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Performance Audit

Australian Electoral Commission's Procurement of Services for the Conduct of the 2016 Federal Election

[Australian Electoral Commission](#)

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Canberra ACT
22 January 2018

Dear Mr President
Dear Mr Speaker

The Australian National Audit Office has undertaken an independent performance audit in the Australian Electoral Commission titled *Australian Electoral Commission's Procurement of Services for the Conduct of the 2016 Federal Election*. The audit was conducted in accordance with the authority contained in the *Auditor-General Act 1997*. Pursuant to Senate Standing Order 166 relating to the presentation of documents when the Senate is not sitting, I present the report of this audit to the Parliament.

Following its presentation and receipt, the report will be placed on the Australian National Audit Office's website—<http://www.anao.gov.au>.

Yours sincerely



Grant Hehir
Auditor-General

The Honourable the President of the Senate
The Honourable the Speaker of the House of Representatives
Parliament House
Canberra ACT

AUDITING FOR AUSTRALIA

The Auditor-General is head of the Australian National Audit Office (ANAO). The ANAO assists the Auditor-General to carry out his duties under the *Auditor-General Act 1997* to undertake performance audits, financial statement audits and assurance reviews of Commonwealth public sector bodies and to provide independent reports and advice for the Parliament, the Australian Government and the community. The aim is to improve Commonwealth public sector administration and accountability.

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Summary and recommendations

Background

1. The Australian Electoral Commission (AEC) is responsible for conducting federal elections. To assist it to conduct the 2016 federal election, the AEC procured the services of ten organisations under 17 contracts to transport ballot papers and other items at a cost of \$8.7 million. The AEC also procured the services of an ICT supplier for \$27.2 million to develop and deliver a Senate scanning system. This was a semi-automated process for capturing voter preferences from Senate ballot papers for entry into the count, as the previous manual process was no longer considered viable following significant changes to Senate voting provisions in the *Commonwealth Electoral Act 1918* (the Electoral Act).

2. The procurements were undertaken, and the Senate scanning system developed, in a tight timeframe given the changes to the Electoral Act were passed 18 March 2016, the double dissolution election was announced 9 May 2016 and the election was held 2 July 2016.

Audit objective and criteria

3. The objective of this audit was to assess whether the AEC appropriately established and managed the contracts for the transportation of ballot papers and the Senate scanning system for the 2016 federal election. To form a conclusion against the audit objective, the ANAO adopted the following high-level audit criteria:

- Did the procurement processes demonstrably achieve value for money?
- Were key risks to the security and integrity of ballot papers, and of ballot paper data, addressed?
- Did the AEC obtain adequate assurance of the service deliverables and of the effectiveness of risk treatments?

Conclusion

4. In delivering the 2016 federal election the AEC established and managed contracts for the transportation of ballot papers and, in a short timeframe, for a Senate scanning system. Insufficient emphasis was given by the AEC to open and effective competition in its procurement processes as a means of demonstrably achieving value for money. Its contract and risk management was also not consistently to an appropriate standard.

5. The AEC has not demonstrably achieved value for money in its procurement of Senate scanning services. It has not used competitive pressure to drive value nor given due consideration to cost in its procurement decision-making. The AEC sought to encourage competition amongst transport providers but at times struggled to achieve value for money. It would have benefited from additional logistics expertise and transport industry knowledge when establishing and managing transport arrangements.

6. Most contracts with suppliers contained comprehensive security requirements that appropriately reflected the AEC's ballot paper handling policy. The AEC was generally satisfied that the requirements were implemented.

7. The AEC addressed risks to the security and integrity of ballot paper data through the design and testing of the Senate scanning system. The AEC accepted IT security risk above its usual tolerance. Insufficient attention was paid to ensuring the AEC could identify whether the system had been compromised.

8. The Senate scanning and transport suppliers delivered the services as contracted. The AEC had limited insight into whether its contractual and procedural risk treatments were effective. Going forward, the AEC needs to be better able to verify and demonstrate the integrity of its electoral data.

Supporting findings

Demonstrating value for money

9. The AEC procured the services of ten organisations under 17 contracts to transport ballot papers and other items at a cost of \$8.7 million. The AEC also procured the services of an ICT supplier for \$27.2 million to develop and deliver a Senate scanning system.

10. The AEC's procurement processes did not encourage open and effective competition sufficiently.

11. Approval was recorded by the financial delegate for 20 of the 25 procurements examined. On six occasions, costs exceeded the approved amount prior to a new approval being sought.

12. Adequate consideration was given to costs and benefits in the procurement of the transport services. The documentation on the transport procurements outlined how value for money was considered but did not always demonstrate that value for money would be achieved.

13. No consideration of financial cost was evident in the records of the AEC's decision-making to implement the Senate scanning system. Timeliness, quality and risk were taken into account. The documentation on the Senate scanning system procurement indicates that inadequate consideration was given to assessing value for money and did not demonstrate that it was achieved.

Addressing risks to the security and integrity of ballot papers

14. The ten contracts with suppliers procured from the AEC's transport panel contained security requirements that appropriately reflected the AEC's ballot paper handling policy. The seven contracts with suppliers procured from outside the transport panel did not explicitly reflect the AEC requirement that ballot papers not be left unattended. The AEC was generally satisfied that the requirements were implemented but with some room for improved adherence.

15. The contracts for the Senate scanning services contained security requirements that appropriately reflected the AEC's ballot paper handling policy. The AEC verified that the requirements had been implemented.

16. The AEC checked the political activity of suppliers during the procurement process and included political neutrality provisions in each contract. The AEC did not obtain assurance of the

political neutrality of personnel transporting ballot papers. The AEC did obtain assurance of the political neutrality of supplier personnel involved in the Senate scanning system.

Addressing risks to the security and integrity of ballot paper data

17. The primary data generated by the Senate scanning system was XML files containing the voter preferences and whether the vote was formal or informal. A cryptographic digital signature on each XML file protected the data from modification. A secondary output was a digital image of each ballot paper.

18. Risks to the integrity of the ballot paper data were managed through system design and testing. To improve integrity, a late decision was made for all voter preferences to be entered by a human operator in addition to being captured by the technology. Any mismatches between the human's and the technology's interpretation were investigated and resolved. The AEC does not know the number or nature of mismatches to determine if this was a cost-effective risk treatment.

19. A range of IT security risk assessments were undertaken prior to operation. The AEC assessed that one quarter of the applicable Australian Government controls for treating security risks had not been implemented. The contract with the ICT supplier had not required compliance with the Australian Government IT security framework. The security risk situation was accepted by the AEC but was not made sufficiently transparent.

20. The AEC's IT security monitoring during system operation was sufficient to support its conclusion that there was no large-scale intentional tampering of the 2016 Senate election data. It did not have a systemic data and analysis plan or adequate visibility of IT security measures.

21. The ballot paper images were securely migrated to the AEC's repository environment after services were completed. There was a ten month delay in the AEC instructing the ICT supplier to delete electoral data from its environment.

Obtaining assurance

22. Assurance frameworks were in place for the agency and for the Senate scanning system project.

23. The AEC is unaware that any ballot papers were not accounted for. This is a considerably lower level of assurance than its stated performance indicator of accounting for 100 per cent of ballot papers.

24. The AEC relied on the effectiveness of its risk treatments to ensure the integrity of the Senate ballot paper data. It has not undertaken a statistically valid audit to verify or demonstrate data integrity.

25. The contracted transport services achieved the desired results. The AEC had difficulty reconciling invoices received for the services and it was slow in sending ballot papers to the Senate scanning centres.

26. The Senate scanning system was delivered on time and as per contractual requirements. The AEC was not able to demonstrate compliance with all elements of the *Commonwealth Electoral Act 1918*.

27. The AEC's post-election evaluation activities gathered lessons to be learned. These should inform improvements to future electoral events, including the transport of election-related materials and the operation of Senate scanning centres.

Recommendations

Recommendation no. 1

Paragraph 2.30

The Australian Electoral Commission employ openly competitive procurement processes so as to demonstrate value for money outcomes. In those circumstances when competitive procurement processes are not able to be employed, the Australian Electoral Commission document the reasons, appropriately benchmark the quoted fee and record how it was satisfied value for money was being obtained.

Australian Electoral Commission's response: *Agreed with qualification.*

Recommendation no. 2

Paragraph 2.59

The Australian Electoral Commission revise its approach to procuring election-related transport services so as to improve value for money and to provide more efficient access to transport services that meet needs (which can vary between and within States). The approach should be underpinned by logistics expertise and transport industry knowledge.

Australian Electoral Commission's response: *Agreed.*

Recommendation no. 3

Paragraph 4.38

The Australian Electoral Commission take the necessary steps to achieve a high level of compliance with the Australian Government's security framework when information technology systems are employed to assist with the capture and scrutiny of ballot papers for future electoral events.

Australian Electoral Commission's response: *Agreed.*

Recommendation no. 4

Paragraph 5.47

When the Australian Electoral Commission uses computer assisted scrutiny in future federal electoral events, the integrity of the data is verified and the findings of the verification activities are reported.

Australian Electoral Commission's response: *Agreed with qualification.*

Summary of entity responses

28. The proposed audit report was provided to the AEC. Extracts from the proposed report were provided to Fuji Xerox Businessforce (who were contracted by the AEC to develop and deliver a Senate scanning system).

29. Formal responses to the proposed audit report were received from the AEC and Fuji Xerox Businessforce (see Appendix 1). The AEC also provided a summary response, which is below.

AEC summary response

The 2016 federal election was the largest and, in many ways, most complex in the nation's history. The Senate voting changes were the most significant reforms to Australia's electoral system in

30 years. In the extraordinarily short period of three months, and without prior warning, the AEC successfully developed and then implemented a robust, effective, technologically advanced and entirely new system for counting, under high levels of scrutiny, some 15,000,000 Senate votes in multiple locations around Australia.

Further layers of electoral complexity were added by: predictions of a close event (with attendant media and political focus); the election being a double dissolution; the election period following the very recent finalisation of several major boundary redistributions; a shorter than usual timeframe specified for the return of the Writs; the need to develop, test, and deliver a nuanced national education campaign for all voters about the changes; and the election being the first national event since the implementation of the Keelty Report recommendations following the 2013 federal election. Notwithstanding these additional complications, the AEC was keenly aware that failed delivery, non-delivery, or even partial delivery, of the Senate voting reforms would have had catastrophic consequences for Australia's system of governance with both domestic and international implications.

Key learnings for all Australian Government entities

30. Below is a summary of key learnings identified in this audit report that may be considered by other Australian Government entities when establishing and managing contracts.

Procurement

- An open tender should wherever possible be used for significant procurements. Reasons include that an open tender enables an entity to benefit from market developments (including innovation and the emergence of new potential suppliers) as well as maximising competitive pressure. Value for money is, as a result, more likely to be demonstrably obtained.
- A decision to use a panel established by another entity should be informed by an assessment of how long ago the panel was established, whether the other entity's approach to the market (and the resulting contractual arrangements) clearly provided for broader use of the panel, and the extent to which the goods and/or services are covered by the panel arrangements (including prices having already been established).
- Procurement and contract management are a standard business operation in the Australian Public Service. Entities should ensure they have a full understanding of what they are buying, and of the market, in order to generate and evaluate value for money.

Governance and risk management

- When deciding between a manual approach and a technology solution, entities should have a sound understanding of the likely cost and risk of the alternatives.
- To obtain the benefits envisaged from adopting new technology, risks should be identified and mechanisms be put in place to monitor the effectiveness of risk treatments. Entities should allow sufficient time in their system design and implementation processes for security risks to be identified, assessed and addressed.
- It is important that technology solutions be designed to comply with legislative requirements.

Audit findings

1. Background

Introduction

1.1 On 9 May 2016, the Parliament was dissolved and a federal election was announced for 2 July 2016. The 2016 federal election was particularly complex for the Australian Electoral Commission (AEC) to conduct. Reasons included that it was a double dissolution election, more people were enrolled to vote than ever before (15.7 million), polling day fell during the school holidays, there was a shorter than usual period between polling day and the return of the writ, and significant legislative changes (passed 15 weeks before polling day) needed to be communicated and operationalised.

1.2 In the 2013 federal election, 96 per cent of Senate votes were cast by selecting one group only above the line. It was only the preferences expressed below the line that needed to be entered individually into the count system. With the removal of group voting tickets and introduction of optional preferential voting for the 2016 federal election, all Senate ballot papers needed to have their individual preferences entered into the count system. The previous method of manually keying and verifying the preferences was considered unlikely to be viable on this scale. The AEC procured the design and delivery of a semi-automated process for entering voter preferences (referred to in this audit report as the 'Senate scanning system') at a total contract value of \$27.2 million. The process involved 14.4 million Senate ballot papers being scanned, and the 101.5 million voter preferences being captured using optical character recognition technology and then verified by human operators.

1.3 The movement and security of 28.8 million completed ballot papers throughout the election period was a major logistical exercise. To assist, the AEC procured the services of ten suppliers under 17 contracts to transport ballot papers and other items at a cost of \$8.7 million in 2016. The suppliers were primarily involved in the transport of ballot papers from the printers, the transport of declaration votes across States and the transport of Senate ballot papers to the scanning centre established in each capital city.

Relevant inquiries and audits

1.4 In November 2013, the AEC commissioned Mr Mick Keelty AO APM to undertake an inquiry into the circumstances surrounding the loss of 1370 Western Australian Senate ballot papers following the 2013 federal election ('the Keelty report').¹ The Keelty report was publicly released on 6 December 2013 and included 32 findings and recommendations, which were accepted by the AEC.

1.5 Following the loss of the Western Australian ballot papers, the Joint Standing Committee on Electoral Matters requested that ANAO conduct a performance audit on AEC's implementation of recommendations arising from earlier ANAO audit reports. The ANAO conducted three related

¹ *Inquiry into the 2013 WA Senate Election*, report commissioned by the AEC and produced by MJ Keelty AO APM, December 2013.

audits covering the recommendations made in ANAO Audit Report No.28 2009–10.² Ten recommendations were made across the three audit reports.

1.6 Since 1983, it has been the practice of the Joint Standing Committee on Electoral Matters and its predecessors to examine the conduct of each federal election and related matters. The most recent is its 'Inquiry into and report on all aspects of the conduct of the 2016 Federal Election and matters related thereto'.³

Audit approach

1.7 The objective of this audit was to assess whether the Australian Electoral Commission appropriately established and managed the contracts for the transportation of ballot papers and the Senate scanning system for the 2016 federal election.

1.8 To form a conclusion against the audit objective, the ANAO adopted the following high-level criteria:

- Did the procurement processes demonstrably achieve value for money?
- Were key risks to the security and integrity of ballot papers, and of ballot paper data, addressed?
- Did the AEC obtain adequate assurance of the service deliverables and of the effectiveness of risk treatments?

1.9 The audit examined the arrangements from the procurement of the providers through to the completion of the services. The audit team examined AEC records and it engaged with AEC staff and with the ICT supplier that delivered the Senate scanning system. The audit team could not test the Senate scanning system because it had been decommissioned. The transportation of ballot papers by air freight, internationally and by AEC staff was not in the scope of this audit. Nor was the transfer of ballot papers to storage on completion of the election in the scope (this work comprised a small component of an existing records management contract).

1.10 The audit was conducted in accordance with the ANAO Auditing Standards at a cost to the ANAO of \$419 077.

1.11 The team members for this audit were Tracey Bremner, William Na, Erica Sekendy, Hannah Conway, Ashish Bajpai and Brian Boyd.

2 ANAO Audit Report No.31 2013–14, *The Australian Electoral Commission's Storage and Transport of Completed Ballot Papers at the September 2013 Federal General Election*, 8 May 2014; ANAO Audit Report No.4 2014–15, *Second Follow-up Audit into the Australian Electoral Commission's Preparation for and Conduct of Federal Elections*, 5 November 2014; and ANAO Audit Report No.6 2015–16, *Third Follow-up Audit into the Australian Electoral Commission's Preparation for and Conduct of Federal Elections*, 4 November 2015.

3 Information on Joint Standing Committee on Electoral Matters inquiries is available from [www.aph.gov.au/Parliamentary Business/Committees/Joint/Electoral Matters](http://www.aph.gov.au/Parliamentary_Business/Committees/Joint/Electoral_Matters).

