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Queensland Department of Education and Training

DCCSDS Assessment of the OneSchool Referral Process

3 November 2015

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Dr Jim Watterson
Director General
Department of Education and Training
Level 22
Education House
30 Mary Street
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3 November 2015

Dear Dr Watterson

Re: DCCSDS Assessment of the OneSchool Referral Process

We refer to our contract commencing on 10 August 2015 in relation to the above assessment and attach our finalised report.

Should you have any queries in relation to this report, please do not hesitate to contact me on 3308 7043.

Thank you for the opportunity to work with the Department.

Yours sincerely,

Kate Grimley
Partner
Deloitte Touche Tohmatsu

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1 Executive Summary

1.1 Background

On 1 August 2015 the Department of Communities, Child Safety and Disability Services (**DCCSDS**) performed a report reconciliation and identified that 27 student protection reports that were sent from the Department of Education and Training's (**DET**) OneSchool system had not been received by DCCSDS, over the period 20 January 2015 to 31 July 2015.

Following the identification of these reports, DCCSDS expanded their report reconciliation, that is, the reconciliation of student protection reports said to have been made by DET to DCCSDS to DCCSDS' Integrated Client Management System (**ICMS**) records over the period 25 September 2013 to 19 January 2015 (the **Relevant Period**).

The objective of this reconciliation or data-matching process was to identify student protection reports that:

- Did not have any corresponding student information in DCCSDS' ICMS system (**Unmatched reports**); or
- Had corresponding student information in DCCSDS' ICMS system but no contact with the student had been made within a **Reasonable period of time**[1] (**No activity reports**).

The purpose of the data-matching was to enable both DCCSDS and DET to ensure that any potential child safety risks had been rapidly addressed, while a broader and more comprehensive process was being conducted by DET into the student protection reporting process.

The reconciliation process conducted by DCCSDS included both electronic data matching and manual matching of reports.

Deloitte was engaged by DET on 10 August 2015 to perform an assessment of the design and execution of the data matching processes undertaken by DCCSDS, and to provide observations relating to relevant risks and controls associated with the matching process.

1.2 Outcomes of matching process

The following summarises the outcomes of the data-matching processes:

Population

- 10,868 student protection reports were generated by the DET OneSchool system with the intent of being sent to DCCSDS over the Relevant Period

Electronic data matching

- Activity was identified within a Reasonable period of time for 9,491 student protection reports
- Activity was not identified within a Reasonable period of time for 337 student protection reports, being the No activity reports
- Corresponding student information was not identified in ICMS for 1,040 student protection reports, being the Unmatched reports

[1] Defined by the Deputy Director General of DCCSDS upon the commencement of the reconciliation as a three month period

Manual matching

- Manual matching was performed on the two latter subsets, that is, the 1,040 Unmatched reports and the 337 No activity reports
- Manual matching resulted in the clearance of false positives and the corresponding reduction of Unmatched reports to 106 and No activity reports to 163.

A diagram (**Diagram 1**), summarising these findings, is provided in **Section 4**.

1.3 Observations

Based on our understanding of the data matching process performed and as a result of the assessment activities performed we make the following observations:

Data matching

- The electronic and manual matching processes adopted by DCCSDS appear to have been appropriately considered and logically designed to meet DCCSDS' objectives and the required urgency of the matching processes
- The selected matching parameters, being EQ ID, first name, last name and date of birth appear sound. We note that only exact matching was utilised by DCCSDS, minimising the risk of false positive matching
- We were unable to test the suitability of the selected Reasonable period of time and accordingly relied on the determination by the Deputy Director General DCCSDS of three months
- A number of potential risks remain in relation to the 'matched' student protection reports
- Our spot-checks[2] did not identify any errors in the operation of the electronic or manual matching processes
- The collective electronic and manual data-matching process conducted by DCCSDS, subject to the residual risks noted, appears to have been appropriate given the rapid nature of the reconciliation.

Existence of Unmatched reports or No activity reports

- During the course of our assessment, we were advised through discussion with DCCSDS stakeholders that there are several ***possible*** reasons why Unmatched reports or No activity reports may exist, including:
  - Student protection reports not being received by the DCCSDS IronPort server
  - The email process flows within DCCSDS following receipt into the IronPort server
  - Election by the assigned Child Safety Officer not to enter a student protection report into ICMS (e.g. the report was not found to relate to child safety)
  - Accidental non-recording of a student protection report into ICMS
  - Data entry error.
- It is outside the scope of this engagement to test these possibilities and accordingly we do not comment any further.

