and large-scale tasks such as 'establishing a mechanism for building connections between related projects and expertise across DEECD'.

These initiatives are at the core of what is required to make genuine and lasting change to the management of information at DEECD. Their effective implementation will be fundamental to the success of the strategy. However, because they have not yet been fully scoped, it is too early to determine whether they will have the necessary impact.

Given that there are 46 initiatives in total, DEECD has advised that they will be prioritised according to a framework which considers factors such as the business need and urgency of the proposed initiative, its alignment with other DEECD strategies, and the ease or difficulty of implementation. While prioritising initiatives is necessary, staging of their delivery poses a risk to comprehensive implementation of the strategy.

DEECD's previous knowledge management strategy was not effectively implemented, leading to a range of information management issues identified in this and previous audits, and the urgent need for an organisation-wide approach to information management. It is essential that DEECD comprehensively implement the strategy it is currently developing, and develop appropriate review mechanisms to make sure this takes place.

Recommendations

The Department of Education and Early Childhood Development should:

1. adopt system-wide processes and controls that ensure that all of its information systems are regularly reviewed, managed to consistent standards and contain reliable and accurate data
 2. develop a detailed project plan for the implementation of its information strategy that describes the scope of activities, required resources and time lines, and implement actions in accordance with this plan.
-

Appendix A.

Audit Act 1994 section 16— submissions and comments

Introduction

In accordance with section 16(3) of the *Audit Act 1994* a copy of this report was provided to the Department of Education and Early Childhood Development.

The submissions and comments provided are not subject to audit nor the evidentiary standards required to reach an audit conclusion. Responsibility for the accuracy, fairness and balance of those comments rests solely with the agency head.

RESPONSE provided by the Secretary, the Department of Education and Early Childhood Development



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Mr John Doyle
Auditor-General
Victorian Auditor-General's Office
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Dear Mr Doyle

Thank you for the opportunity to comment, under section 16(3) of the Audit Act 1994, on the proposed report of Performance Reporting Systems in Education audit. The Department of Education and Early Childhood Development has reviewed the report and a response is enclosed. I request that this response is published in full.

If you would like further information you may contact Ms Diana Chow, Acting Director, Audit and Risk Branch, Governance and Executive Services Division, People and Executive Services Group, Department of Education and Early Childhood Development on 9637 3602 or by email: chow.diana.d@edumail.vic.gov.au.

Yours sincerely

Richard Bolt
Secretary

16/9/2013

Encl.



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RESPONSE provided by the Secretary, the Department of Education and Early Childhood Development – continued

**VAGO Audit
Performance Reporting Systems in Education**

The Department of Education and Early Childhood Development welcomes the opportunity to comment on the audit report and accepts the recommendations. The specific management response for each recommendation is outlined below.

Number	Recommendations
The Department of Education and Early Childhood Development should:	
1	adopt system-wide processes and controls that ensure that all of its information systems are regularly reviewed, managed to consistent standards and contain reliable and accurate data DEECD Response: Accept
2	develop a detailed project plan for the implementation of its information strategy that describes the scope of activities, required resources and timelines, and implement actions in accordance with this plan. DEECD Response: Accept

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Report title	Date tabled
Operating Water Infrastructure Using Public Private Partnerships (2013–14:1)	August 2013
Developing Transport Infrastructure and Services for Population Growth Areas (2013–14:2)	August 2013
Asset Confiscation Scheme (2013–14:3)	September 2013
Managing Telecommunications Usage and Expenditure (2013–14:4)	September 2013

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