2. Demonstrating value for money

Areas examined

The ANAO examined whether the processes undertaken to procure the transport and Senate scanning services demonstrably achieved value for money.

Conclusion

The AEC has not demonstrably achieved value for money in its procurement of Senate scanning services. It has not used competitive pressure to drive value nor given due consideration to cost in its procurement decision-making.

The AEC sought to encourage competition amongst transport providers but at times struggled to achieve value for money. It would have benefited from additional logistics expertise and transport industry knowledge when establishing and managing transport arrangements.

Areas for improvement

The ANAO has recommended that the AEC use open, competitive procurement processes wherever possible so as to demonstrably obtain value for money.

The ANAO has also recommended that the AEC revise its approach to procuring election-related transport services so as to improve value for money and to provide AEC State and Divisional Offices efficient access to transport services that meet their needs. The approach should be underpinned by logistics expertise and a better understanding of how the transport industry operates.

What procurements were undertaken?

The AEC procured the services of ten organisations under 17 contracts to transport ballot papers and other items at a cost of \$8.7 million. The AEC also procured the services of an ICT supplier for \$27.2 million to develop and deliver a Senate scanning system.

2.1 The AEC entered into 17 contracts that included the transportation of ballot papers. The total cost of the transport services requested under these 17 contracts in 2016 was \$8.7 million. The contracts were with nine transport providers and one printing firm (which subcontracted to a transport provider).

2.2 The AEC procured the development and delivery of the 2016 Senate scanning services via an existing Deed of Standing Offer it had with an ICT supplier (Fuji Xerox Businessforce). This involved the AEC signing three Work Orders and five Project Change Requests with a total maximum value of \$27.2 million, as per Table 2.1 below. The total cost of services invoiced was lower at \$27.1 million.

Table 2.1: 2016 Senate scanning services procurements

Date signed by AEC in 2016	Type of agreement	Summary of services procured	Maximum value
24 March	Work Order	Design and develop the Senate scanning system to the point of it being election ready.	\$7 638 661.80
21 April	Project Change Request	Include a digital signature on the XML files containing ballot paper metadata.	\$9 528.75
13 May	Project Change Request	Include a method to allow the AEC to view the XML file for an individual ballot paper.	\$10 890.00
12 June	Project Change Request	Redesign the system so that every ballot paper is viewed by a human.	\$230 230.00
29 June Varied 5 August	Work Order	Deliver the Senate scanning system, then store the data and prepare ballot papers for transport to long-term storage.	\$19 220 000.00
5 July	Project Change Request	Stop end-of-day reports from being purged from the ICT supplier's system.	\$798.60
28 July	Project Change Request	Secure closed-circuit television footage.	\$20 328.00
2 December	Work Order	Migrate the ballot paper images to the AEC's image repository environment.	\$38 661.00
Total			\$27 169 098.15

Source: ANAO analysis of AEC records.

Was open and effective competition encouraged?

The AEC's procurement processes did not encourage open and effective competition sufficiently.

2.3 The *Commonwealth Procurement Rules (CPRs)* state that procurements should encourage competition. They outline that effective competition requires non-discrimination and the use of competitive procurement processes. The Joint Committee of Public Accounts and Audit has outlined that 'Competition in procurement is important for a number of reasons, including the benefits that competitive pressure brings to demonstrating probity and value for money outcomes'.⁴

Procurement of transport services

2.4 In 2015–16 the AEC established a panel arrangement for the provision of mail, freight and courier services for electoral event and business as usual requirements. Each provider selected for the panel signed a Deed of Standing Offer agreeing that, on the issue of a Work Order by the AEC, it would supply the requested services on the terms and conditions set out in the Deed. A contract is formed when the Work Order is issued.

⁴ Joint Committee of Public Accounts and Audit, *Report 465: Commonwealth Procurement*, September 2017, p. 2.

2.5 An open tender was used to select the panel members. The resulting panel of four providers did not have the capacity to fulfil the AEC's transport needs. This was foreseen. It was partially addressed by extending the coverage of some panel members to categories of transport services and/or to States that they had not tendered for. For example, one panel member that had tendered to provide electoral event services in two States was then contracted to service six States/Territories and for business as usual deliveries.

2.6 The intent was that the AEC's State Offices would request quotes from multiple panel members, evaluate the quotes and then issue a Work Order to the provider that offered best value for money. Whilst this approach has the potential to encourage competition between panel members, the actual level of competition generated was limited. The State Offices rarely received multiple quotes in response to their requests.

2.7 Of the 17 contracts entered into for ballot paper deliveries:

- four were with panel members following the receipt of multiple quotes;
- six were with panel members following the receipt of a single quote; and
- seven were with other organisations following an unsuccessful approach to the panel.

2.8 Some of the panel's capacity to securely transport ballot papers had been expended on non-sensitive materials. For example, one of the providers that specialised in the secure transport of fragile and sensitive materials declined to quote to deliver ballot papers because its capacity had been exhausted on delivering cardboard items such as ballot boxes and voting screens. Only three of the four panel members were therefore contracted to transport ballot papers.

2.9 The AEC should be able to generate greater competition for its business, especially for the delivery of non-sensitive materials. The AEC could benefit from tapping into the pool of smaller companies⁵ (such as via a third-party logistics provider) as they may be more attracted to the short bursts of urgent deliveries that characterise an election than were the national providers the AEC had sought to engage. Post-election reviews, and feedback to the AEC from panel members, contained suggestions on how the AEC could make its business more attractive to transport providers and could better harness their capacity and expertise.

Western Australia

2.10 The establishment of the transport panel was in part a response to the recommendations of a 2013 inquiry into the circumstances of 1370 missing ballot papers identified during a recount of Senate votes in Western Australia.⁶ In preparation for the 2016 federal election, the AEC's Western Australian office followed its department's procurement procedures and issued requests for quotes to panel members. No quotes were received in response. One of the panel members advised, 'Unfortunately due to our existing confirmed AEC commitments for the upcoming federal election, we are not in the position to submit a quotation for your request'. The transport services were then procured by varying the contract used in Western Australia for the 2010 and 2013 federal elections to also cover the 2016 federal election.

5 In June 2016 there were 48 805 businesses operating in the road freight transport industry (Australian Bureau of Statistics, Counts of Australian Businesses, including Entries and Exits, cat. no. 8165.0).

6 *Inquiry into the 2013 WA Senate Election*, report commissioned by the AEC and produced by MJ Keilty AO APM, December 2013.

2.11 These circumstances indicate that more needs to be done to ensure State Offices have efficient access to a suite of providers with the capacity and capability to meet the AEC's transport needs, including any State or Division specific requirements.

Procurement of Senate scanning services

2.12 The AEC procured the development and delivery of the 2016 Senate scanning services by seeking a quote from one ICT supplier. To contract that supplier, the AEC varied an existing Deed of Standing Offer and then issued Work Orders and change requests under that Deed.

2.13 The Deed of Standing Offer had been established following an open tender conducted late in 2014 for services described as the 'scanning of certified lists and data analysis' and the 'hosting of certified list page images'. The AEC had estimated the value of these data capture services at \$1.3 million over a four year period.

2.14 The services the AEC then procured from the ICT supplier via the Deed were substantially higher in value and broader in scope than could have been foreseen in 2014 by potential providers. Of note is that within the first two years of the Deed being in place the AEC had procured services relating to:

- certified lists for \$0.6 million;
- postal vote applications for \$2.0 million; and
- Senate scanning services for \$27.2 million (as per Table 2.1).

2.15 The majority of the Senate scanning services fell outside the scope of the existing Deed and the costs were not calculated in accordance with the pricing schedule. Substantial amendments were made to the Deed so as to incorporate the Senate scanning services. The ANAO considers that the AEC had therefore procured the services via limited tender (previously known as 'direct source'). In contrast, the AEC considers the services fell within the scope of the original approach to market in 2014 and, accordingly, publicly reported all the purchases as being by 'open tender'.

2.16 The ANAO's analysis is that the AEC's approach to using this Deed of Standing Offer was inconsistent with the 'encouraging competition' principle set out in the CPRs. Additionally, the AEC's approach came with the risks of over-dependency on a single supplier⁷ and of reducing the ability of other potential suppliers to be competitive in future approaches to market.

Procurement of services for future electoral events

2.17 To assist in the conduct of future electoral events, in 2017 the AEC undertook a procurement for supply chain expertise and a procurement for Senate scanning services. The approaches taken by the AEC were at odds with the principles underpinning the CPRs; they did not encourage open and effective competition and did not demonstrably achieve value for money.

7 The potential consequences of overdependency on an ICT supplier are outlined in the October 2016 *Review of the Events Surrounding the 2016 eCensus*, which recommended that the Australian Bureau of Statistics remove its state of vendor lock-in with IBM. In August 2017, the Australian Bureau of Statistics procured \$6 million of data capture services from the AEC's ICT supplier (Fuji Xerox Businessforce) via limited tender.

Supply chain expertise

2.18 The AEC did not conduct an open tender to procure supply chain expertise in 2017. Instead it approached one supplier, GRA Supply Chain, and engaged it by piggy-backing on the Department of Defence's 'Research, Scientific, Engineering and Other Technical Services' panel arrangement. The reported value of the AEC contract was \$646 800 over the period 16 October 2017 to 30 June 2019.

2.19 When an entity uses a Deed of Standing Offer or contract that was established by another entity, the CPRs state that it must ensure that 'the goods and services being procured are the same as provided for within the contract'. The AEC was therefore required by the CPRs to ensure that the supply chain services were the same as provided for within the panel arrangement established by the Department of Defence. The panel arrangement had been described to potential tenderers as an 'arrangement to provide a broad range of research, scientific, engineering and other technical services to support the Defence Science and Technology Organisation's (DSTO) research and development projects'. The panel arrangement was not clearly applicable to the nature of the supply chain services the AEC was purchasing.

2.20 The AEC's approach was inconsistent with the CPR expectation that procurements 'encourage competition and be non-discriminatory'. The AEC invited only one supplier to quote, notwithstanding that the Department of Defence instructed users to approach at least two panel members for procurements valued at over \$80 000 and that there were 110 panel members. The business case documenting the basis for the procurement method outlined the reasons the AEC should engage GRA Supply Chain to provide the services; it did not contain any reference to the options of open tendering or approaching multiple panel members. That is, it advocated for the AEC's preferred approach and supplier without canvassing the merits of alternatives that would have involved greater competition.

2.21 The AEC has procured services from GRA Supply Chain on six occasions (being five contracts plus a substantial contract variation) for a total of \$4.4 million between 2014 and 2017 without going to open tender or otherwise applying competitive pressure.

Future Senate scanning services

2.22 The AEC also did not conduct an open tender to procure Senate scanning services for future electoral events. The AEC documented in May 2017 that an open tender was 'not considered a feasible option' because the time involved 'would likely lead to a solution not being in place prior to the 30 June 2018 [election ready target date]'.

2.23 Instead the AEC issued a request for quote to each of the four suppliers on an Australian Tax Office (ATO) panel for 'capture and digital information services'—one of which was the ICT supplier used for the 2016 federal election and another was its parent company. Notwithstanding the AEC rejected the option of approaching the open market on the basis of the time involved, the

AEC gave the suppliers 36 days to respond which is in excess of the 25 day minimum specified by the CPRs for an open tender.⁸

2.24 While the nature of some of the services for the ATO panel was similar to the Senate scanning, overall it is very ATO specific.⁹ It would not have been foreseeable to potential tenderers for the ATO's panel in 2013 that the AEC would use it in 2017 for such a significant, bespoke purchase.

2.25 Local and international organisations that may have been interested in the opportunity to provide scanning services to the AEC were denied the opportunity to compete for the AEC work in 2017 as a result of not being a successful participant in the tender conducted in 2013 by the ATO for a predominately different purpose. These suppliers also did not have the opportunity to approach members of the ATO panel to form partnerships for the AEC work because the AEC's request for quote process was kept confidential.

2.26 The prices sought by the ATO as part of its request for tender were reflected in various price tables in the Deed of Standing Offer. The AEC did not use this pricing when estimating the value of its procurement, assessing the prices offered for the Senate scanning services or in evaluating value for money.

2.27 At the time of writing this audit report the procurement was in contract negotiation phase and so it was not appropriate to include details of the quote/s received or of the AEC's consideration of the quote/s. ANAO analysis of the records is that the risks to value for money associated with employing approaches that reduced competitive pressure in both the 2016 and the 2017 procurements were realised. The AEC records did not contain an adequate justification for not conducting an open tender and did not demonstrate that value for money will be obtained.

Future investments in modernisation

2.28 Funds permitting, the AEC is likely to undertake further procurements of significance in the short to medium term, including for ICT goods and services. The Joint Standing Committee on Electoral Matters recommended in June 2017 that:

... the Australian Government consider additional funding for the Australian Electoral Commission to invest in modernisation for future federal elections, including:

- Planning and expert advice on upgrading the AEC's information technology and business systems.

8 In specified circumstances the CPRs also allow entities to establish a time limit that is less than 25 days for potential suppliers to lodge submissions/tenders, such as where the entity has published details of the procurement in an annual procurement plan on AusTender. The AEC had not published details of its proposed procurement of scanning services on AusTender.

9 The 'description of the services' for potential tenderers included that 'At a high level, the services include; receipt of forms, Correspondence and Cheques; opening and pre-processing of the received Work Types; processing of Cheques; capture of image and information from paper based Work Types to electronic format according to ATO specifications; actioning Rules Based Exceptions; provision of Data File(s) and images in ATO specified formats; storage of paper and transmission of electronic information; retrieval and re-processing of paper on request; retaining data in accordance with data retention requirements, and processing returned unclaimed Mail and Correspondence.'

- Additional training for temporary staff who are likely to remain engaged over multiple elections.
- The deployment of additional electronic certified lists at polling stations.
- A trial to test the scanning and electronic counting of House of Representatives ballot papers.¹⁰

2.29 Given the AEC's repeated preference to use panel arrangements for major procurements instead of open tenders, it should reflect on the findings of the Australian Government ICT Procurement Taskforce. The Taskforce consulted widely with ICT businesses and industry associations. In August 2017 it recommended reforms to ICT procurement panel arrangements, which were accepted by the Australian Government, and reported:

Industry stakeholders noted that agencies often try to avoid complex procurement rules by defaulting to panels rather than exploring the market for newer smaller suppliers. Industry believes that this leads to the same suppliers being selected for contracts and can consequently exclude newer businesses from government procurement. Additionally, to save time and administrative costs, many panels are not refreshed regularly by agencies. In some cases, panels have not been refreshed in more than five years, and about one third of the 40 identified ICT panels have only a single vendor. This means that newer suppliers and solutions are potentially locked out of government ICT procurement.¹¹

Recommendation no.1

2.30 The Australian Electoral Commission employ openly competitive procurement processes so as to demonstrate value for money outcomes. In those circumstances when competitive procurement processes are not able to be employed, the Australian Electoral Commission document the reasons, appropriately benchmark the quoted fee and record how it was satisfied value for money was being obtained.

Entity response: *Agreed with qualification.*

2.31 The AEC is committed to continuous improvement in procurement and contract management processes. The AEC has already implemented measures to promote best practice procurement and contract management across the Agency, including establishing the AEC Procurement Network and strengthening the AEC's procurement planning framework. The AEC will enhance guidance for AEC procurement officials on conducting and recording value for money assessments. In order to manage agency delivery risk, the AEC will continue to assess the different procurement options available.

10 Joint Standing Committee on Electoral Matters, *Third interim report on the inquiry into the conduct of the 2016 federal election: AEC modernisation*, June 2017, Recommendation 2, paragraph 3.55.

11 Digital Transformation Agency, *Report of the ICT Procurement Taskforce*, August 2017, Recommendation 8 and p. 25.

Were financial approvals recorded?

Approval was recorded by the financial delegate for 20 of the 25 procurements examined. On six occasions, costs exceeded the approved amount prior to a new approval being sought.