[2] Limited to the extent of the non-sensitive data available to us

Resolution of residual student protection reports

- We were advised that following the data matching, DCCSDS requested the unreconciled student protection reports from DET. Applying local knowledge, regional staff within DCCSDS reviewed these reports and identified that 86 reports had been received and acted upon, including recording in ICMS
- We were advised by DCCSDS, that the remaining reports (183) were immediately actioned and the information in the reports was reviewed and assessed by Child Safety Officers in accordance with normal DCCSDS processes for assessing reports of alleged harm
- We were advised that all Unmatched reports and all No activity reports had been actioned and reviewed by 27 August 2015.

A detailed summary of our observations are included in **Section 6**.

1.4 Recommendations

We identify the following key recommendations in relation to the data-matching process for consideration:

- Clarification of the definition of student contact and the measurement of 'activity' within the data-matching processes, particularly in the electronic data matching. A risk remains that system activity only has been measured as 'activity'. This interpretation appears to be inconsistent with the planned measurement of activity

  We understand in discussion subsequent to the completion of our fieldwork that DCCSDS do not consider that any residual risk exists between the designed and planned measurement of activity.
- Performance of further comprehensive quality assurance checks across the data-matching results, focusing primarily on the matched student protection reports.

A table providing a complete list of recommendations is provided in **Section 7**.

2 Terms of Reference

2.1 Scope

Deloitte Touche Tohmatsu (**Deloitte**) was engaged by DET to perform an assessment of the data matching process undertaken by DCCSDS, in relation to the OneSchool student protection reports, referred by DET to DCCSDS.

The scope and objectives of our engagement were as follows:

a) To understand the design and execution of the data matching processes undertaken by DCCSDS, including both the data and manual matching, to identify risks associated with the completeness and accuracy of the matching processes and the relevant controls designed to mitigate those risks

b) To perform high level data matching checks or "spot checks" of the data matching results to assess its efficacy

c) To understand the data matching parameters, including the "Reasonable period of time" for response and provide observations regarding the sufficiency and suitability of these parameters

d) To identify and communicate any relevant observations regarding the robustness of the process and any outcomes of data matching checks

e) Preparation of a brief report summarising our observations and any residual risks associated with the matching process and any testing performed.

2.2 Scope Limitations

The scope of our work was limited as follows:

a) We were not provided with access to any specific student protection report data (i.e. private data) and accordingly our work was limited to this extent

b) We were not engaged to perform any data extraction, data cleansing or any direct data matching and accordingly do not provide any assurance as to the accuracy or completeness of these tasks

c) We did not undertake an assessment of the completeness or accuracy of the list of referrals provided by DET to DCCSDS for comparison

d) DCCSDS had already commenced both the electronic data and manual matching processes prior to our engagement. As such, we were not involved in the design of these processes.

2.3 Limitations of our work

This report has been prepared for DET as per the purpose set out in our contract commencing on 10 August 2015. This report should be read in conjunction with the terms and conditions of our engagement. This report is not intended to and should not be used or relied upon by anyone else and we accept no duty of care to any other person or entity. You should not refer to or use our name or the advice for any other purpose.

Deloitte Forensic staff are not lawyers, and our report should not be relied upon as legal advice. We will not provide any assurance or opinion on the matter including for example, whether you should proceed with any form of formal action against a third party.

This report is based on the information provided to us in discussions undertaken with DET and DCCSDS employees and analysis conducted on provided documentation. Other than where specified, Deloitte does not assume responsibility for the validity and accuracy of the information obtained in this regard. For the purposes of preparing this report, reliance has been placed upon the material, representations, documentations, information and instructions obtained. We have not undertaken any audit, testing or verification of the information obtained and we assumed that this information is true, correct and complete and not misleading. If this is not the case or the information changes after we receive it, then our work may be incorrect or inappropriate for you.

Our services were limited by the time available to us, the agreed scope, information available, and the accessibility of information sources. We reserve the right to revise any opinion or conclusion in our work if material information becomes known to us after the date our work is issued.

3 Background

To support teachers, administrators and students, DET deployed a centralised state wide online school management system, called **OneSchool**. In October 2013, the Student Protection Module (**SPM**) within the wider OneSchool system was implemented to enable the confidential reporting of student protection information to DET, DCCSDS and the Queensland Police Service.

On 30 July 2015, DET identified that a number of OneSchool student protection reports had not been received by the Queensland Police Service. As a result, DCCSDS and DET conducted an internal investigation and identified that a number of student protection reports had also not been received by DCCSDS. The period under this initial investigation was between 20 January 2015 and 31 July 2015.

In the first week of August 2015, it was identified that there may be additional reports from DET that were not received by DCCSDS from the implementation of the OneSchool system, that is from 25 September 2013, to the commencement of the initial investigation, 19 January 2015.

In response to this, DCCSDS undertook a further process of reconciling the student protection reports; said to have been made by DET to DCCSDS over the period 25 September 2013[3] to 19 January 2015, to DCCSDS' records, as stored in DCCSDS' state-wide child protection system, ICMS.

A two-phased data-matching approach was rapidly designed and executed by DCCSDS to identify any such reports as quickly as possible.