2.32 The AEC's Accountable Authority Instruction (AAI) on procurement, which is binding on officials in the entity, stated that 'AEC Officials must submit a spending proposal to an appropriately authorised AEC Financial Delegate and receive their approval prior to entering into an arrangement for goods or services'. Reflecting the requirements of section 18 of the *Public Governance, Performance and Accountability Rule 2014* (PGPA Rules), the AAI also stated that 'AEC Financial Delegates must record the spending proposal approval in writing as soon as practical after giving it'.

2.33 Before each of the 17 transport contracts were signed, a spending proposal was submitted to a financial delegate and their approval recorded. Where services were predicted to exceed an approved amount, then a new approval was required in advance. On five occasions, transport costs were incurred prior to a new approval being sought and recorded.

2.34 Before each of the three Work Orders for the Senate scanning system were signed, a spending proposal was submitted to a financial delegate and their approval recorded. On no occasion did the delegate record the amount of money approved, although the amount requested for approval was included in the procurement records.

2.35 The Work Order for the system's delivery phase was initially capped at \$17.6 million but was subsequently increased to \$19.2 million, primarily due to data-entry operators needing to work more night and weekend shifts than originally planned. The ICT supplier submitted regular financial reports to the AEC tracking actual and projected costs. Approval for the increase was obtained a week after actual costs exceeded the initial cap, notwithstanding that the supplier had requested in advance that approval be provided as it was evident that the cap would be exceeded.

2.36 A spending proposal was not submitted to a financial delegate before each of the five Project Change Requests were signed for a total of \$271 775 and a written record of the approval was not made. This was non-compliant with the AEC's AAI and with section 18 of the PGPA Rules.

Accountable Authority Instructions (AAIs)

2.37 The AEC's AAI on procurement was inadequate. It made reference to a small minority of the core requirements of the *Public Governance, Performance and Accountability Act 2013* (PGPA Act), PGPA Rules and the CPRs. For example, there was no reference in the suite of AEC AAIs to the core requirements that approving officials must ensure that the commitment of money will be a proper use of public resources and must not act inconsistently with any relevant policies of the Australian Government.

2.38 The AEC advised the ANAO that it has since updated its AAIs based on the Department of Finance model AAIs and made them available to officials from November 2017.

Were costs and benefits adequately considered in procurement decision-making?

Adequate consideration was given to costs and benefits in the procurement of the transport services.

No consideration of financial cost was evident in the records of the AEC's decision-making to implement the Senate scanning system. Timeliness, quality and risk were taken into account.

2.39 The CPRs state that an official must consider the relevant financial and non-financial costs and benefits of each submission when conducting a procurement.

Considerations when procuring transport services

2.40 When procuring transport services, the AEC gave due consideration to the relevant costs and benefits. This included the fitness for purpose of the proposals and the potential providers' relevant experience and performance history. The focus was on finding a transport provider with the capacity and capability to fulfil the delivery schedule and to meet ad hoc demands. When multiple quotes were received, cost was an influential factor in choosing between suitable providers.

2.41 Accurate quoting of costs is dependent on accurate information about the freight route, volume and weight, and on the required urgency and security of the deliveries. Some AEC officers would have benefited from additional expertise in requesting and interpreting quotes for transport-specific services. For example, one of the AEC State Offices inadvertently sent out a request for quote that added up to around half the volume of ballot papers intended and then it miscalculated the quotes received. The deliveries ended up costing six times the amount initially calculated and approved.¹²

Considerations when procuring the Senate scanning system

2.42 The AEC obtained a quote from the ICT supplier prior to issuing the \$7.6 million Work Order to design and develop a Senate scanning system to the point of it being election ready. The AEC records did not contain an analysis of the quoted cost.

2.43 The delivery date for an election-ready system was 10 June 2016. The Senate scanning system was also described as the semi-automated solution for entering voter preferences from ballot papers into the count. In the lead up to 10 June, the AEC separately designed and tested a manual data-entry solution for entering voter preferences.

2.44 On 13 June 2016 the AEC's executive met to decide whether to implement the semi-automated solution or the manual data-entry solution. A report on the two solutions was provided to inform their considerations and it covered the non-financial costs and benefits in detail. The report's key focal points were: 'achievability; integrity of Ballot Papers and associated

12 Specifically, in this instance the AEC State Office approved \$37 600 to deliver ballot papers from the printer to 29 locations within its State and these services cost \$224 809. To put this cost in context, it was similar to the \$223 983 quoted by a different provider to pick up all of the ballot papers produced for the 2016 federal election from 97 locations across Australia and deliver them to storage on completion of the election.

preference/vote data; and timeliness of Writ return'. The decision taken was to implement the semi-automated solution nationally.

2.45 The records contained no indication that financial costs were considered. The 31 page report did not contain a cost estimate for either solution or contain any other reference to cost. The minutes of the meeting did not refer to cost. The formal record of the decision taken by the AEC, and of the reasons for that decision, similarly did not refer to cost. At the time the options were considered and the decision was taken, the AEC did not have a current cost estimate for the semi-automated solution and so it was not in a position to properly consider costs.¹³

2.46 The ICT supplier was advised on 13 June 2016 that the AEC had decided to implement its semi-automated solution. The following day the AEC sought a cost estimate from the ICT supplier and on 15 June 2016 further explained that 'We're looking to verify what the ball-park total figures may be'. The ANAO considers that this sequencing of events placed the AEC in a vulnerable negotiating position. The cost estimate submitted by the ICT supplier predominantly drew on previously proposed rates.

2.47 While it is recognised that timeliness, quality and risk were the priority factors, the lack of evidence that the AEC factored cost into its procurement decision-making is not consistent with an accountable authority's duty to promote the proper use and management of the public resources for which it is responsible (section 15 of the PGPA Act).

Was documentation maintained on how value for money was considered and achieved?

The documentation on the transport procurements outlined how value for money was considered but did not always demonstrate that value for money would be achieved. The documentation on the Senate scanning system procurement indicates that inadequate consideration was given to assessing value for money and did not demonstrate that it was achieved.

2.48 The CPRs stated that officials must maintain a level of documentation commensurate with the scale, scope and risk of each procurement. The documentation should provide accurate and concise information on how value for money was considered and achieved. It must be retained in accordance with the *Archives Act 1983*.

2.49 The AEC's internal procedures required that relevant records of procurement processes be filed, including on value for money and quote/tender evaluations. Procurements over \$10 000 were also to be entered into the AEC's Procurement and Contract Management Register. The register contains an 'Evaluation and Value for Money Assessment' field, described to users as 'a free text field where you will need to explain your reasons for selecting the preferred supplier and how value for money has been determined'. Procurements at or above \$80 000 were to have a quote/tender evaluation plan that set out, amongst other things, the basis for assessing best overall value for money.

¹³ The AEC had an outdated quote in a Statement of Works dated March 2016. The works had been revised since then. Most significantly, the AEC had added the requirement that all ballot papers be reviewed by a human and this alone increased the estimated cost of delivery by \$6.6 million.

Procurement of transport services

2.50 The records of the procurement of transport services outlined how quotes were evaluated and value for money assessed by the State Offices. The records were commensurate with the scale, scope and risk of the procurements. Details of all 17 procurements were in the AEC's register, with separate evaluation reports or file notes provided for 14 of these.

2.51 The records did not always demonstrate that value for money would be achieved. On nine occasions the recorded reasons for accepting a quote as value for money relied heavily on it being from the sole provider and/or from a panel member. While such reasons do not demonstrate a sufficient assessment of value for money, the evaluation records read as a whole suggest that AEC officers were at times challenged and frustrated rather than dismissive of their obligation to demonstrate value for money. As one recorded, 'It is difficult to assess whether the estimated costs provided in [the] response would be comparable with other providers, as no other panel member provided a response'.

Consideration of value for money when establishing the transport panel

2.52 The records relating to seven of the ten contracts entered into with panel providers indicated that the AEC relied upon the providers' rates having already been assessed as value for money when the panel was established. That assessment was not robust. For example, the tender evaluation report stated 'If a Tenderer provided the sole submission for a Service in a Jurisdiction, the Team assumed, on advice of the Financial Management section, that the price was commercially competitive'.

2.53 Tenderers had been requested to input pricing information into a template. This template was flawed and did not align with industry practice. For example, it did not include a separation between secure freight costs and non-secure freight costs. The template did not cater for the provision of the typically cheaper 'back load' rates, instead seeking pricing for deliveries in one direction only.

2.54 The flaws in the template became evident when the AEC attempted to evaluate pricing across tenders. The evaluation team noted that 'each provider had different pricing structures' and that, 'short of the AEC going back and stipulating the pricing structures, [AEC's] finance advises that they each represent value for money in different scenarios.'

2.55 There was no advice to users of the resulting transport panel as to which providers represented value for money in which scenarios. For example, it was not communicated to users that the tender evaluation had concluded that one of the panel members 'did not offer value for money for urgent and small courier deliveries'. This provider was then engaged for small courier deliveries, such as the delivery of a single item to a location nine minutes away for \$1001.

Need for additional logistics expertise

2.56 The transport panel arrangement was established and managed centrally by a generalist procurement team. Prior to its establishment, each State Office provided detailed input on their transport needs and challenges. It is evident from that input that the State Offices hold a vast amount of jurisdiction-specific knowledge and that some Divisions within jurisdictions have unique requirements. But this input became diluted in the final product. The panel achieved the aim of national consistency of contractual terms and conditions but this did not need to come at the cost of State-specific requirements. The final product also did not reflect transport industry

standard practices sufficiently. The tender process was well managed and the procurement team provided the AEC sound advice on procedures and on the drafting and management of contracts. The gap was specialist logistics expertise and transport industry knowledge.

2.57 One of the larger States addressed this gap by arranging for a staff member from their contracted transport supplier to be embedded in the AEC State Office during the election period. The staff member provided two key services: logistics advice, planning services and related information; and the ability to quickly solve identified issues and initiate a rapid response from the provider's transport network when issues arose. This arrangement has been described by the AEC as a 'crucial element' and 'of significant benefit to the successful service delivery'. The cost of embedding this staff member equated to less than one per cent of the value of that State's contracts with the provider.

2.58 From ANAO examination of a sample of the invoices paid by the AEC, it appears that the potential for improving value for money would likely offset the cost of engaging additional expertise in future elections. Examples of where expertise on transport pricing and scheduling may have been beneficial include:

- the transport of ballot papers (six consignments) from an airport to a location 20 minutes away cost \$15 278;
- the transport of ballot papers from a capital city to ten locations within the State cost \$351 119 (the subsequent return of ballot papers from those ten locations to the capital city by the AEC's records-storage contractor cost \$7830);
- the transport of one carton of unspecified materials from a capital city to a location four and a half hours away cost \$3236 (the subsequent transport of 45 cartons of ballot papers back to the capital city by the records-storage contractor cost \$1513, which was 47 per cent of the cost for 45 times the volume); and
- five 'client changed mind' charges totalling \$1901, nine 'unable to access' charges totalling \$3725 and four 'delayed uplift requested' charges totalling \$2041 on one invoice.

Recommendation no.2

2.59 The Australian Electoral Commission revise its approach to procuring election-related transport services so as to improve value for money and to provide more efficient access to transport services that meet needs (which can vary between and within States). The approach should be underpinned by logistics expertise and transport industry knowledge.

Entity response: *Agreed.*

2.60 Following the 2016 Federal Election, the AEC revised its approach to procuring election-related logistics services. The AEC has conducted a national procurement for freight and logistics services which has been informed by market research and industry experts. It is anticipated that this national procurement approach will deliver increased value for money outcomes for the AEC and meet the AEC's business requirements. To support this approach the AEC has increased internal capability through the establishment of a Supply Chain team, this team will be responsible for implementing the new contracting arrangements and ensuring efficient access to logistics services.

Procurement of the Senate scanning system

2.61 It was not apparent from AEC records that value for money was adequately considered or achieved in the procurement of the Senate scanning system. The extent of the value for money assessment and associated record-keeping was not commensurate with the scale, scope and risk of the procurements. Six of the eight agreements exceeded \$10 000 but only the three Work Orders appeared in the AEC's Procurement and Contract Management Register. Three of the eight agreements with the ICT supplier exceeded \$80 000 but no quote evaluation plan or report was produced.

System design phase

2.62 The record of the value for money assessment of the \$7.6 million to design and develop the Senate scanning system was as follows:

Value for money has been established by comparison with our alternative manual entry, expected to cost around \$18–30 million nationally, and by the lower risk using a scanning provider we have an existing relationship and established infrastructure and previously evaluated value for money.

2.63 The AEC's reference to the 'previously evaluated value for money' (above) was of limited relevance to assessing the value for money of the Senate scanning services. The costings were not based on the fee schedule established through the open tender process that had been previously evaluated.

2.64 The full cost of the manual-entry solution was not a useful benchmark for determining whether the design cost of the semi-automated solution represented value for money. At that time the AEC did not know which solution it would choose or whether the semi-automated solution would work. Further, the broadness of the estimate given for the manual-entry solution—'around \$18-30 million'—indicates that it was not a robust benchmark.

2.65 The AEC needed to assess the value of spending \$7.6 million designing a system that it may not implement. The AEC did not own the intellectual or physical property that would result from this expenditure. The price included a \$4.1 million contribution to 'project infrastructure and equipment' and the AEC did not include an asset clause in the contract nor otherwise put in place a mechanism for ensuring it would benefit from this expenditure in any future purchases of data capture services from this supplier.

System delivery phase

2.66 The record of the AEC's value for money assessment of the \$17.6 million initially approved for the delivery phase was as follows:

The provider is contracted to the AEC to provide scanning and data capture services and has implemented a solution to process Senate ballot papers ... that has been tested and accepted by the AEC. In addition, [the provider has] met the AEC's requirements in proving readiness to deliver the solution for the 2016 Federal Election, and in accordance with the AEC's integrity and security requirements.

In comparison with alternative solutions (specifically an expansion of the previously used EasyCount manual data entry solution), the ... scanning solution provides the best value for money in that it best meets requirements and presents lower cost and risk.

2.67 Again value for money was determined by comparison with the AEC's manual-entry solution as a whole.

2.68 Half of the cost to deliver the Senate scanning system was attributed to 'manual validation/data entry'. The AEC did not benchmark the hourly rates proposed for the data entry operators to those recently offered to the AEC by a labour hire firm so as to be assured it was obtaining value for money. The hourly rates offered the AEC by the labour hire firm were considerably lower.¹⁴ The AEC advised the ANAO that 'Time pressures in delivery of the project did not permit for benchmarking of rates to take place'.

Procurement of future Senate scanning services

2.69 In its 2017 procurement of Senate scanning services for future electoral events, the AEC did not benchmark the proposed rates against those offered by other suppliers for similar services notwithstanding that time permitted. Value for money was determined by comparison with the estimated total cost of alternative methods, being manual-entry or the establishment of a scanning centre within the AEC.

Record keeping

2.70 The record keeping issues observed during the course of this audit extended beyond the inadequate documentation of value for money. Record keeping for the procurement and management of the 2016 Senate scanning services was not consistent with the requirements of the CPRs or the *Archives Act 1983*.

2.71 The AEC had a print-to-paper records management system. Yet very few records were maintained on a paper-based registry file. Nor were the electronic records saved in a single location. They were distributed throughout shared drives, a GovDex site, the Procurement and Contract Management Register, a mail register and in personal emails. Such systems do not contain appropriate records management functionality. It took considerable resources to locate the relevant records for this audit. To fulfil an ANAO request for some of the core procurement documents, the AEC asked its contracted ICT supplier for them.

2.72 To see if the above shortcomings were widespread, the ANAO examined the records of four other procurements undertaken by the AEC's National Office for election-related services. The issues identified are outlined below:

- \$53 403 procurement: delegate approval poorly documented and for less than the contract value; contract was issued after the services were provided and did not detail the services; non-compliant with the reporting requirements;
- \$154 789 procurement: no contract was issued by the AEC to the provider; delegate's verbal approval not documented; quotes and new approvals not obtained prior to requesting additional deliveries; non-compliant with the reporting requirements;

14 The AEC had obtained pricing for the provision of data entry operators in case it needed to implement the alternative option of manually entering voter preferences into the count system. ANAO analysis of the records indicates that the AEC paid more than twice the hourly rate for data entry operators under the semi-automated solution than the AEC had costed for its manual data-entry solution. This difference was not explained in the records.

- \$1.2 million procurement: contract issued after \$0.5 million in services were provided; non-compliant with the reporting requirements; and
- \$1.4 million procurement: no reference to value for money; contract not in the AEC's register; non-compliant with the reporting requirements.

During 2017 the AEC has been procuring an electronic document and records management system to replace its paper-based system. The move is consistent with the Australian Government's Digital Transition Policy of 2011. It will not solve the AEC's record-keeping shortcomings unless it is accompanied by a change in culture.

3. Addressing risks to the security and integrity of ballot papers

Areas examined

The ANAO examined whether risks to the security and integrity of ballot papers in the custody of transport and Senate scanning system suppliers were appropriately addressed by the AEC.

Conclusion

Most contracts with suppliers contained comprehensive security requirements that appropriately reflected the AEC's ballot paper handling policy. The AEC was generally satisfied that the requirements were implemented.

Did the contracts with transport providers contain appropriate security requirements for ballot papers?

The ten contracts with suppliers procured from the AEC's transport panel contained security requirements that appropriately reflected the AEC's ballot paper handling policy. The seven contracts with suppliers procured from outside the transport panel did not explicitly reflect the AEC requirement that ballot papers not be left unattended. The AEC was generally satisfied that the requirements were implemented but with some room for improved adherence.

3.1 The risk of loss or misplacement of ballot papers was realised in the 2013 federal election in Western Australia, and had also been realised in earlier elections (although the number of ballot papers that had gone missing had not previously been large enough to affect the result). Risks to the physical security of ballot papers have also been identified by independent inquiries. ANAO audit reports in 2010 and 2014 made recommendations aimed at improving the security arrangements for the storage and transport of ballot papers. The 2013 inquiry into the circumstances of 1370 missing Western Australia ballot papers (the 'Keelty report') made 13 recommendations around ballot paper handling, which included the transport and security of completed ballot papers.

3.2 In the lead up to the 2016 election, the AEC established ballot paper principles that reflected a recommendation in the Keelty report to adopt a doctrine emphasising the security and sanctity of ballot papers. The principles were that:

1. All ballot papers remain 'live' from printing through to statutorily authorised destruction.
2. The security, integrity and accountability of ballot papers must be preserved at all times—including transit and storage by the AEC, contractors or other third parties.

3.3 The AEC also released a revised ballot paper handling policy in May 2016 with the aim to 'know, at all times, that all ballot papers in its control are safe, secure and accounted for'.

Contracts for transport services

3.4 When the AEC gives a third-party custody of ballot papers it is important that AEC handling requirements are clearly communicated and are enforced under the contract. This is to help

ensure the security of ballot papers (that they are not lost or stolen) and the integrity of ballot papers (that they are not tampered with).

3.5 An ANAO audit of the 2013 election had identified that seven of the eight AEC transport contracts examined did not include appropriate provisions promoting secure handling and movement of election material. ANAO analysis of transport contracts entered into for the 2016 federal election identified an improved approach.

3.6 For the 2016 federal election, the ten contracts with the three providers engaged under the transport panel arrangement included security requirements consistent with the AEC's ballot paper handling policy.

3.7 The contracts with the seven non-panel suppliers contained fewer security measures. Of note was that all seven contracts had provisions that reflected AEC policy for enclosed, secure vehicles and a 'track and trace' facility. These contracts should also have explicitly set out the AEC's requirement that ballot papers not be left unattended at any time.

Tracking of ballot papers in transit

3.8 The AEC intended to use the transport providers' 'track and trace' facilities to help monitor the movement of election materials down to box or parcel level. The AEC's ballot paper handling policy specified tracking to parcel level but the wording in the contracts did not make this clear. Some transport providers did not have a facility that complied with AEC expectations, including two of the four suppliers on its transport panel. AEC's post-election observations identified the need for clarification about the facility to ensure consistency with AEC policy and security requirements. Feedback to the AEC from one of the providers included, 'Track and trace to parcel level isn't really feasible, per pallet consignment is okay'.

3.9 The AEC had an online portal called CeDaRS to track the movement of Senate ballot papers between AEC-operated premises and the eight Senate scanning centres. The AEC entered the delivery details and the consignment number issued by the transport provider into its CeDaRS system when a container was ready for dispatch. AEC officials at the Senate scanning centres then updated the record in CeDaRS on receipt of each transport container and resolved any apparent discrepancies. This process was additional to the ICT supplier's tracking system, which is outlined at paragraph 3.17 below.

Implementation of the security requirements

3.10 The AEC conducted a post-election survey of contract managers. It included the following question in respect of transport panel providers: 'Were you satisfied that the Supplier met the AEC's security requirements in delivering the goods/services during the 2016 Federal Election?' Eight of the twelve responses received stated 'Yes'. Of the four that indicated they were dissatisfied, the reasons provided did not reference security incidents involving ballot papers. Other AEC records supported that contract managers were generally satisfied with some room for improving adherence to security requirements by transport providers and their sub-contractors.

Did the contracts with the ICT supplier contain appropriate security requirements for ballot papers?

The contracts for the Senate scanning services contained security requirements that appropriately reflected the AEC's ballot paper handling policy. The AEC verified that the requirements had been implemented.

3.11 The introduction of a Senate scanning system was complex and created significant logistical and security challenges. In total, 14.4 million Senate ballot papers were sent to eight centres across Australia for scanning and verification. In New South Wales alone, 4.5 million ballot papers were brought to one facility—an exercise described by the AEC as the 'largest collection of federal ballot papers in Australia's history'.¹⁵

3.12 After polling day, completed Senate ballot papers were progressively dispatched to a scanning centre in the capital city of each state and territory. More than 34 000 transport containers were dispatched. Custody of the Senate ballot papers was transferred to the ICT supplier at the time each transport container was received at each scanning centre.

Contract for Senate scanning system

3.13 The eight Senate scanning centres were owned or leased by the ICT supplier. The AEC contracts specified a number of physical and operational controls to address the risk of loss, damage or unauthorised access to ballot papers at scanning centres. Physical controls included alarm systems, 24 hour on-site security guard patrols and closed-circuit television coverage. Procedural controls included that transport containers could only be opened, and ballot papers could only be scanned, in the presence of at least two personnel to help ensure they were not tampered with. The provisions appropriately reflected AEC policy for ballot paper handling and storage, including the requirement for 'ballot paper secure zones'.

3.14 All scanning centres were required to have segregated, secure work and storage zones that were only accessible to authorised personnel. Transport containers could only be opened in secure work zones. Site set-up and procedures were consistent with the Keelty report recommendations that the AEC:

- 'institutes a concept of 'ballot secure zones' at all premises where 'live' ballot papers are handled or stored (including fresh scrutiny centres and non-AEC premises)'; and
- 'ensures all ballot secure zones are cleared before the arrival of 'live' ballot papers, and that they remain secured and 'sterile' at all times when ballots are present'.¹⁶

Implementation of security requirements

3.15 The AEC undertook site inspections prior to scanning system operation to assess compliance. ANAO analysis of AEC records indicates that the inspections were comprehensive and that the security controls were assessed as having met contractual requirements. During system

15 AEC Submission to the Joint Standing Committee on Electoral Matters' 'Inquiry into and report on all aspects of the conduct of the 2016 Federal Election and matters related thereto', submission no. 66, p. 2.

16 *Inquiry into the 2013 WA Senate Election*, report commissioned by the AEC and produced by MJ Keelty AO APM, December 2013, recommendations 10 and 11.

operation, AEC officials on-site helped ensure adherence to security procedures. A post-implementation review, jointly undertaken by the AEC and its ICT supplier, reported positively on ballot paper handling and physical security at the scanning centres and reported that security staff had enforced requirements.

Tracking of ballot papers at scanning centres

3.16 An internal report of June 2016 to the AEC executive recommending the semi-automated system over the manual system stated that 'integrity is improved for [a semi-automated system] as on every [scanning centre] site the AEC will always know where a ballot paper is'. The recommendation to proceed with the system was based in part on the implementation of 'a continual and trackable chain of custody for the ballot papers'.

3.17 The contract required that the ICT supplier track all ballot papers as they progressed through the scanning centre. This requirement was met. If a particular ballot paper needed to be retrieved, then the ICT supplier was able to locate it. The key controls implemented were as follows:

- the AEC bundled the ballot papers into batches of up to 50 papers and attached a coversheet with a unique barcode to each batch;
- the AEC placed up to ten batches into each transport container, sealed it and attached a unique barcode. A spare copy of the transport container label was included inside;
- the ICT supplier scanned the barcode on each transport container as it was received at the scanning centre. The location of each transport container on-site was tracked using the ICT supplier's digital tracking software;
- the ICT supplier scanned the coversheet of each batch at the time the ballot papers in that batch were scanned;
- each ballot paper was assigned a unique identifier in the system at the time it was scanned (legislation restricts placing an identifier on the ballot paper itself); and
- the identifier of the ballot paper was linked to the identifier of the batch, which was linked to the identifier of the transport container, which was tracked throughout.

Figure 3.1: Tracking and storage of ballot papers at Senate scanning centres

Source: AEC records.

Was assurance of the political neutrality of suppliers and suppliers' personnel obtained?

The AEC checked the political activity of suppliers during the procurement process and included political neutrality provisions in each contract. The AEC did not obtain assurance of the political neutrality of personnel transporting ballot papers. The AEC did obtain assurance of the political neutrality of supplier personnel involved in the Senate scanning system.

3.18 Obtaining assurance as to the political neutrality of suppliers and of supplier personnel helps address actual or perceived risks to the security and integrity of the ballot papers in their custody. Further, the AEC operates in a politically sensitive environment. Any employee, contractor or supplier to the AEC who is, and is seen to be, active in political affairs and intends to publicly carry on that activity may compromise the strict political neutrality of the AEC.

Political neutrality of suppliers

3.19 The AEC procurement procedures set out the process to be used to gain assurance of the political neutrality of potential suppliers.¹⁷ Consistent with these procedures, the political activity of the transport providers and the Senate scanning supplier over the preceding three year period was checked by the AEC using the funding and disclosure receipt information it holds. The results

¹⁷ The AEC's internal procurement procedures set out the political neutrality requirements for suppliers, including labour hire personnel provided to the AEC through a contracted agency (that is, where no employment relationship exists). The policy that applies to all AEC employees is set out in *Political Neutrality in the AEC*, which is published on the AEC's website. It states that the policy may also be extended to include contractors via the terms of the contract that governs their service.

were presented to the financial delegates for consideration and, in each case, stated that no political activities had been identified.

3.20 The AEC procurement procedures also state that, 'During the contracting process, AEC Officials must ensure that the supplier or contractor signs and returns a Deed Poll, which incorporates the AEC's political neutrality requirements ... Signed Deed Polls must be attached to the relevant Spending Proposal together with the signed contract'. A Deed Poll signed by the scanning supplier was attached to the spending proposal in the AEC's Procurement and Contract Management Register as required.

3.21 There were no Deed Polls signed by transport providers identified on the AEC's register. The AEC provided the ANAO a copy of a Deed Poll signed in 2014 by the off-panel provider used in Western Australia and it contained assurances as to political neutrality. The AEC also provided copies of 'Tenderer Declaration' Deed Polls signed by each of the four panel members at the time they submitted their tenders in 2015. These Deeds included a sub-heading 'Political neutrality and Conflict of Interest' but did not otherwise contain the term 'political neutrality'.

3.22 The terms of the contracts entered into with the scanning and transport suppliers reflected the AEC's political neutrality policy. For example, in addition to other relevant clauses, the contracts with transport panel providers stated that 'the Service Provider must: (a) respect the strict political neutrality of the AEC; and (b) not associate the AEC in any way with any political activity that they undertake'.

Political neutrality of supplier personnel

3.23 The Keelty report found that 'despite the existence of a relevant provision in the contract, the WA office did not ask the contractor to enquire as to the political neutrality of all persons under its control who were responsible for the transport of components (ballots, parcels, boxes and pallets).' The report recommended that 'the AEC should continue to assure itself, to the best of its ability, of the political neutrality of all persons, including subcontractors, having contact with a ballot paper (other than electors at the time of voting)'.¹⁸ The AEC agreed to the recommendation and advised Parliament that implementation was completed for the 2016 election.¹⁹

3.24 The relevant provisions in the contracts for scanning and transport services for the 2016 federal election included that 'Where the Service Provider supplies Service Provider Personnel to provide any of the Services, the AEC in its absolute discretion may: (a) require the Service Provider to ensure that those Service Provider Personnel sign a declaration of political neutrality substantially in the form set out in Schedule 7...'

3.25 Specified personnel of the Senate scanning supplier signed declarations of political neutrality.

18 *Inquiry into the 2013 WA Senate Election*, report commissioned by the AEC and produced by MJ Keelty AO APM, December 2013, see p. 15 and Recommendation 27 on p. 30.

19 Submission 66, supplementary submission 8, to the Joint Standing Committee on Electoral Matters' inquiry into and report on all aspects of the conduct of the 2016 Federal Election and matters related thereto, p. 14.

3.26 AEC policy was not to require that personnel transporting ballot papers sign a declaration of political neutrality. Accordingly, the AEC did not require this for any of the 17 transport contracts examined. The AEC advised the ANAO that:

The AEC relied on the panel suppliers entering into these Deeds of Standing Offer to provide assurances around political neutrality, as opposed to seeking individual declarations from all service provider personnel. Given the nature of the services (i.e. changing rosters, volume etc) seeking political neutrality assurances from the panel supplier was considered a practical and efficient approach.

3.27 Prior to the 2016 services commencing, the off-panel provider used in Western Australia requested a political neutrality form for its drivers to sign. The AEC gave this supplier a standard form entitled *Acknowledgement and declaration of key obligations relating to the Ballot Paper Principles - labour hire and contracted staff*. This form did not contain any reference to political neutrality. It did contain other important information about ballot paper handling and security, which the provider communicated to its drivers.

4. Addressing risks to the security and integrity of ballot paper data

Areas examined

The ANAO examined whether risks to the security and integrity of the ballot paper data generated by the Senate scanning system were appropriately managed by the AEC.

Conclusion

The AEC addressed risks to the security and integrity of ballot paper data through the design and testing of the Senate scanning system. The AEC accepted IT security risk above its usual tolerance. Insufficient attention was paid to ensuring the AEC could identify whether the system had been compromised.

Areas for improvement

The AEC needs to increase confidence in the integrity of the ballot paper data it uses to generate the Senate election result through improved IT security controls and monitoring, consistent with the Australian Government IT security framework.

What ballot paper data was generated by the system?

The primary data generated by the Senate scanning system was XML files containing the voter preferences and whether the vote was formal or informal. A cryptographic digital signature on each XML file protected the data from modification. A secondary output was a digital image of each ballot paper.

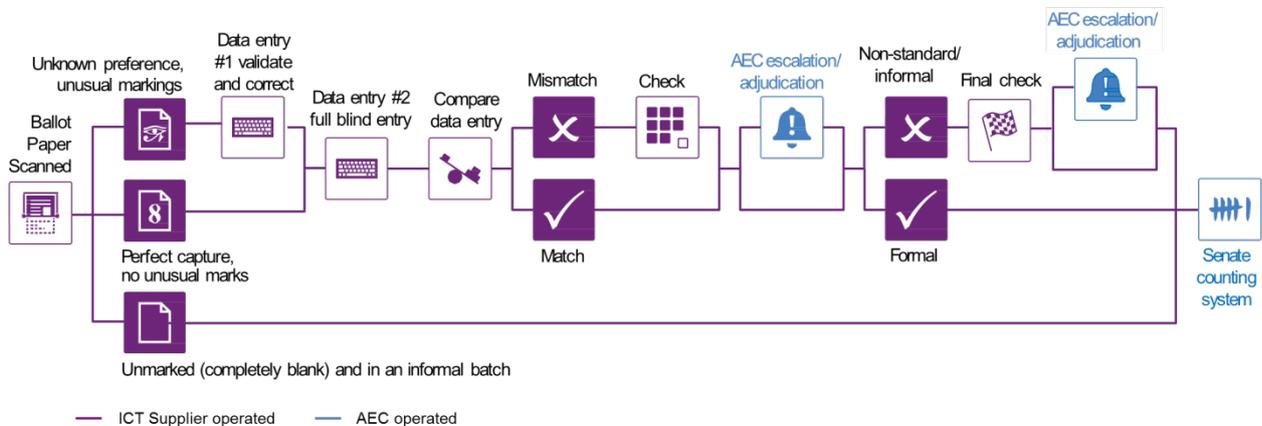
4.1 The Senate scanning system was a semi-automated process introduced to capture voter preferences for entry into the AEC's count system (known as Easycount). As per the simplified diagram at Figure 4.1, the following processes were undertaken by ICT supplier staff:

- ballot papers were scanned to produce a digital image and the voter preferences captured using optical character recognition technology;
- any ballot paper with unknown preferences or unusual markings was sent to a human operator for verification ('data entry 1');
- all ballot papers were sent to a human operator for full blind entry of every preference ('data entry 2'). That is, the operator could not see the results of the optical character recognition or of data entry 1;
- any mismatches in the voter preferences recorded during the above stages, unreadable preferences or other concerns were routed to a senior staff member to either resolve or to escalate to an AEC official; and
- ballot papers identified as having informal preferences above or below the line, or having a sequence breakdown, were sent to a senior staff member for rechecking.