Deloitte was engaged by DET, with initial discussion commencing with DET on the 9 August 2015, to perform an assessment of the design and execution of the data matching processes undertaken by DCCSDS, and provide observations relating to relevant risks and controls associated with the matching process.

[3] We note that the period under assessment as per our engagement letter, and in communications provided to the DCCSDS' Director Deputy General commences at 25 September 2013. However the first report in the non-sensitive data provided to us by DCCSDS appears at 28 October 2013.

4 The Data Matching Process

4.1 Introduction

Following the identification of a number of un-received student protection reports, DCCSDS rapidly designed and executed a reconciliation process between:

- Student protection reports said to have been made by DET to DCCSDS over the Relevant Period; and
- DCCSDS' records, as stored in ICMS.

4.2 The Objective

The objective of the reconciliation or data-matching process designed by DCCSDS was to:

- Identify Unmatched reports, that is student protection reports which did not relate to a student otherwise known to DCCSDS; by reconciling a list provided by DET of 10,868 student protection reports said to have been made over the Relevant Period, against student information present in DCCSDS' ICMS system
- Identify No activity reports, that is, student protection reports that related to students known to DCCSDS but where no contact had been made with the student within a Reasonable period of time of the student protection report date. A Reasonable period of time was to be agreed by the Deputy Director General, DCCSDS.

The purpose of the matching was to identify any outstanding child safety concerns raised through the student protection reports that required immediate action by DCCSDS, prior to the completion of more extensive analysis by DET regarding the SPM within OneSchool.

4.3 The Process and Outcomes

The following summarises our understanding of the data matching processes undertaken by DCCSDS. This summary was developed from our discussions with DCCSDS personnel responsible for, and involved in, the data matching process:

- The Regional Director at DCCSDS engaged with the Chief Information Officer and the Director of the Information Services Unit to design and execute a data matching process
- Through consultation, the Chief Information Officer and the Director of the Information Services Unit designed the following two phased approach[4] to achieve the aforementioned objectives:
    1. An **electronic matching process**, performed by the Information Services team, to automatically identify any Unmatched reports and No activity reports
    2. A **manual matching process**, performed by the Child Safety After Hours Services team, to conduct a more intensive manual search in the ICMS system to refine the results of the electronic matching process.

[4] Documented and communicated to the Deputy Director General at DCCSDS. This document was provided to Deloitte at the commencement of our engagement.

Electronic matching

- On 4 August 2015, the Director of the Information Services Unit engaged the Business Analyst at the Information Services Unit, to commence the design and execution of the electronic matching process. The following table summarises the steps taken:

Table 4.1: Electronic matching process

Step	Approach	Outcome
Business logic and SQL code[5] for the electronic matching developed 6 August 2015	The code sought to match corresponding student protection report data to ICMS data according to a series of strict rules to identify exact matches. The logic primarily matched upon three data parameters: the family name, given name and the EQ ID[6], with a second iteration to match the student protection report data on date of birth if multiple reports were identified.	SQL code written
Preparatory electronic matching 7 August 2015	The DET student protection report list was loaded into the ICMS database The SQL code was reviewed to ensure that no performance issues would occur and that no update operations were being made to the database. Varying parameters, such as a Reasonable period of time, were entered and the associated SQL code was run for each of these parameters.	SQL code run in the ICMS read-only environment. A summary of the results, based on the varying Reasonable periods of time, was prepared[7]. A determination was made by the Deputy Director General that the Reasonable Period of time would be measured as three months.
Electronic matching 10 August 2015	Electronic matching performed to identify the following: **Matched with activity**[8] **Matched with No activity** **Unmatched**	The following results from a population of 10,868 reports over the Relevant Period: **9,491 student protection reports** **337 student protection reports** **1,040 student protection reports**

[5] SQL (Structured Query Language) is a programming language used for storing, analysing and querying data.
[6] A unique 11-digit identifier from the OneSchool system. When entering case information in the ICMS system, the Child Safety Officer may or may choose to not enter the EQ ID in ICMS.
[7] A screenshot of this summary is provide at Appendix C
[8] The term "activity" in the electronic matching process was used as a proxy for contact with a student. Activity is defined in the code as either a student being added to an event or the form within the student's ICMS profile having been updated (recorded in the "form" table in the ICMS database), within the three month period.

Manual matching

- Based on the results of the electronic matching process, on 11 August 2015, the DCCSDS Regional Director engaged a Manager at the Child Safety After-Hours Services Unit to design and execute the manual matching process. The following table summarises the steps taken:

Table 4.2: Manual matching process

Step	Approach	Outcome
Manual matching approach development and planning 11 August 2015	To reconcile Unmatched reports, manual searches in ICMS were performed primarily based on three parameters: name, address and age. Business knowledge and experience was applied by the After Hours Services staff members to assist with the matching. To determine contact within the three month "Reasonable period of time" any evidence of amendments made to case notes, plans, meetings and event types within an ICMS profile were noted[9]. The Manager divided the tasks over a period of three days and allocated specific personnel for each day to perform the manual matching process. A set of instructions on how to perform the manual matching process were set out in an email and explained via video conferences to team members	Manual matching approach developed and distributed to team
Manual matching completed 11 – 13 August 2015	Manual matching was performed to refine the electronic matching results in the following categories: **Matched with activity** **Matched with no activity** **Unmatched**	The manual matching process resulted in the identification of the following, based on the electronically identified 1,377 reports (Unmatched and No activity): **1,108 student protection reports** **163 student protection reports** **106 student protection reports**
Quality assurance procedures 11 – 13 August 2015	A subsequent review was completed by a second team member. Sample checking was also completed by the Manager.	As above

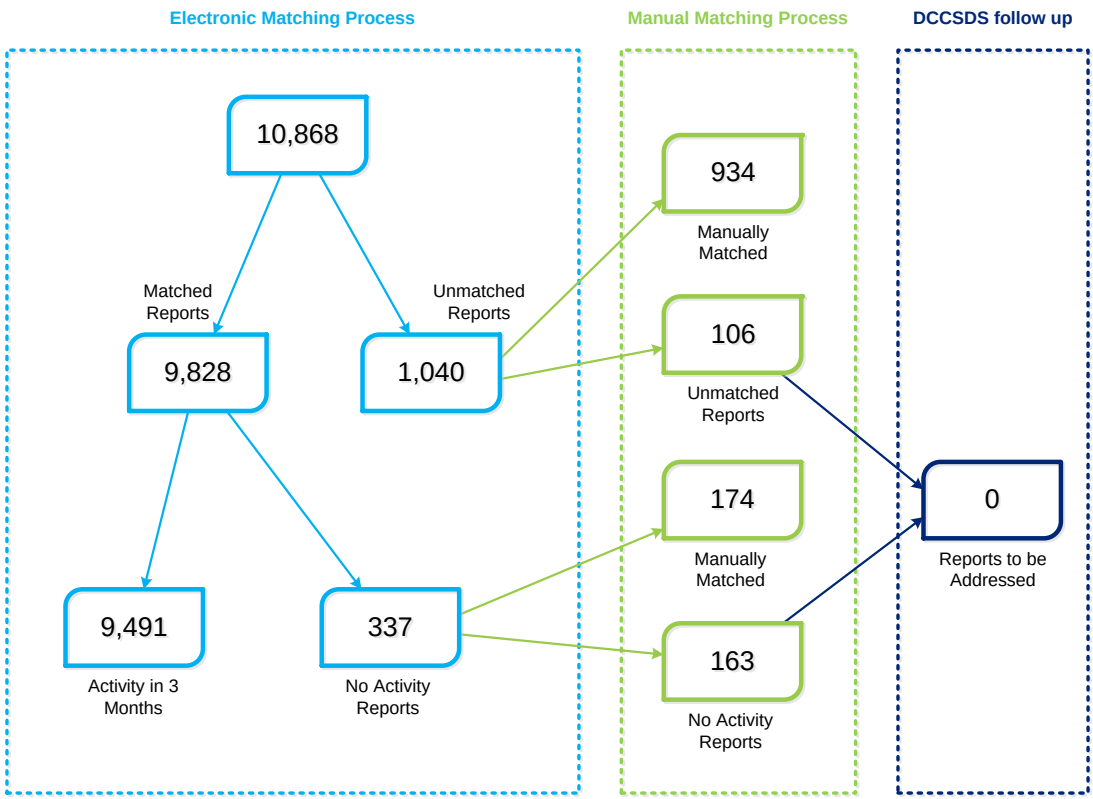
[9] At this stage all findings from the manual matching process were recorded in the excel spreadsheet.

Resolution of remaining student protection reports

- Based on the results of the manual matching process, a listing of the 269 student protection reports (Unmatched reports and No activity reports) was provided to DET for provision of all related student protection reports. Any further historical reports for the relevant students were also requested to enable further manual matching
- We were advised that 86 further student protection reports were manually matched on receipt of further information from DET
- We were advised by DCCSDS, that the remaining reports (183) were immediately actioned and the information in the reports was reviewed and assessed by Child Safety Officers in accordance with normal DCCSDS processes for assessing reports of alleged harm, including student protection reports
- We were advised that all Unmatched reports and No activity reports had been considered and actioned, if required, by 27 August 2015
- Accordingly, no student protection reports remain unconsidered by DCCSDS.