4.2 AEC officials scrutinised ballot papers that were potentially informal due to being voter identified, form altered or not authentic, as well as any ballot paper escalated to them by the ICT supplier.

4.3 The exceptions to the above process were completely blank ballot papers that AEC officials had placed in batches marked ‘informal’ or a placeholder ballot paper that had been routed to the retrievals queue. ‘Placeholders’ were used when a ballot paper could not be scanned (due to damage, for example) and so an AEC official needed to retrieve the hardcopy and manually key in the voter’s preferences.

Figure 4.1: Simplified diagram of Senate scanning system



Source: ANAO modification of AEC diagram.

4.4 Once verification of each batch of approximately 50 ballot papers was complete, the voter preferences and formality decisions were recorded in an XML file. The Senate scanning system applied a cryptographic digital signature to the XML file to protect the data from modification. The files were progressively retrieved by the AEC for import to its count system, which generated the Senate election result. The count system was designed to check the integrity of each XML file as it was loaded and then to refuse to load the file if the digital signature indicated that any part had been tampered with.

Were risks to the integrity of ballot paper data addressed?

Risks to the integrity of the ballot paper data were addressed through system design and testing. To improve integrity, a late decision was made for all voter preferences to be entered by a human operator in addition to being captured by the technology. Any mismatches between the human’s and the technology’s interpretation were investigated and resolved. The AEC does not know the number or nature of mismatches to determine if this was a cost-effective risk treatment.

4.5 Data integrity, in the context of the Senate scanning system, primarily related to ensuring that the XML files generated by the system contained complete information, correct values and maintained accurate referential integrity with the physical ballot papers. This involved ensuring that for each ballot paper:

- the preferences recorded in the XML file were exactly as intended by the voter, including being attributed to the correct candidate; and

- the formality decision recorded in the XML file, as to whether the vote was to be accepted (formal) or rejected (informal) from the count, was compliant with the *Electoral Act 1918* and, where relevant, exactly as determined by the Australian Electoral Officer.²⁰

4.6 This section of Chapter 4 focusses on addressing the risk of errors in, or unintentional changes to, the ballot paper data. The following sections on IT security are relevant to addressing the risk of deliberate changes to the data. The extent to which the AEC then obtained assurance as to the integrity of the data it entered into the count system is outlined in Chapter 5 at paragraphs 5.17 to 5.19.

Documenting system requirements

4.7 The operational and technical requirements for the Senate scanning system were well documented given time constraints. System design specifications were also documented by the ICT supplier and agreed with the AEC.

4.8 The AEC's Statement of Requirements for the system was dated 11 March 2016, which was three months before the 'critical delivery date' of 10 June 2016. This was a short timeframe for having such a system designed, tested and production-ready. Reflecting this, it was not feasible for the ICT supplier to deliver all of the requirements and so compromises were agreed between the AEC and the ICT supplier. The AEC could have improved its documentation on which requirements it had agreed to remove/modify, what impact this might have on ensuring data integrity/security, and (where relevant) what manual workarounds needed to be performed as a result.

System testing

4.9 The AEC had a Program Test Strategy and a Business and User Acceptance Testing Strategy in place. It also had a mechanism for tracking and resolving any defects identified by the AEC or ICT supplier.

4.10 Activities undertaken prior to operation to test whether the system was accurately recognising voter preferences, and was adhering to the business rules and workflows, included:

- user acceptance testing by the AEC to ensure it met business requirements. The results as reported by the AEC were that 'all the critical components of the ... [Senate scanning] centre were successfully tested and deemed fit-for-purpose';
- quality assurance of the AEC's system testing results by IBM. The resulting report of 19 June 2016 stated that 'the quality of the AEC solution is high';
- production verification testing by the AEC to ensure that the production environment of all systems and integration, including the local infrastructure set-up in each state/territory, was election ready. A final check was conducted on 30 June 2016 and internally reported as 'successfully completed and there were no issues identified'; and
- testing by the ICT supplier of the production site to fine-tune system performance, including system integration, non-functional and user acceptance testing.

20 The Australian Electoral Officer for each State/Territory is responsible for the Senate scrutiny and is the final decision maker in regard to Senate ballot paper formality.

4.11 The system testing was restricted by the timeframe. Further, the user acceptance testing environment did not allow the AEC to conduct tests and simulations in a production-like manner (both capacity and performance was limited). Nevertheless, the test results and the experience of AEC officials on-site during operation indicate that the Senate scanning system operated in the intended manner.

Ensuring voter preferences were accurately captured

4.12 Strategies implemented for ensuring voter preferences were accurately captured included:

- the optical character recognition was performed by three computational engines from three firms and if the results did not agree, or the characters could not be interpreted with confidence, then the ballot paper was sent to a 'data entry 1' human operator for verification; and
- every ballot paper image was sent to a 'data entry 2' human operator for full-blind data entry.

4.13 The full-blind data entry of the voter preferences on every ballot paper was not in the original design. Originally, full-blind data entry was limited to two per cent of ballot papers (being one ballot paper in every batch of 50) for quality assurance purposes. Minutes of a meeting of the Senate Reform Board of 7 June 2016 (three days before the system was to be election-ready) included that:

- 'The [Senate scanning system] has missed its User Acceptance Testing (UAT) end date. Tuning of the scanning imaging is improving the UAT pass rate, on Friday pass rate was 48%, as of today the program is achieving 59%'; and
- 'The Electoral Commissioner has asked for a refinement of the proposed solution where every Ballot Paper image will now be viewed by a human as the integrity of the count is the Commissioner's priority.'

4.14 The change to 100 per cent full-blind data entry increased the logistical complexity of the system. It also substantially increased the cost—ANAO analysis of AEC records indicates the additional direct cost was in the range of \$6.6 million to \$8.6 million.

4.15 The AEC does not have data that could be used to analyse the cost-effectiveness of full-blind data entry as a risk treatment. The AEC does not know the number of occasions there was a mismatch between the voter preferences captured by the optical character recognition technology and those captured during full-blind data entry. Or, following a mismatch, whether it was then determined that the technology or the human had accurately captured the voter's handwritten preferences.

Were IT security risks assessed and treated prior to operation?

A range of IT security risk assessments were undertaken prior to operation. The AEC assessed that one quarter of the applicable Australian Government controls for treating security risks had not been implemented. The contract with the ICT supplier had not required compliance with the Australian Government IT security framework. The security risk situation accepted by the AEC was not made sufficiently transparent.

4.16 The Australian Government's security framework includes the Information Security Manual (ISM), which is the standard that governs the security of Australian Government ICT systems. The ISM controls provide agencies with detailed security measures that can be implemented to mitigate risks to their information and systems. The ISM complements the Protective Security Policy Framework (PSPF). Agencies can engage assessors endorsed under the Information Security Registered Assessors Program (IRAP) to conduct an independent assessment of a system's compliance with the ISM, the PSPF and other Australian Government security guidance.

4.17 The AEC's Statement of Requirements for the Senate scanning system reflected the Australian Government IT security framework, including by stating that the system:

- 'must protect all AEC data when it is at rest and when it is in transit in accordance with Australian Government security policy, as defined in the Protective Security Policy Framework (PSPF) and the Information Security Manual (ISM)'; and
- 'must be able to achieve security accreditation, in accordance with the ASD IRAP program, based on the ISM requirements for unclassified but sensitive or official information not intended for public release'.

4.18 The requirement for compliance with Australian Government IT security frameworks was then removed due to time constraints. Specifically, a variation of 24 March 2016 to the Deed of Standing Offer with the ICT supplier excluded the following from the scope of services: 'implementation of applicable Australian Government ISM Controls and IRAP certification, compliance with the Australian Government PSPF, the Electoral Act and related security frameworks for the Senate Paper Ballot Scanning System'. In this context, AEC advice to the ANAO included that the:

... Senate Scanning Solution was developed with the eventual aim of achieving compliance with all in-scope ISM controls and with the ASD Top 4 Strategies to Mitigate Cyber Security Incidents. Because of the highly compressed time frame available for development, it was accepted that certain controls would not be able to be met and would have to be accepted by the agency as a residual risk.

IT security risk assessments

4.19 The AEC undertook a range of activities to assess IT security risks and identify vulnerabilities.

4.20 The depth of the assessments was abbreviated. Assessors were given tight deadlines and were at times hampered by an inability to verify applicable controls and by incomplete or missing governance and technical artefacts specific to the Senate scanning system. The assessments were conducted concurrently with system development.

Information Security Registered Assessors Program (IRAP) assessment

4.21 IRAP assessment of the implementation, appropriateness and effectiveness of a system's security controls is achieved through two audit stages, as dictated in the ISM. The stage one audit identifies security deficiencies, which the system owner rectifies or mitigates, and then the stage two audit assesses the residual compliance.

4.22 The AEC procured the services of an IRAP assessor to undertake a stage one audit (only) of the Senate scanning system. The resulting report of 30 June 2016 concluded that 'the risk-based

aspects (known and unknowns) of the design and implementation are not acceptable to pass a stage 1 IRAP assessment'. It contained 34 recommendations and stated:

I conclude that the ... Senate Scanning Solution capability implementation has a high level of ISM non-compliance. The controls where compliance is in question do pose a threat to the secure operation of ... Senate Scanning Solution capability and should be resolved prior to production use. ...

The recommendations in this report should be addressed prior to the commencement of production use, unless otherwise indicated by the Accreditation Authority.

Site inspections

4.23 Supplementing the IRAP assessment, the AEC inspected the eight sites where the Senate scanning system would operate. The purpose included gathering evidence in support of the statements made in the documents examined by the IRAP assessor and assessing the actual implementation and effectiveness of the security controls for the Senate scanning system capability. The site inspections, conducted during 20 to 24 June 2016, confirmed that some of the weaknesses identified in the IRAP assessment had been rectified. The AEC kept detailed records of the site inspections and tracked progress towards compliance with the in-scope ISM controls.

Australian Signals Directorate assessment

4.24 The Australian Signals Directorate undertook an assessment of the AEC-controlled components of the Senate scanning system (not the ICT supplier managed components) and of the AEC's count system. In recognition that some of its security concerns could not be solved by the AEC in time for the federal election, the Australian Signals Directorate agreed to focus its assessment on ensuring the supporting infrastructure was as secure as possible so as to reduce the risk of the system being compromised. The assessment report of 17 June 2016 contained 19 recommendations.

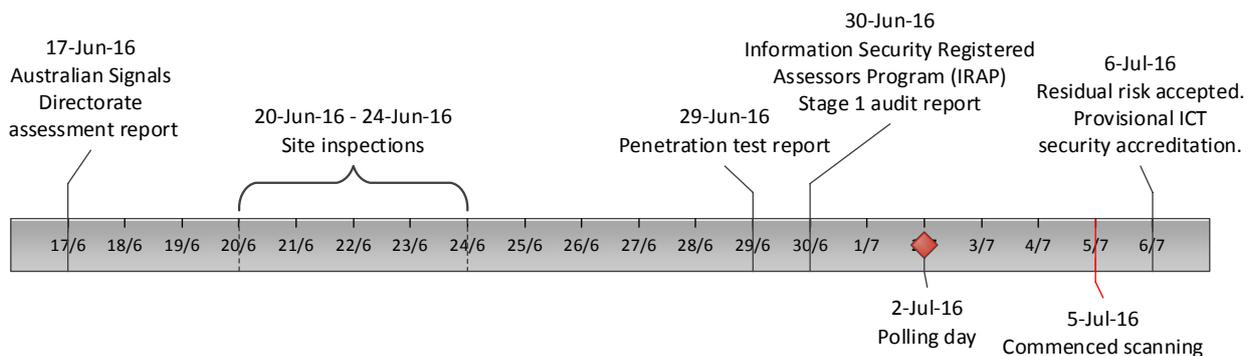
Penetration testing

4.25 The AEC engaged BAE Systems Proprietary to perform a penetration test to determine the effectiveness of the security controls for the Senate scanning system. The report of 29 June 2016 made seven recommendations and noted ICT supplier advice that a number of the risks and vulnerabilities identified through the test had since been addressed and closed. The ICT supplier's advice to the AEC on each of the five report recommendations that were not listed as 'closed' included that 'there is no external access to these systems and the BAE Systems likelihood assessment has been noted as RARE'.

Timeframe for treating risks

4.26 The AEC had only days to treat, avoid or accept any risks identified in the assessment reports before the Senate scanning system went into operation. This tight timeframe, outlined in Figure 4.2, was as scheduled.

Figure 4.2: Timeline of IT security risk assessment activities



Source: ANAO analysis of AEC records.

4.27 Compliance with the ISM controls and IRAP certification were explicitly outside the scope of the contracts with the ICT supplier, as outlined at paragraph 4.18 above. The ICT supplier was accommodating to the AEC and it actively treated and reduced risks. The ICT supplier undertook its own IT security risk management activities and developed an ‘AEC Data Protection and Security Management Plan’ specifically for the AEC’s Senate scanning system.

AEC ICT security accreditation

4.28 The ISM states that ‘Agencies must accredit all systems before they can be put into operation’. It explains that, ‘Accreditation of a system ensures that either sufficient security measures have been put in place or that deficiencies in such measures have been accepted by an appropriate authority’.

4.29 The Senate scanning system underwent the AEC’s ICT security accreditation process and was issued provisional accreditation one day after the first ballot papers were scanned. The process included internal written advice of:

- late June 2016 to the Certification Authority (an AEC officer), which outlined the mitigation strategies implemented and advised that the residual risk to the Senate scanning system was ‘moderate’²¹ and that ‘the current implementation does not address security concerns identified during the development and certification process and does not meet the requirements for effective security’;
- 4 July 2016 to the Deputy Electoral Commissioner for noting, which included that the AEC had developed an action plan to implement the recommendations of the Australian Signals Directorate and that there were still ‘a number of non-compliances’ with the ISM; and
- 6 July 2016 to the Accreditation Authority (an AEC officer), who agreed to the recommendation to provisionally accept the residual risk of ‘moderate’ and to issue a provisional ICT security accreditation for six months.

21 The AEC defines the residual risk descriptor of ‘moderate’ as: ‘a. The risk is acceptable given the mitigation strategies in place; b. Additional controls could be considered and additional resources may be required.’

Extent of compliance with the Information Security Manual controls

4.30 The IRAP assessor's report of 30 June 2016 concluded that the Senate scanning system had 'a high level of ISM non-compliance'. It reported a compliance rate of 43 per cent, being 240 out of 564 'in-scope' controls. The AEC's own undated final assessment of progress against the ISM controls recorded that the compliance rate had risen to 75 per cent (319 of the 426 controls identified by the AEC as 'in-scope'). That a quarter of applicable ISM controls were not implemented is a high rate of non-compliance.

4.31 Of the 107 ISM controls that were not implemented, the ISM categorised non-compliance with:

- 61 of the controls as likely to represent a high security risk to information and systems; and
- 46 of the controls as likely to represent a medium-to-low risk to information and systems.

4.32 The AEC's Accreditation Authority could grant approval for non-compliance with any of the 107 ISM controls. The approval process outlined in the ISM included that 'System owners seeking approval for non-compliance with any control must document: the justification for non-compliance; a security risk assessment; and the alternative mitigation measures to be implemented, if any'. The ISM further stated that 'Agencies must retain a copy of decisions to grant non-compliance with any control from this manual'. There was no such documentation in the AEC records.

Transparency of the acceptance of risk

4.33 The AEC has a risk appetite set at medium. It was recognised at the time the Senate Reform Program was established in April 2016 (of which the Senate scanning system is a sub-project) that the AEC needed 'to accept a risk appetite level of high for the delivery of this Program'.

4.34 The level of IT security risk accepted by the AEC on behalf of the Australian Government, and the extent of the non-compliance with the Australian Government IT security frameworks, was not transparent. The wording used in some of the internal records and published materials would generate confidence in the security of the system whereas the underlying assessments indicated significant risk.

4.35 For example, an internal report of 12 June 2016 to the AEC executive recommended that the Senate scanning system be implemented for reasons including that it 'Is architected based on IT Security best practice and IRAP accreditation ... Is compliant with certifications, industry standards and the ISM'. Elsewhere the report stated that 'The solution is ISM compliant end to end'. These statements were repeated in a subsequent briefing to the Electoral Commissioner. The Deputy Electoral Commissioner annotated the cover page (on 22 June 2016) to alert the Electoral Commissioner that:

Issue for noting—contrary to initial advice we are not fully compliant with the Aust Govt ISM. I asked the team to conduct a risk assessment on this. The result is two risks—one low & one medium. Given the tight timeframe the team have done everything reasonable to manage the IT security risks. Importantly ... we addressed all 8 ASD IT security recommendations.

4.36 The two risks referred to in the annotation did not encompass the risks associated with being non-compliant with 107 in-scope ISM controls. Further, the ASD had made 19 recommendations and not eight as advised to the Electoral Commissioner. The ANAO's analysis was that the documented advice to the Electoral Commissioner did not fulfil the 'need to ensure the agency head has appropriate oversight of the security risks being accepted on behalf of the agency' stipulated in the ISM.

4.37 In relation to materials published on government websites, it would not have been evident to readers of the following statements that the system had not passed stage one of the IRAP assessment, that a stage two IRAP assessment had not been undertaken and that the security implementation was not sufficient to allow approval for full system accreditation:

- *Federal election 2016 Central Senate Scrutiny frequently asked questions: '... the system underwent assessment by independent, accredited Australian Information Security Registered Assessors (IRAP) Program ...'*
- *Central Senate Scrutiny—technical aspects: '... It was independently reviewed for security vulnerabilities by a specialist agency and accredited under the Australian Information Security Registered Assessors Program ...'*



Information Security Registered Assessors Program (IRAP)

- AEC submission to the Joint Standing Committee on Electoral Matters' inquiry into the conduct of the 2016 federal election: 'In just over three months the AEC developed, tested, certified and operationalised a new end-to-end solution to count and distribute Senate preferences.'
- AEC Annual Report 2015–16:
 - 'To ensure the integrity of the count, the CSS [Central Senate Scrutiny] process was reviewed by IBM, and the Senate count system was certified by the National Association of Testing Authorities. It was independently reviewed for security vulnerabilities by a specialist agency and accredited under the Australian Information Security Registered Assessors Program.'
 - 'Notable features of the solution included ... IT architecture and security standards to industry best practice.'

Recommendation no.3

4.38 The Australian Electoral Commission take the necessary steps to achieve a high level of compliance with the Australian Government's security framework when information technology systems are employed to assist with the capture and scrutiny of ballot papers for future electoral events.

Entity response: *Agreed.*

4.39 The AEC is committed to work towards achieving a high level of compliance with the Australian Government's security framework. Where extremely short immutable timeframes mean that full compliance with all aspects of the framework are not achievable (such as the timeframes experienced during preparation for the 2016 federal election) the AEC will take a risk-based approach to identify, manage and accept/reject risks as appropriate.

Did the AEC monitor IT security risks during system operation?

The AEC's IT security monitoring during system operation was sufficient to support its conclusion that there was no large-scale intentional tampering of the 2016 Senate election data. It did not have a systemic data and analysis plan or adequate visibility of IT security measures.

AEC's oversight of system users

4.40 The presence of AEC officials at the Senate scanning centres provided some oversight of compliance with physical IT security measures. System users were observed by AEC officials, scrutineers, senior ICT supplier personnel and security guards, in addition to closed-circuit television coverage. AEC officials on-site could help identify and resolve unintended breaches of security measures.

4.41 The AEC did not obtain sufficient information to gain adequate visibility of system IT security measures during operation. This restricted the AEC's ability to monitor user access and security events, to determine the appropriateness of users' activities and to determine whether system IT security measures were fully adhered to.

4.42 The AEC also did not obtain records readily available from the ICT supplier that could support any post-operation investigation of a security event. The AEC did not obtain:

- and review key security documents for logical access controls, such as configuration control settings for user accounts/user group matrix;
- the administrative users list, have an understanding of the privileged users profile or have visibility of the privileged accounts' usage/activities;
- the list of ICT supplier user accounts and their user profiles (approximately 1800 temporary operational staff); or
- the list of AEC staff user accounts and their user profiles (at least 37 staff but actual number not recorded).

4.43 The above information was available to the AEC but the AEC did not collect it. The information was deleted by the ICT supplier in 2016 as per AEC instruction.

IT security monitoring by the AEC

4.44 Recommendations made by IT security assessors included running an active hunt operation for the duration of the election in order to identify security issues of concern, and developing a systemic audit and analysis plan. Both the IRAP assessor and the Australian Signals Directorate had identified the lack of a systemic audit and analysis plan as an area of significant vulnerability. That is, without audit and analysis, the AEC may be unable to identify with any level of confidence whether the system had been compromised and whether a recount was required.²²

4.45 The AEC's internal IT security team were tasked with implementing the assessor recommendations so as to gain assurance over security compliance throughout the system's operation. Since the AEC's IT security team had not been involved in the system's design,²³ there were no logs available to them that were specifically designed for data security and integrity monitoring and analysis by the AEC. The AEC had very limited visibility of security events and there was a lack of a security audit trail.

4.46 The IT security team advised the ANAO that they relied on the underlying applications' natively generated logs to conduct real-time monitoring and analysis. An AEC system was modified to on-board the data sources/logs and to set-up searches, reports and dashboards so as to inform the analysis and to identify instances where users were not authenticated. Due to a lack of time, there were no written procedures/guidelines to support this activity. There was also no formally established benchmark for what was 'abnormal' and so indicative of a security event.

4.47 All eight Senate scanning centres were monitored 24 hours per day throughout the system's month-long operation. No records of the monitoring and analysis were kept.

4.48 The AEC concluded that there was no large-scale intentional tampering of the 2016 Senate election. To be in a position to provide a higher level of assurance in future, the AEC should ensure that it has an audit and analysis plan in place and that adequate security audit event logs are generated by the system and preserved.

Were ballot paper images securely migrated, and government data deleted, from the supplier's environment?

The ballot paper images were securely migrated to the AEC's repository environment after services were completed. There was a ten month delay in the AEC instructing the ICT supplier to delete electoral data from its environment.

4.49 The ballot paper data was generated on ICT supplier equipment, was owned by the AEC and was defined as Dissemination Limiting Marker data, being unclassified but sensitive

22 In this context, 'audit' relates to system-generated audit events of security-relevant actions and then 'analysis' involves analysing the systemic audit trail to identify issues of concern that warrant investigation.

23 The AEC had not involved its IT security team in the Senate scanning project until after the IT security assessment results were known. Contracted security advisors had been assisting the Senate Reform Program with the project.

information not intended for public release. Australian Government protective security governance guidelines state that 'Agencies are to ensure that they recover records (both electronic and hard copy) and assets under the control of the service provider ... [and] should include conditions in the relevant contracts that require the service provider to delete all of the agency's information from the service provider's ICT systems'.

Migration of ballot paper images

4.50 The Senate scanning system generated a digital image of each ballot paper and stored it as a TIFF file with a unique identifier.²⁴ The contract of 29 June 2016 to deliver the system required the ICT supplier to store the images until it received notice from the AEC. The requirements to migrate the images to the AEC's environment were outlined in a subsequent contract of 2 December 2016. A secure method was used to migrate the images to the AEC image repository environment hosted by Amazon Web Services (Amazon S3 storage).

4.51 The AEC received confirmation that the images had been shipped by the ICT supplier and received by Amazon Web Services on 21 March 2017. The subsequent processes, from image import and reconciliation through to business acceptance, were completed by 17 May 2017.

4.52 The XML files containing the ballot paper data did not need to be migrated on completion of the services. The XML files had been retrieved by the AEC throughout the Senate scanning system's operation in order to import them to the count system and generate the election result. The contract required the ICT supplier to store the XML files until notified by the AEC.

Deletion of AEC data from supplier's equipment and systems

4.53 The contract required the ICT supplier to destroy electronic data following written notice by the AEC. The ICT supplier was advised that it needed to retain all data, and to keep the Senate scanning system in commission, until at least 19 September 2016. This was because the validity of the election of any Member of Parliament may be disputed by a petition to the Court of Disputed Returns within 40 days of the return of the writ.

4.54 The AEC instructed the ICT supplier on 4 October 2016 to decommission the Senate scanning system and to delete all AEC data from supplier equipment and systems, except the ballot paper images and the XML files. The available evidence is that the AEC's instruction was triggered by a string of emails from the ICT supplier seeking instruction.

4.55 On 29 June 2017 the ICT supplier reminded the AEC that it had not yet received approval to delete the ballot paper images and XML files. The ICT supplier received the AEC's approval on 7 July and then confirmed on 21 August that the data had been deleted. The AEC had the ICT supplier store the XML files in a non-government controlled environment for ten months beyond the period required (that is, post 19 September 2016). The terms of the contract included a fee for storing the XML files and ballot paper images of approximately \$13 800 per month.

24 On the rare occasion where a Senate ballot paper could not be scanned then a placeholder sheet was scanned and the voter's preferences were keyed into the system based on examination of the physical ballot paper.

5. Obtaining assurance

Areas examined

The ANAO examined whether the AEC obtained adequate assurance of the effectiveness of its treatments to address risks to the security and integrity of ballot papers and of ballot paper data. Also whether the transport and Senate scanning services procured achieved the AEC's desired results.

Conclusion

The Senate scanning and transport providers delivered the services as contracted. The AEC had limited insight into whether its contractual and procedural risk treatments were effective. Going forward, the AEC needs to be better able to verify and demonstrate the integrity of its electoral data.

Area for improvement

The ANAO has recommended that, in future applications of computer-assisted scrutiny, the integrity of the data is verified and the findings of the verification activities are reported.

Was an assurance framework in place?

Assurance frameworks were in place for the agency and for the Senate scanning system project.

5.1 The AEC had agency-level assurance plans in place for 2015–16 and for 2016–17. These plans documented the AEC's overall assurance framework and key assurance activities for the given financial year. The AEC governance and risk management procedures formed part of the assurance framework.

Senate scanning system project

5.2 The Senate scanning system was managed as a project under the AEC's Senate Reform Program. Comprehensive governance, risk management and control processes were established for the Senate Reform Program. A Senate Reform Program Board was responsible for managing the program and underlying projects, had the authority to make decisions and reported to the AEC's executive team.

5.3 Specific to the Senate scanning system was a joint steering committee of the AEC and the ICT supplier. Assurance accountability and reporting lines were clearly defined. Project status reports were produced on a weekly basis and key results that measured the project's progress (such as user acceptance testing results) were also reported.

5.4 The Senate Reform Program Board and the joint steering committee were active during the system's development phase. The responsibilities assigned to specific AEC and ICT supplier staff for resolving issues that may arise during the system's operation phase were outlined in detailed business continuity plans.

5.5 The ICT supplier had its own assurance framework and gave the AEC a comprehensive set of internal documents, including relevant policies, procedures, standards and guidelines.

5.6 The assurance framework for the Senate scanning system project was, from a governance and procedural perspective, comprehensive and should have afforded a solid assurance foundation. However, there were some IT security shortcomings that AEC assurance activities would be expected to have addressed (IT security matters are examined in Chapter 4). The focus was on delivering a Senate scanning system by polling day and insufficient attention was paid to assuring the security and integrity of the data generated both during and after operation.

Did the AEC obtain adequate assurance that all physical ballot papers were accounted for?

The AEC is unaware that any ballot papers were not accounted for. This is a considerably lower level of assurance than its stated performance indicator of accounting for 100 per cent of ballot papers.

5.7 The AEC's 2016 election service plan included a key performance indicator of 'ballot papers (both used and unused) are accounted for' with a target of 100 per cent. The service plan further explained that:

The AEC can account for ballot papers from the time they are printed, issued to an elector, placed in a ballot box (or discovered as discarded or returned as spoilt) counted and then placed in long term storage prior to statutorily authorised destruction. For ballot papers that are not issued the AEC can account for them from the time they are printed until statutorily authorised destruction.

5.8 In its *Report on the conduct of the 2016 federal election* of February 2017, the AEC publically reported that it had achieved its performance target of 100 per cent of ballot papers being accounted for. But the AEC based this statement on it being unaware that any ballot papers were not accounted for, which is a considerably lower level of assurance.²⁵ To report against the performance indicator, the AEC had emailed its State Managers on 1 November 2016 (four months after polling day) asking them to indicate 'any instances where you are aware that ballot papers are not accounted for'. None identified any instances (although one response contained the qualification that all unused ballot papers were 'materially accounted for').

5.9 The AEC advised the ANAO that 'the AEC has in place ballot paper handling principles, procedures and tracking measures and these controls are relied on during the election with any exceptions dealt with promptly'. The key contractual controls the AEC relied on were outlined in Chapter 3 'Addressing risks to the security and integrity of ballot papers'. Its internal procedural controls are examined below.

Reconciling ballot papers

5.10 The AEC set out the procedures to be undertaken by staff to reconcile ballot papers at each step of the election. The reconciliation processes are undertaken manually by a dispersed, large and predominately temporary workforce. Staff have many processes to learn and to

²⁵ Meeting the performance target required the AEC to obtain 'positive' assurance. That is, required it to positively confirm that every ballot paper (used or unused) was accounted for. The AEC instead relied on 'negative' assurance, being that no contrary evidence had been brought to its attention. 'Positive' assurance is considered stronger than 'negative' assurance.

undertake in a short timeframe and so some degree of error is expected. As the international Working Group on Accountability of Election Management Bodies for Voting Integrity has noted:

We can safely say that expecting any new employee to make absolutely no errors during their first day on a job is irrational. For electoral workers expected to master actions related to highly complex, legally prescribed rules, perfection is an even more challenging aspiration.²⁶

5.11 The AEC set a tolerance for differences between, for example, the number of Senate ballot papers and the number of House of Representatives ballot papers counted at a polling place. The tolerance for difference is 0.5 per cent up to a maximum of 15 ballot papers and discrepancies outside this tolerance were to be investigated and resolved.

5.12 The high number of discrepancies remaining in the AEC's final data does not demonstrate that they were systematically identified, resolved and 100 per cent of ballot papers were accounted for. For example, out of 8199 polling locations (static polling places, pre-poll voting centres and mobile teams) there remain:

- 1312 polling locations (16 per cent) that exceed the AEC's tolerance for difference between the Senate and House of Representatives ballot paper numbers as counted by its Divisional Returning Officers;
- 1108 polling locations (14 per cent) that exceed the AEC's tolerance for reconciliation differences between the Senate ballot paper allocation and the count; and
- 351 polling locations (four per cent) that exceed the AEC's tolerance for reconciliation differences between the House of Representatives ballot paper allocation and the count.

5.13 It cannot be concluded from the above figures, or from other AEC records examined by the ANAO, that any ballot papers were lost. Rather, the above figures and other records support the audit finding that the AEC is not currently in a position to report that it has achieved its performance target of 100 per cent of ballot papers being accounted for.

Instances of votes reported against the wrong polling location

5.14 An unknowable proportion of votes taken were publicly attributed to the wrong polling location. Reasons could include AEC staff placing the wrong cover sheet on batches of Senate ballot papers when preparing them for transport to a Senate scanning centre. This is because the information collected from the cover sheet during the scanning process included the polling location that the batch originated from. To illustrate this finding with an obvious error, the results on the AEC's virtual tally room for the Queensland Division of Herbert reports against:

- 'Special Hospital Team 1' that 181 *more* votes were counted for the Senate than for the House of Representatives; and
- 'Special Hospital Team 2' that 181 *fewer* votes were counted for the Senate than for the House of Representatives.