The following diagram summarises the outcomes of the matching process:

Diagram 1: Summary of data matching outcomes



5 Deloitte Assessment Activities

5.1 Introduction

As outlined above, we were engaged to:

a) Understand the design and execution of the data matching processes undertaken by DCCSDS, including both the data and manual matching, to identify risks associated with the completeness and accuracy of the matching processes and the relevant controls designed to mitigate those risks

b) Perform high level data matching checks or "spot checks" of the data matching results to assess its efficacy

c) Understand the data matching parameters, including the "Reasonable period of time" for response and provide observations regarding the sufficiency and suitability of these parameters

d) Identify and communicate any relevant observations regarding the robustness of the process and any outcomes of data matching checks.

5.2 Assessment activities

In order to assess the data matching process, we performed the following activities [10]:

Table 5.1: Deloitte assessment activities

Step	Approach	Outcome
Document review	Obtained and reviewed documentation[11] from DCCSDS.	Developed a high-level understanding of the overall process and the data matching processes undertaken by DCCSDS.
Discussions	Engaged with the information services and the after-hours services personnel at DCCSDS (detailed in **Appendix B**), to obtain an in-depth and up-to-date understanding of the electronic (included walkthrough of the algorithm and the SQL script[12]) and the manual data matching processes including examples of search methods and criteria in the ICMS front end system).	Developed a deeper understanding of the data matching process, including the development of the Reasonable period of time parameter. Developed documentation and process diagrams describing our understanding of the data matching process, including the total population, and the number of matched and unmatched population (provided in **Appendix A** and **C**).

[10] Note that this is a high level summary of activities, sub-steps are not necessarily included.
[11] Note that at this step, documentation on the data matching process was being prepared and was provided at a later stage.
[12] SQL (Structured Query Language) is a programming language used for storing, analysing and querying data.

Step	Approach	Outcome
Spot Checks	Engaged with the key personnel at DCCSDS to perform spot checks on the electronic and manual data matching results using non-sensitive data[13]. Spot checks were performed on 15 student protection reports to examine the electronic matching process, including reports that were: (a) Matched in ICMS with activity[14] in three months (b) Matched in ICMS with no activity in three months (c) Unmatched in ICMS. Spot checks were performed on 8 student protection reports to assess the manual matching process, including reports that were: (a) Matched in ICMS with no evidence of contact[15] in three months, and (b) Unmatched in ICMS.	Developed an understanding of the risks and controls associated with the completeness and accuracy in the design and execution of both the electronic and manual data matching processes (discussed in **Table 6.1**).
Observations	Communicated observations regarding the robustness of the data matching process, including any associated risks and controls, throughout the engagement.	Observations as discussed in **Section 6.**

[13] Our spot checks are limited to non-sensitive data only.
[14] The term "activity" in the electronic matching process represents contact with a student and is defined in the code as either a student being added to an event or the form within the student's ICMS profile has been updated (recorded in the "form" table in the ICMS database), within the three month period.
[15] This included any changes made to case notes, plans, meetings and "ICMS event types" (assigned to reports, include for e.g.: 'intake', 'investigation & assessment' and 'ongoing intervention') in a student's ICMS profile.

6 Observations

6.1 Overall observations

Based on our understanding of the data matching process performed and as a result of the assessment activities performed we make the following observations:

Data matching

- The electronic and manual matching processes adopted by DCCSDS appear to have been appropriately considered and logically designed to meet DCCSDS' objectives and the required urgency of the matching processes
- The selected matching parameters, being EQ ID, first name, last name and date of birth appear sound. We note that only exact matching was utilized by DCCSDS, minimizing the risk of false positive matching
- We were unable to test the suitability of the selected Reasonable time period and accordingly relied on the determination by the Deputy Director General DCCSDS of three months
- A number of potential risks remain in relation to the 'matched' student protection reports
- Our spot-checks[16] did not identify any errors in the operation of the electronic or manual matching processes
- The collective electronic and manual data-matching process conducted by DCCSDS, subject to the residual risks noted, appears to have been appropriate given the rapid nature of the reconciliation.

Existence of Unmatched reports or No activity reports

- During the course of our assessment, we were advised through discussion with DCCSDS stakeholders that there are several *possible* reasons why Unmatched reports or No activity reports may exist, including:
  - Student protection reports not being received by the DCCSDS IronPort server
  - The email process flows within DCCSDS following receipt into the IronPort server
  - Election by the assigned Child Safety Officer not to enter a student protection report into ICMS (e.g. the report was not found to relate to child safety)
  - Accidental non-recording of a student protection report into ICMS
  - Data entry error.
- It is outside the scope of this engagement to test these possibilities and accordingly we do not comment any further.

Resolution of residual student protection reports

- We were advised that following the data matching, DCCSDS requested the unreconciled student protection reports from DET. Applying local knowledge, regional staff within DCCSDS reviewed these reports and identified that 86 reports had been received and acted upon, including recording in ICMS

[16] Limited to the extent of the non-sensitive data available to us

- We were advised by DCCSDS, that the remaining reports (183) were immediately actioned and the information in the reports was reviewed and assessed by Child Safety Officers in accordance with normal DCCSDS processes for assessing reports of alleged harm
- We were advised that all Unmatched reports and all No activity reports had been actioned and reviewed by 27 August 2015.