26 Seven Commonwealth Country Election Management Bodies, including Australia's, is represented on the Working Group on Accountability of Election Management Bodies for Voting Integrity. The quote is from their 2015 report available on the Elections Canada website at <http://www.elections.ca/content.aspx?section=abo&dir=int/act/int&document=index&lang=e>.

5.15 Attributing votes to the wrong polling location in this way does not impact the election result but it does make the task of reconciliation more difficult. The public reporting of such discrepant figures may also impact voter confidence, particularly where the cause is not as obvious as in the example given above.

Did the AEC obtain adequate assurance of the integrity of ballot paper data?

The AEC relied on the effectiveness of its risk treatments to ensure the integrity of the Senate ballot paper data. It has not undertaken a statistically valid audit to verify or demonstrate data integrity.

5.16 The treatments the AEC put in place to address risks to the integrity of the ballot paper data generated by the Senate scanning system, including IT security risks, are outlined in Chapter 4. This section examines whether the AEC obtained adequate assurance that those treatments had been effective.

Compliance inspections undertaken by the AEC

5.17 A lack of assurance that the XML files containing ballot paper data were end-to-end integrity assured was identified as a concern in the IT security assessments undertaken during the development of the Senate scanning system. In response, the AEC undertook compliance inspections at seven of the eight scanning centres during operation with an aim 'to provide added assurance that the end-to-end ballot paper processing maintains the integrity required to satisfy the AEC, the Commonwealth and the public'. In summary:

- a batch of 50 ballot papers was randomly selected and then six ballot papers from that batch were reviewed;
- compliance inspectors recorded the first six preferences from the physical ballot paper on a checklist;
- verification officers compared the preferences recorded on the checklist against those on the scanned image of the ballot paper and those in the related XML file; and the
- IT security team compiled, investigated and reported on the findings.

5.18 The compliance inspection report outlined that a total of 1510 ballot papers were inspected, four processing errors were identified and all errors were rectified. The report stated that:

Although only a minute sample of ballot papers were inspected ... this review has confirmed that data integrity has been maintained throughout the 2016 election with a good level of confidence. While some process improvements may be warranted, overall the solution produces acceptable results.

5.19 Only 0.01 per cent of ballot papers were inspected by the AEC, which was described by the AEC as 'statistically insignificant' as it was too small a sample from which to obtain reasonable assurance. The scope of each inspection was also limited.

Recommendations to undertake a statistically valid audit

5.20 The benefits of undertaking a statistically valid audit to verify and demonstrate the integrity of Senate data were reflected in input to the Joint Standing Committee on Electoral Matters' inquiry into the conduct of the 2016 federal election. Recommendations made in submissions to the inquiry included:

- 'The Commonwealth Electoral Act be amended [to] require an audit of a sample of voters' actual paper ballots cast against the electronic data used in the count process. The audit sample size should be chosen to ensure that the cross-check process provides adequate statistical confidence in the electoral outcome.'²⁷
- 'When the preference data files for Senate votes are published, there should be a rigorous statistical audit to check that they accurately reflect the paper ballots.'²⁸

5.21 There are various methods the AEC could adopt to audit the electoral data. For example, an academic paper of November 2016 presents four different post-election audit methods that the authors consider appropriate for Australian Senate elections. The paper also explains why the authors consider the AEC should perform an audit of the physical Senate ballot papers against the preference data files.²⁹

5.22 The AEC could have conducted a statistically valid audit or tested audit methods during the post-election period. It has not done so.

5.23 The Joint Standing Committee on Electoral Matters has recommended 'a trial to test the scanning and electronic counting of House of Representatives ballot papers'.³⁰ A submission to the inquiry recommended in reference to automated scanning and counting of House of Representatives ballots that 'legislation should require that: a risk-limiting audit of the paper ballots should be performed for each electorate in the presence of scrutineers ...'³¹

Did the transport services achieve the desired results?

The contracted transport services achieved the desired results. The AEC had difficulty reconciling invoices received for the services and it was slow in sending ballot papers to the Senate scanning centres.

5.24 The AEC's actual use of contracted transport providers exceeded its planned use. The value of the 2016 election services in the 17 contracts examined was initially \$5.3 million. By the end of the election this had risen by 64 per cent to become \$8.7 million. Provider feedback to the AEC included that last minute increases to the volume of work were frustrating and challenging to satisfy.

27 Recommendation 2, Submission 56 to the Joint Standing Committee on Electoral Matters' inquiry into and report on all aspects of the conduct of the 2016 Federal Election and matters related thereto.

28 Recommendation 7, Submission 96, *ibid*.

29 Chilingirian, B., Z. Perumal, R.L. Rivest, G. Bowland, A. Conway, P.B. Stark, M. Blom, C. Culnane, and V. Teague, *Auditing Australian Senate Ballots*, 8 November 2016.

30 Joint Standing Committee on Electoral Matters, *Third interim report on the inquiry into the conduct of the 2016 federal election: AEC modernisation*, June 2017, Recommendation 2, paragraph 3.55.

31 Submission 148 to the Joint Standing Committee on Electoral Matters' inquiry into and report on all aspects of the conduct of the 2016 Federal Election and matters related thereto, p. 1.

5.25 Overall the AEC assessed the transport providers as having met the business requirements and as instrumental to the successful delivery of the electoral event.

Reconciling invoices

5.26 Prior to payment, invoices from transport providers should be reconciled against the AEC's record of deliveries and the agreed rates. There was consistent feedback to the AEC from its contract managers that the invoices were difficult to reconcile. The ANAO asked each AEC State Office to explain the process they used to reconcile invoices. There was no consistency in the responses, with a variety of approaches and tools being described.

5.27 In terms of reconciling the deliveries listed on invoices, States checked all or a sample of them against a spreadsheet they maintained, or the information they had entered into a provider's system, or the services listed in the contract or advised the ANAO that 'staff had first-hand knowledge of the shipments'. Without prior knowledge it was impossible to interpret from the invoices alone what many of the deliveries were. For example, to distinguish between non-descriptive terms like 'AEC' or 'Box' or to know that the 'ORAORANGE' on one provider's invoices referred to ballot papers (being the colour of their packaging).

5.28 When ordering deliveries, the AEC could have used the customer/sender reference fields that would later appear on the invoice in a more meaningful way (the fields were predominately left blank). It could also have made better use of charge codes or 'child accounts'. Only one of the States made sophisticated use of charge codes, establishing 19 codes with its transport provider to help identify items and attribute them to the correct AEC cost centre. Requests by a couple of other States for separate charge codes were not met by their providers.

5.29 In terms of reconciling rates, some States found instances of overcharging or of deliveries being charged to the wrong account and some struggled to interpret the various rates. One State advised ANAO that 'no direct reconciliation of invoices against the [quoted] charge rates was completed'. Some States successfully resolved invoicing issues with their provider but ANAO was advised that 'direction was given that States were not to talk directly with suppliers regarding invoices'. Overcharging experienced by three of the States was escalated to the AEC's National Office to resolve. One of these States advised the ANAO a year after the election that transport invoices remained unpaid because the amounts did not align with quoted prices.

5.30 ANAO examination of a sample of the paid invoices indicated that the AEC was incurring small service charges that were accumulating nationally and were unnecessary. Such as paying a \$10.45 charge on each weekly invoice that only applied to paper invoices when the AEC was receiving them electronically. Also, paying a manual consignment note charge for some of its deliveries when the AEC had access to providers' electronic systems. For example, on one invoice \$363 in deliveries cost a further \$243 in manual consignment note charges, on another \$7834 in deliveries cost a further \$859 in manual consignment note charges.

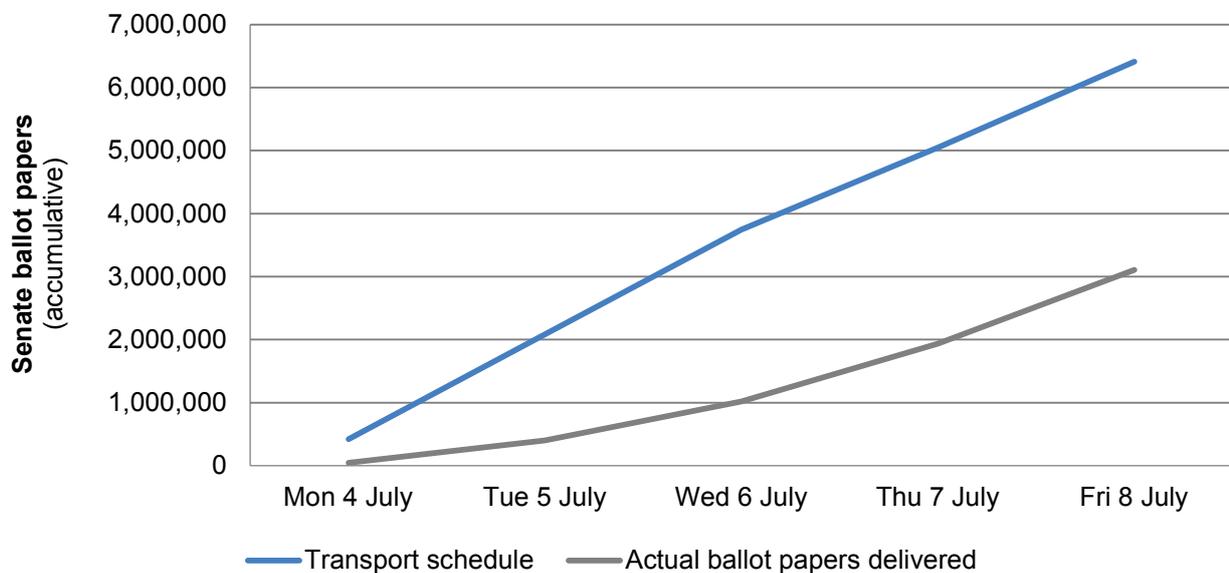
Sending ballot papers to Senate scanning centres

5.31 There were some issues with the packaging and dispatch of Senate ballot papers to scanning centres by AEC staff, particularly during the early days of operation. The issues and their resolution were tracked by the AEC. Some issues impacted operations, such as batches needing to be repackaged before scanning could commence, damage to the lead-in edge of ballot papers

preventing scanning and post-it notes being left on ballot papers resulting in batches needing to be re-scanned. Other issues indicated risks to ballot paper security, such as transport labels incorrectly filled in, document pockets ripped open, pallets poorly wrapped and consignment numbers not recorded in the AEC’s tracking system. A contributing factor was that AEC procedural guidance on the packaging and dispatch of Senate ballot papers was not circulated to staff until just prior to polling day.

5.32 The AEC had provided the ICT supplier a transport schedule in advance so as to inform the number of staff to be assigned to each shift at each centre. The flow of Senate ballot papers to the scanning centres was much slower than scheduled (as outlined in Figure 5.1). This meant that the centres were not able to operate at their full capacity initially, particularly in New South Wales where the AEC incurred \$67 246 in ‘idle time’ charges as ICT supplier staff awaited scheduled deliveries that did not turn up. Deliveries also extended beyond the ‘last delivery’ dates the AEC had agreed with the ICT supplier in all States except one. Nationally, ballot paper deliveries were to be completed within the first 18 days of operation but actually took 29 days. The ‘critical deadline’ the AEC had set for having all preferences verified and entered into the count was 29 July 2016 but it was still delivering Senate ballot papers to scanning centres on 3 August 2016.

Figure 5.1: Scheduled versus actual delivery of ballot papers to Senate scanning centres during the first five days of operation



Source: ANAO analysis of AEC records.

Did the Senate scanning system achieve the desired results and comply with the Electoral Act?

The Senate scanning system was delivered on time and as per contractual requirements. The AEC was not able to demonstrate compliance with all elements of the *Commonwealth Electoral Act 1918*.

5.33 The Senate scanning system was delivered as per the contractual requirements. Senate scanning centres were established in each State/Territory for the arrival of the first ballot papers on 4 July 2016. The eight centres operated up to 24 hours per day for up to seven days per week. They

included more than 61 scanners with custom manufactured trays to accommodate metre-long ballot papers, 540 data entry stations and around 1800 temporary employees. All 14.4 million Senate ballot papers were processed and 101.5 million preferences were verified by 3 August 2016, which was in time for the Return of the Writ on 8 August 2016. The AEC advised the ANAO that:

The AEC considers the new electronic Senate ballot paper scanning system implemented at the 2016 federal election a success. The AEC worked with political parties, candidates and scrutineers to ensure the new scanning process was as transparent as possible, in particular making sure that scrutineers were happy with access to the scanning and checking process.

To ensure complete transparency of the process the AEC has made all of the Senate ballot paper data publicly available on our website.

Compliance with the Electoral Act

5.34 The Senate scanning system needed to comply with the *Commonwealth Electoral Act 1918* (Electoral Act), which governs the Commonwealth electoral process. The AEC advised Senate on 28 February 2017 that:

Section 273(a) of the *Commonwealth Electoral Act 1918* outlines provisions for the computerised scrutiny of votes in a Senate election. The AEC's current electronic system and processes for the scrutiny and determination of election results comply with these provisions.³²

Authority to make decisions on the formality of Senate ballot papers

5.35 The Australian Electoral Officer in each state or territory is responsible for the Senate scrutiny and is the final decision maker in regard to Senate ballot paper formality. In practice, the Australian Electoral Officers made very few formality decisions (0.007 per cent nationally and none in Victoria).

5.36 The system applied the numbering sequence and similar requirements of the Electoral Act to determine numerical formality. This could be based on the preferences entered by an ICT supplier employee but the employee could not override the system's determination of formality.³³ ICT supplier employees did not have authority under the Electoral Act to make decisions on the formality of Senate ballot papers.

5.37 Determination of informality for 'other reasons' than a ballot paper having no preferences or having informal preferences was not automated and needed to be made by a human. The business rules, as described to the ANAO, required that a determination of informality for 'other reasons' be made by an AEC official at an AEC managed queue. The 'other reasons' include ballot

32 Australian Electoral Commission, Answer to Question on Notice No. F69, Senate Finance and Public Administration Legislation Committee, Additional Estimates 2016–17, 28 February 2017.

33 In a briefing of 30 June 2016 the AEC gave the Electoral Commissioner incorrect advice on the system's business rules for potentially informal ballot papers. However, the Electoral Commissioner has subsequently stated that in his view he was fully apprised of the system risks and business rules, receiving verbal briefings from staff almost daily. The brief included that, 'the scanning system will automatically divert images of ballot papers which are potentially informal (eg have no first preference or have a preference sequence breakdown) to the AEC adjudication queues for formality determinations'. Whereas these ballot papers were diverted to an ICT supplier managed queue. A similar error appeared in an AEC submission to the JSCEM inquiry, which stated that 'Any discrepancy during verification directed the image and data preference record to the AEC for adjudication and resolution'. Whereas such discrepancies, or mismatches, were directed to the ICT supplier to either resolve or to escalate to the AEC.

papers which have been altered, ballot papers where the voter has identified themselves or where a ballot paper was not otherwise admissible. The AEC reported that 881 of the 567 806 informal votes in the 2016 Senate election were informal for ‘other reasons’.

5.38 As an indication that the business rules operated as intended³⁴, in July 2017 the ANAO asked the AEC if it could provide evidence that AEC officials had made the formality decision for each of the 881 Senate ballot papers that were determined to be informal for ‘other reasons’. The AEC was not able to provide this evidence.

Scrutineers

5.39 Candidates are not permitted to observe the counting of votes (the scrutiny) for elections in which they are candidates. They have the right, however, to appoint scrutineers to represent them during the various stages of counting ballot papers. The Electoral Act s264(2) states, ‘A candidate is not entitled to be represented at the scrutiny at a particular counting centre by a number of scrutineers that is greater than the number of officers who are engaged in a scrutiny or counting of ballot papers at that centre.’

5.40 The outsourcing of elements of the 2016 Senate scrutiny process negatively impacted the number of scrutineers that could be present at the count. In previous elections only AEC officials were engaged in the Senate scrutiny and so a 1:1 ratio applied. For the 2016 federal election, the number of scrutineers was still limited to the number of AEC officials engaged in the scrutiny yet the Senate scanning system was operated predominately by ICT supplier staff. The resulting ratio was approximately 1:15, being one scrutineer per 15 Senate scanning system users. The AEC’s approach may have complied with the Act but diminished the extent of scrutiny that was applied to the count.

5.41 The Electoral Act s265(1)(c) states, ‘All the proceedings at the scrutiny shall be open to the inspection of the scrutineers’. Accordingly, scrutineers were given access to each stage of the Senate scanning system. Dual monitors were installed to allow scrutineers to sight the data entry and verification of preferences by operators. Each scanning centre was staffed with a dedicated ‘scrutineer manager’ and scrutineers were briefed on the facilities and on how the Senate scanning system worked.

5.42 Scrutineers have the right to challenge the admission or rejection of any ballot paper. An extra key-stroke was included at the end of the data entry process, so as to increase the time scrutineer’s had to make a challenge before the ballot paper image left the screen. Data entry was fast, the timeframe for making a challenge was very short, and the image could not be retrieved on the screen—a situation that may have adversely impacted the ability of scrutineers to carry out their legislatively determined role. Feedback to the Joint Standing Committee on Electoral Matters from scrutineers included that a:

... running issue of the count was the inability for the data entry personal to bring a ballot back to the computer screen. In a traditional count the ballot paper would simply be turned over once counted, however in this system once the ‘enter’ button had been hit the ballot went through and was irretrievable. This was a very serious issue because as the casual data entry staff became more confident, and in times complacent, they would speed up to the point where ballot papers

34 The audit team could not test the Senate scanning system because it had been decommissioned in late 2016.

would flash onto the screen for sometimes only 2 seconds before they would hit 'enter' and the ballot paper would be gone for good.³⁵

5.43 Should a scrutineer make a challenge on the formality of a ballot paper then a specific workflow was incorporated in the system to manage this. If the challenge was unable to be resolved by the ICT supplier, it was flagged in the system and the ballot paper record was sent to a dedicated scrutineer challenge queue managed by the AEC. In total, 2436 ballot paper records were sent to the scrutineer challenge queue for resolution.

5.44 The Electoral Act s267(1) states, 'If a scrutineer objects to a ballot paper as being informal, the officer conducting the scrutiny shall mark the ballot paper admitted or rejected according to the officer's decision to admit or reject the ballot paper.' The AEC decided that, with the introduction of the Senate scanning system, the officer would not mark the physical ballot paper 'admitted' or 'rejected'. Instead, the system records would be relied upon. The XML files included a record of whether the ballot paper had passed through a scrutineer challenge queue and whether it was ultimately admitted or rejected.

5.45 The record of the AEC's decision is advice to the Electoral Commission dated 30 June 2016 (two days before polling day) to rely on the system records given 'the physical retrieval, annotation and return of a large number of live ballot papers could severely compromise the AEC's ability to finalise the count in a timely way'. The advice include that 'The electronic record in the scanning system (attached to a ballot paper image) of a decision on a subsection 267(1) formality objection by a scrutineer is not in strict compliance with the legislation (that is, that it be marked on the ballot paper)'. The Electoral Commissioner approved the recommended approach on 6 July 2016.

5.46 The feedback to the Joint Standing Committee on Electoral Matters indicated that scrutineers generally found it more difficult to confirm the integrity of the Senate count when conducted by the semi-automated system than by the previous manual process. Scrutineers play an important assurance role. The AEC should look for additional ways to accommodate them and to give scrutineers confidence that the voter preferences they see on the computer monitors correspond with the hardcopy ballot papers and with the data ultimately entered into the count. Implementation of ANAO audit Recommendation No.4 (below) will help give scrutineers, the AEC and others confidence in the integrity of computer assisted scrutiny.

35 Submission 99 to the Joint Standing Committee on Electoral Matters' inquiry into and report on all aspects of the conduct of the 2016 Federal Election and matters related thereto, p. 4.

Recommendation no.4

5.47 When the Australian Electoral Commission uses computer assisted scrutiny in future federal electoral events, the integrity of the data is verified and the findings of the verification activities are reported.

Entity response: *Agreed with qualification.*

5.48 The AEC remains confident that the range of measures put in place for the 2016 federal election ensured the integrity of the Senate count. For future events, the AEC will continue to evaluate and if appropriate, implement additional verification mechanisms to maintain the integrity of the count. The results of verification activities undertaken at future electoral events may be reported in support of the scrutineering process.

Did the AEC gather lessons learned to inform future electoral events?

The AEC's post-election evaluation activities gathered lessons to be learned. These should inform improvements to future electoral events, including the transport of election-related materials and the operation of Senate scanning centres.

5.49 Following the 2016 federal election, the AEC established a specialist team to conduct an evaluation of the election. More than 1500 observations from AEC staff were gathered and analysed to develop lessons learned and key areas of focus for the future.

5.50 In relation to election-related transport services, the report on the evaluation included:

As has been noted by AEC management previously, the lack of access to reliable, real time logistical information jeopardises the AEC's ability to have the right materials in the right place, at the right time. Based on the observations received, this has the potential to cause angst and added workload for staff.

Observations in this cluster typically focussed on details relating to the implementation of logistics at the operational level. This included: distribution schedules not being met; consignments of election material other than ballot papers arriving at premises without a manifest; and matters relating to inventory management, including forecasting. Most of these observations related directly to end-users not being able to track where consignments were moving within the supply chain.

5.51 Fifteen 'high interest' areas were identified in the report for separate evaluation. Among these were evaluations on: freight and logistics of election material; AEC's national procurement panels; and election-related contract management. These evaluations have been completed and provided valuable insights and recommendations.

5.52 In relation to the Senate scanning system, a joint post-implementation review workshop with the AEC and ICT supplier was held to identify key issues relating to the design and operation of the system and to develop refinement proposals to facilitate AEC preparations for future elections. An evaluation of the Senate scanning system was also conducted separately by the ICT supplier and reported to the AEC in September 2016.

5.53 Lessons learned from the workshop and the ICT supplier's evaluation related to activities such as site facilities, document preparation and scanning, data entry and the design of the ballot papers. The positives, the issues and suggestions for addressing those issues, were all recorded.



Grant Hehir
Auditor-General

Canberra ACT
22 January 2018

Appendices

Appendix 1 Responses from entities



Electoral Commissioner

Our Ref: 20171222 - 2397

Lisa Rauter
Group Executive Director
Performance Audit Services Group
Australian National Audit Office
GPO Box 707
Canberra ACT 2601

Dear Ms Rauter

ANAO Proposed Report under s.19 of the Auditor-General Act 1997

Thank you for the proposed report and recommendations into the Australian Electoral Commission's (AEC) procurement of services for the conduct of the 2016 federal election.

The 2016 federal election was the largest and, in many ways, most complex in the nation's history. The Senate voting changes, the evaluation of which is the focus of the audit report, were the most significant reforms to Australia's electoral system in 30 years. In the extraordinarily short period of three months, and without prior warning, the AEC successfully developed and then implemented a robust, effective, technologically advanced and entirely new system for counting, under high levels of scrutiny, some 15,000,000 Senate votes in multiple locations around Australia.

Further layers of electoral complexity were added by: predictions of a close event (with attendant media and political focus); the election being a double dissolution; the election period following the very recent finalisation of several major boundary redistributions; a shorter than usual timeframe specified for the return of the Writs; the need to develop, test, and deliver a nuanced national education campaign for all voters about the changes; and the election being the first national event since the implementation of the Keelty Report recommendations following the 2013 federal election. Notwithstanding these additional complications, the AEC was keenly aware that failed delivery, non-delivery, or even partial delivery, of the Senate voting reforms would have had catastrophic consequences for Australia's system of governance with both domestic and international implications.

The information in the two paragraphs above about the context in which the election was delivered is so inextricably linked to an understanding of the event, and so material to any logical review of program delivery, that the lack of focus on these issues in the ANAO report is potentially misleading to the reader. While I acknowledge that there is a balance to be reached between the context and the documentary evidence available, this omission, accompanied by some other issues which are further examined in this letter, significantly detracts from the utility of what is otherwise a valuable report with some extremely useful observations for the AEC to further improve its level of delivery.

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The Senate scanning solution

The AEC's Senate scanning solution was developed and implemented in less than 12 weeks, and then operated through the election to deliver the election of 76 Senators to the Australian Parliament. On any reasonable measure, the solution was an impressive accomplishment which functioned as intended. It has subsequently received an innovation award at the 2016 Australian Information Industry Association's iAwards ACT.

It was crucial that key stakeholders accepted the system and the AEC engaged political stakeholders throughout the development process to ensure they had the opportunity to view the Central Senate Scrutiny processes and system before it was operationalised. After extensive consultation by me with external stakeholders – including major parties and Senate office holders – I took the decision to implement a full-blind data entry of all ballot papers in addition to optical character recognition of the preferences on Senate ballot papers. This decision was not taken because I doubted the integrity of the fully automated process, but because I felt it necessary to maintain stakeholder confidence in the outcomes of the process – the first time that Senate data would be entered in this manner.

I was, and remain, highly confident in the integrity of the data enabled by the solution design. A review by the Australian Signals Directorate (ASD) and the implementation of eight mitigation measures to address their 19 recommendations, provided me with added assurance that the risk of the data being tampered with was understood. At all times, I was fully apprised of the system risks and business rules. For example, given the critically short timeframe, and the need to deal with issues as they arose, I was verbally briefed by project staff almost daily, participated in formal and informal briefings, including attendance at ASD for a discussion on system security, undertook multiple visits to the off-site project team, and was involved in final decision making at each key stage – including the final form of the solution. Accordingly, given that background, I disagree with the ANAO implication that I was misinformed by my staff about certain aspects of system design.

The AEC also worked with political parties, candidates and scrutineers to ensure the process was as transparent as possible, in particular to ensure scrutineers were happy with access to the scanning and checking process. For the first time ever, scrutineers were able to view images of every Senate ballot paper for that state/territory, the data captured from those ballot paper images and, if required, access the physical ballot papers in a single location within each state/territory. To ensure complete transparency of the process, the AEC made all Senate ballot paper data publicly available on the AEC tally room. It should also be noted that there were no requests for recounts or advice from the Court of Disputed Returns that they had accepted any valid petitions in relation to the 2016 Senate elections within the 40 day period following return of the Writs.

The AEC is aware that there are a range of experts and academics who have made observations, both positive and negative, on the solution implemented. The AEC remains confident that the range of measures put in place for the 2016 federal election ensured the integrity of the Senate count. Indeed, the ANAO report does not cite any evidence to the contrary. However, for future events, the AEC will continue to evaluate and if appropriate, implement additional assurance mechanisms to maintain the integrity of the count.

Following the conduct of the 2016 federal election the AEC made a number of recommendations to the Joint Standing Committee on Electoral Matters to address technical matters in the legislation that were not included in last minute pre-election changes to the *Commonwealth Electoral Act 1918*. This included redressing aspects of the computerised Senate ballot paper count to ensure AEC processes remain legislatively compliant as further development takes place.

Procurement

Accessing relevant panel arrangements was an efficient and legitimate procurement option for the AEC. For the 2016 federal election, the AEC used established panels to mitigate procurement and

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contracting risks and to leverage off the buying power of larger Commonwealth Departments and Agencies.

The AEC is committed to achieving value for money in all procurement processes, this includes assessing financial and non-financial considerations. In the context of the 2016 senate scanning solution the AEC considered relevant factors such as capacity, experience and performance history.

With respect to future Senate scanning requirements, the AEC made an informed decision to access the Australian Taxation Office panel for 'capture and digital information services'. This procurement method was selected based on market research and value for money.

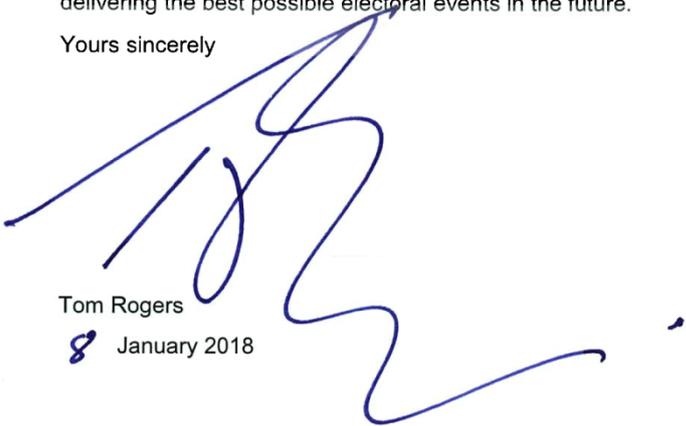
The AEC acknowledges that there is an opportunity to better record decisions to use relevant panels, including documenting the AEC's market research, scope of the panel and value for money assessment. Further, the AEC understands the importance of documenting key procurement decisions in a timely manner, including when under significant time pressures to deliver an outcome. The AEC has already implemented measures to better engage with industry and utilise industry expertise in its procurement of transport services.

The AEC is implementing more effective and efficient supply chain management arrangements, including improving the cost and time efficiency of transport. This has involved the AEC engaging a logistics expert to ensure the approach to market for the next federal election is informed by logistics expertise and industry transport knowledge.

The AEC is continuously improving procurement processes to enhance compliance and promote best practice. The AEC has implemented a number of initiatives to enhance national consistency in procurement and contracting and strengthen the AEC's procurement planning and contract management framework. The AEC has also focused on further developing procurement and contract management capabilities across the Agency. The AEC acknowledges that continuing to develop key procurement and contracting skills is essential to ensuring procurements are conducted effectively and value for money outcomes are achieved.

I am incredibly proud of our achievement to successfully design and implement the Senate scanning solution in such a short timeframe and then the successful conduct of the 2016 federal with the return of all writs in time for a new Government to be formed without any delay. Of course, I am very aware that there is always room for improvement, and I therefore wish to acknowledge the hard work of the ANAO audit team in completing the review. I am aware that all audits are complex, detailed and all consuming, and the AEC audits are no exception: we appreciate the generally positive relationship between the staff of our two agencies. As is always the case, the AEC derives great value from external scrutiny and I look forward to implementing agreed recommendations to assist the AEC in delivering the best possible electoral events in the future.

Yours sincerely



Tom Rogers

8 January 2018

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28th December 2017

Tracey Bremner
Senior Director
Australian National Audit Office

Dear Tracey:

Fuji Xerox appreciates and thanks the Australian National Audit Office for the receipt of the redacted version of the "Australian Electoral Commission's Procurement of Services for the Conduct of the 2016 Federal Election" document.

Fuji Xerox would like to provide some limited commentary in relation to the redacted report received.

The changes to Senate voting prior to the 2016 Federal Election meant that manually counting Ballot Papers was not possible in the timeframe.

Fuji Xerox worked with the Australian Electoral Commission to deliver a technology based solution that accurately captured voting preferences and still met the immutable deadline to declare an election result.

Fuji Xerox believes that the solution provided in conjunction with AEC Senate Reform team was a world first in regards to technical and operational delivery in a very tight (approximately 3 month) design, development and implementation timeframe. The customised solution (both operational and technical) implemented was world class, normally such projects take months of pre-planning and design prior to commencement of development.

The solution delivered the key requirement of delivering 2016 Senate Election results with high integrity across eight States/Territories within the legal (constitutional) timeframe.

The solution also delivered value for money for the Australian public given the risk profile, accuracy, scale and immutable deadlines of the design, build and delivery phases of the project.

There are some statistics that need correction in the report, for example even though Fuji Xerox had 61 scanners with custom manufactured input and output units/trays we also had additional scanner/s at each processing centre available for local BCP (scanner breakdown), also Fuji Xerox had more than 540 data entry stations (not 163) across the 8 processing locations operating up to 24 hours per day for up to 7 days a week¹. The vast majority of staff working on this project was employed as Data Entry/Verifying operators. The number of staff required was due to requirement of 100% blind entry for highest integrity within the timeframe to meet the immutable deadline.

Sincerely,

Wassim Hage-Hassan

¹ The report has been amended at paragraph 5.33.