6.2 Residual risks

In addition to these overall observations, we make the following observations regarding process risks that appear to remain un-mitigated as at the close of our fieldwork:

Table 6.1: Risks

Design	Execution	Risks
"Activity" identified within the three month period was defined in documentation presented to the Deputy Director General as contact made with the student from the date of the student protection report	Activity was defined as follows in the matching processes: • Electronic data matching: identification of system activity, that is, an event[17] is added to a student's ICMS profile or a form is edited and saved (within an ICMS profile). • Manual data matching: assessment of whether contact had been made with a student, based on amendments to case notes, plans, meetings and event types within an ICMS profile.	There appears to be an inconsistency between what was intended as the designed definition of activity and what was utilised to identify activity in the matching processes. There is a risk that system activity was identified as activity without it being reflective of direct or indirect contact with the student. Such cases would result in the student protection report being incorrectly classified as 'matched with activity'.
The Business Analyst was to receive and analyse the dataset from DET to perform the electronic data matching	Two sets of data were received from DET (i) with 10,866 and (ii) with two student protection reports, and were run separately producing two sets of results	Upon receipt of the datasets, no reviews or checks were undertaken to ensure the source data was correct and complete.
All student protection reports were to be matched on First name, Last name, and date of birth	SQL code was developed to match on EQ ID, First name and Last name exactly. If an EQ ID was absent, the match was performed only on First name and Last name. Due to the high number (approximately 9,650) of results where EQ ID was absent, a secondary iteration was performed using date of birth. Where duplicate records were identified, matching was performed on First name, Last name and date of birth. Where the date of birth did not result in a match, a further iteration was performed based on First name and Last name, being the "*most likely match*".	It is possible that some of these records were matched incorrectly in the case of missing, incorrect given names or common names (for example John Smith).
The Business Analyst was to write the electronic data matching code (SQL code), and the Database Analyst	The Business Analyst wrote the SQL code based on rules and business logic he assessed as appropriate to identify the exact matches.	No quality assurance procedures appear to have been undertaken on the SQL code.

[17] An event is assigned to student protection reports within ICMS and include the following Event types: Intake, Investigation & assessment and Ongoing intervention

Design	Execution	Risks
was to run the code	The Database Analyst visually scanned the code to ensure no performance issues would occur and that no update operations were being made to the database. The Database Analyst also ran the code and generated the seven sets of results.	We understand a high level check was undertaken to gain confidence that the SQL code output was complete and correct by: (i) Matching the sum of the total number of Unmatched, Matched with no activity and matched with activity results to the total number of records provided (ii) Reviewing the general trend or pattern of the number of reports (i.e. an increase in 'matched with activity' and decrease in 'matched with no activity') generated for each of the seven months, while running the code (see summary of results in **Appendix C**). No further checks (e.g. spot checks) were undertaken to verify that the output was in accordance with the expected outcomes (based on the SQL code) Risk arises in the absence of quality assurance checks.
Process for the electronic data matching, including matching rules, was to be documented by the Business Analyst	The process and rules were documented after the matching in SQL was completed	The documentation was drafted after the results were generated. Although the circumstances dictated for urgency in producing the results, there is risk of inconsistency between the process actually executed and the process and rules that were discussed in the initial meeting.
Manual matching	When undertaking the manual matching process, the Manager at the After Hours Services Unit split the dataset provided in groups of 100-200 records in individual tabs within the excel workbook in order to be able to divide the tabs amongst the After Hours team for manual matching. As a result of the data splitting, the data had to be recombined at the end of the manual matching process to provide to the Regional Director.	When recombining the data from individual tabs into a single worksheet there are a number of risks including (but not limited to) not capturing all the data from each tab, accidentally copying over data or accidentally deleting lines of data. No reviews or checks, other than a check of totals were undertaken to ensure the data was split or recombined correctly and that no errors /deletions occurred in the process
The manual matching process was intended to ensure each student protection report was reviewed by two people: i. the person who performed the manual match (**first level review**) ii. secondary review of report matching (**second level review**) Initials were to be recorded to document each level of review	97 student protection reports did not record any review, i.e. no initials were documented 462 student protection reports did not record the second level review i.e. a second set of initials was not documented In some cases, the second level review was performed by the first level reviewer.	There is a risk that not all records were reviewed as part of the manual matching process. In the absence of initials, no manual matching is documented. There is a risk that no secondary review of the manual matching outcomes was performed and/or that the control implied by a second level review is absent where the same person performed the first and second level review. The manager at the After Hours Services team advised that the gaps in the initials implied that the last initials present in the excel spreadsheet would apply until a new set of initials appeared.

6.3 Spot checks

We engaged with personnel at DCCSDS to perform spot checks on the electronic and manual data matching results using non-sensitive data.

Our spot checks[18] did not identify any significant errors in the operation of the electronic or manual matching processes.

Electronic data matching

Spot checks were performed on 15 student protection reports to examine the electronic matching process. We summarise our observations in the table below:

Table 6.2: Spot-check summary (electronic data matching process)

Result category	Number of Reports	Observations
Matched with Activity	10	All ten reports matched with activity in the ICMS system. We observed that: • Five reports where the EQ ID was not an 11 digit number • One report was matched with activity on the basis of a form update • Two reports were matched with activity based on the ICMS event type "Intake" • One report was matched with activity based on the ICMS event type 'Ongoing intervention' • One report was matched with activity based on the ICMS event type 'Investigation and assessment'.
No activity reports	3	All three reports were present in the system. We did not observe any activity in three months from the report date.
Unmatched	2	We were unable to detect one of the reports in the system which appears to indicate the profile did not exist at the time of performing our spot checks. The other report is now present in ICMS, but was not detected by exact matching as the last name was hyphenated[19].

We note that the risk is lower in student protection reports categorized as 'No activity and 'Unmatched' by the electronic matching process as these were processed manually by the After Hours Unit[20] as part of the manual matching process.

Manual matching

Spot checks were performed on eight student protection reports to assess the manual matching process. Our observations are as follows:

- All eight reports were present in the system; one report had no activity in three months
- Due to sensitivity of the data, we were unable to observe the accuracy of the manual matching process and accordingly are unable to comment further.

[18] Limited to the extent of the non-sensitive data available to us
[19] Confirmed by the Business Analyst at DCCSDS.
[20] We were advised that the team was highly experienced and was carefully chosen based on skills and expertise.

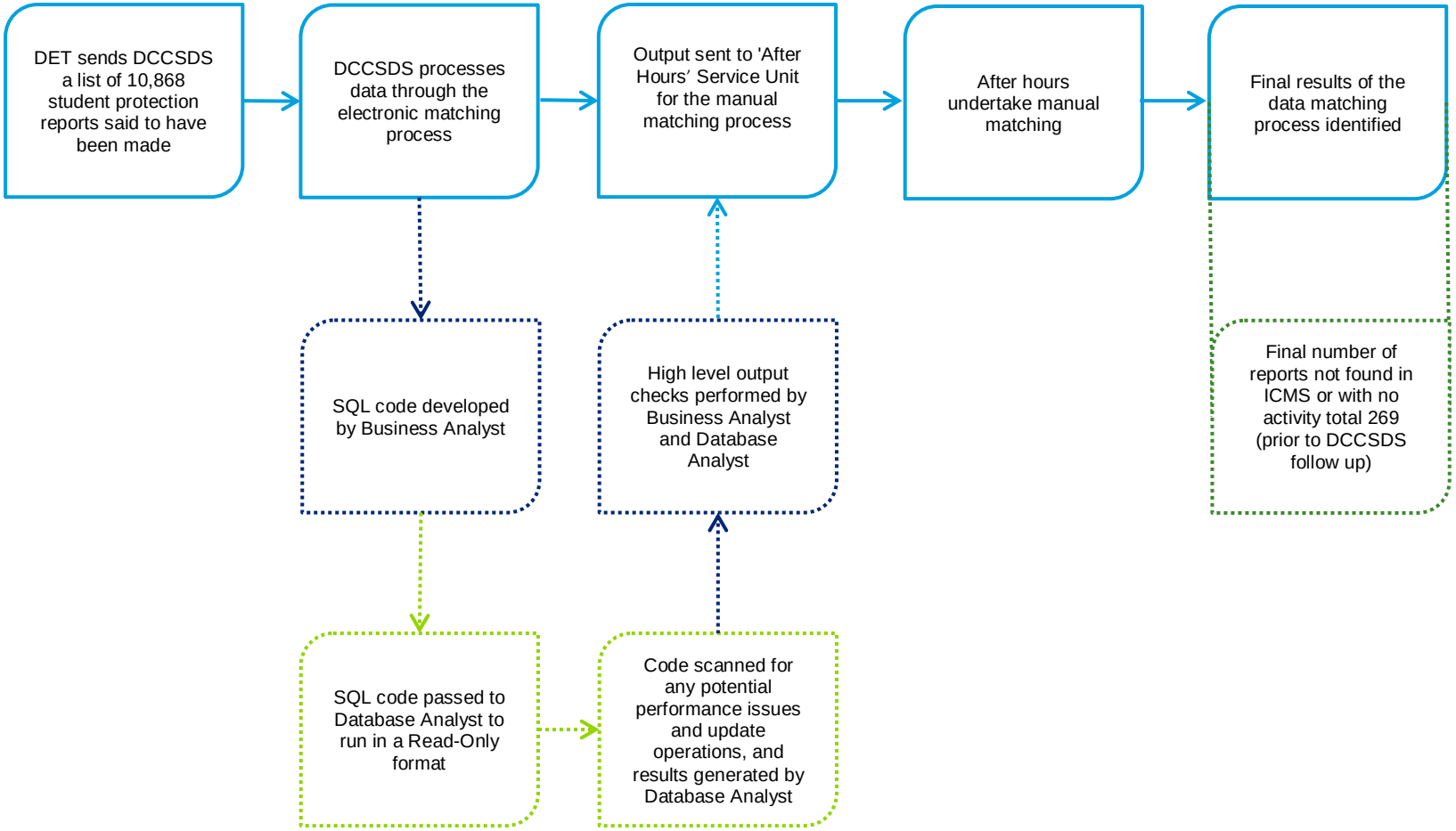
7 Recommendations

The following table summarises our recommendations for consideration:

Table 7.1: Recommendations

Recommendation	Ref	Details
Further quality assurance procedures		In addition to the quality assurance procedures conducted, we recommend the additional further checks:
	1	Consider the use of quality assurance reviews over any scripts that produce data analytic approaches, that is, where an analytical approach is developed to assess any data matching results or outcomes, oversight and validation of the script should be provided prior to commencement
	2	Consider a comprehensive quality assurance review over the electronic and manual matching results, focusing particularly on the Matched reports
	3	Completeness of the data reports that included the listing of student protection reports provided to DCCSDS by DET should be confirmed and documented.
Clarification of definition	4	Clarification of the definition of student contact and the measurement of 'activity' within the data-matching processes, particularly in the electronic data matching. A risk remains that system activity only has been measured as 'activity'. This interpretation appears to be inconsistent with the planned measurement of activity. We understand in discussion subsequent to the completion of our fieldwork that DCCSDS do not consider that any residual risk exists between the designed and planned measurement of activity.
Documentation and Assumptions	5	In designing data analytic approaches, the use of assumptions regarding the data should be minimised. Any assumptions, pre-cleansing and filters applied to the input dataset should be documented.
	6	Consider version control and documentation of the code and its workings, including a count of the number of records as each rule in the code is processed.
Electronic matching	7	In future script development, we recommend further up-front collaboration between the team member responsible for writing the script/code and an Afterhours service team member. This collaboration will enable the best data analytic data-matching approach to be written – leveraging both child safety knowledge and ICMS system knowledge.
Spot checks	8	Consider data quality checks/data cleansing across student protection report data recorded in ICMS, including the consistency of EQ IDs, and duplicate records.

Appendix A: Data Matching Process



Appendix B: Discussions

The following discussions were undertaken with key DCCSDS personnel:

Step	Approach	Outcome
Discussions with Director, Information Services Unit	Obtain understanding of the events that occurred following the identification of student protection reports not received, and an overview of the steps and processes undertaken by DCCSDS throughout the data matching process.	Developed a high level understanding of the various steps and processes undertaken by DCCSDS. Developed a process map (attached in **Appendix A**).
Discussions with Business Analyst, Information Services Unit	Obtain understanding of the data matching process undertaken at the data analytics phase after receiving the population of data and request to identify the exact matches from the Director. Perform spot checks to assess the electronic matching process.	Developed understanding of data analytics process undertaken, as well as details around parameters and rules utilised to undertake analysis. Obtained final summary of results (appended to **Appendix C**) for each month generated by the electronic data matching process.
Discussions with Database Analyst, Information Services Unit	Obtain understanding of the implementation of the database environment and procedures performed to produce the output.	Developed further understanding of the actual steps taken by the Business Analyst and the Database Analyst in running the SQL code to produce the final results of the electronic matching process.
Discussions with Manager, After Hours Services Unit	Obtain understanding of the process undertaken by the Child Safety After Hours Unit and the manual matching process. Perform spot checks to assess the manual matching process.	Developed understanding of the manual matching process and the ultimate outcome of the data matching process.

Appendix C: Reasonable Period of Time

Months	0	1	2	3	4	5	6
List of persons that could not be matched in ICMS	1040	1040	1040	1040	1040	1040	1040
List of persons that were matched in ICMS but had no activity in the period	3401	420	356	337	325	317	310
List of persons that were matched in ICMS and had activity in the period	6425	9406	9470	9489	9501	9509	9516
	10866	10866	10866	10866	10866	10866	10866

Months	0	1	2	3	4	5	6
List of persons that could not be matched in ICMS	0	0	0	0	0	0	0
List of persons that were matched in ICMS but had no activity in the period	1	0	0	0	0	0	0
List of persons that were matched in ICMS and had activity in the period	1	2	2	2	2	2	2
	2	2	2	2	2	2	2