Table of contents

Brief summary

1. I submitted an FOI request to the AEC for the source code of software by which Senate votes are counted (EasyCount) and certain associated documents.

2. The AEC identified 58 documents within the scope of the request.

3. The AEC initially decided all of those documents were exempt under section 47(1)(a) or in the alternative section 47(1)(b) of the FOI Act.

4. The AEC also decided not to release a schedule of documents as it would disclose exempt material.

5. On internal review the AEC affirmed that decision with respect of 56 documents and identified that the other two documents were available for purchase from the AEC and therefore nor subject to the FOI Act.

6. I seek IC review of two decisions:

   (a) the decision not to provide a schedule of documents, as I contend it would not disclose exempt material; and

   (b) the decision with respect to the 56 documents as I contend that none of those documents are exempt under section 47 of the FOI Act.

7. It is my preference for the first matter to be resolved prior to the second matter. If that decision were varied it would enable me to examine the schedule of documents prior to the close of submissions on the review of the second decision. That may improve my submissions and make them more specific.

8. The main thrust of my argument is that the AEC incorrectly found that the documents contain trade secrets. I contend that the documents do not contain trade secrets or commercially sensitive information of the requisite type.

The FOI request

NATURE OF REQUEST

9. I made a request under the FOI Act to the Australian Electoral Commission which contained two parts, broadly:

   (a) source code of software by which Senate votes are counted ("**source code**")

   (b) data specifications and documentation associated with that software ("**documentation**")

10. My request for the source code was put in these terms:

> *"I am seeking source code for the software used to conduct the count of votes for a Senate election.*

This request includes scripts or interpreted code used within another piece of software (for example, T-SQL scripts, stored procedures etc).

This request excludes software used for data entry or for interpretation of those scripts but includes data validation software if that is distinct from data entry software.

This request may encompass more than one piece of software and I seek source code for each."[1]

11. My request for the documentation was put in these terms:

> *"I am seeking any documents which describe bespoke data formats used by any of the software sought in Part 1, either as input or output formats.*
>
> *This request excludes any data formats which are human readable or for which published specifications are available (e.g. PDF).*
>
> *For clarity, the types of documents I am seeking may include database table specifications, EBNF specifications for bespoke input data, column descriptors for CSV files, XML schemas or similar documents."*[2]

12. This request was made by email through the Right To Know website. As such all material was published and remains available at:

    https://www.righttoknow.org.au/request/software_by_which_senate_counts

13. The Right To Know website contains annotations and other correspondence not immediately relevant, including automated acknowledgements, comments from others and post-request correspondence between myself and the AEC.

TIMELINE

14. On 4 October 2013 I made the initial request to the AEC by email ("**original request**").

15. On 9 October 2013 I received an acknowledgement of my request by email ("**first acknowledgement**").

16. On 4 November 2013 I received an initial decision by email, made by the AEC's Chief Legal Officer, Paul Pirani (AEC Ref LS4849 ~ file 13/945) ("**initial decision**").

17. On 8 November 2013 I requested internal review by the AEC of that decision by email ("**internal review request**").

18. On 9 December 2013 the AEC sent by email notice of a decision on that internal review, made by the AEC's Deputy Electoral Commissioner, Tom Rogers (AEC ref LS4883 ~ file 13/945) ("**internal review decision**").

1. ---

[1] *Original Request*, lines 6-15.

[2] *Original Request*, lines 17-25.

19. On 10 December 2013 I received that decision. The delay in my receipt of this was due to technical issues with the Right To Know website. I do not take any issue with the timeliness of the response.

20. On 5 February 2014 I submitted this request for information commissioner review to the Australian Information Commissioner using the online PDF form ("**IC review request**").

SOURCE CODE OR SOFTWARE

21. My original FOI request was specifically for the source code of counting software.[3]

22. This scope was understood when the request was acknowledged.[4]

23. In decision letters the scope of request has been taken to be for software, quoting only part of what was acknowledged,[5] specifically:

> *"1. software used to conduct the count of votes for a Senate election including scripts or interpreted code used within another piece of software (for example, data validation software that is not data entry software, T-SQL scripts, stored procedures etc) but excluding software used for data entry or for interpretation of those scripts; and*
>
> *2. documents that describe bespoke data formats used by any of the software sought in Part 1, either as input or output formats database table specifications, EBNF specifications for bespoke input data, column descriptors for CSV files, XML schemas or similar documents excluding any data formats which are human readable or for which published specifications are available (e.g. PDF)."*[6]

24. Nothing significant turns on this, however, as it is common ground that the software itself is "easily 'de-compilable' using publically available utilities."[7] The FOI exemptions claimed therefore apply equally to the code and to the software itself.

25. In considering the exemptions the decisions have treated my request as a request for the source code.

26. I suspect that the software is in fact a set of scripts intended to be interpreted (as opposed to compiled) by a computer. If that is the case there is no difference between a document that is the source code of the software and a document that is the software.

27. However, if there is a difference, my request is for the source code itself.

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[3] *Original Request*, 4 October, lines 5-6 and 14-15.

[4] *First Acknowledgement*, 9 October, line 4.

[5] *Initial Decision*, [3] and the *Internal Review Decision*, [3].

[6] *First Acknowledgement*, 9 October, lines 7-17.

[7] *Initial Decision*, [14]; *Internal Review Decision*, [16].

PREFERRED FORMAT OF DOCUMENTS

28. In my original request and following correspondence I did not express a preference for the format of the documents requested.

29. Given that the documents are computer code I would like them to be provided as digital copies in their original format. This is particularly important for documents described in part 1 of my request (the source code).

30. To the extent that edited copies of the source code are to be made available under s 22, I am content for the material merely to be deleted and not marked as such. This should permit documents to be provided in their original format with edited material deleted.

31. The AEC's practice with correspondence in this matter has been to print out the correspondence, sign it and then scan the signed copy. That scanned version is what has been provided to me, even when I have requested the documents in another format.

32. This practice creates significant barriers to dealing with the material. In particular it makes it impossible to copy and paste extracts from the material, or to search it electronically.

Requested relief

33. I would like the AEC to provide me with a copy of the schedule of documents, in any form. I would like this to occur before the review is finalised to enable me to review my contentions in light of that document.

34. I would like the AEC to provide me with a copy of each of the 56 documents for which an exemption has been claimed.

35. I would like each of those documents to be provided electronically in their original format (i.e. as byte-for-byte copies of the computer files).

    (a) If redactions are required under s 22 of the FOI Act I am happy for the files to be modified as required to make those redactions, while retaining their original format.

36. If the documents are found not to be exempt but are not to be provided as byte-for-byte copies (redacted as necessary) then I would like an opportunity to be heard further on why I contend they should be.

The decisions

DOCUMENTS WITHIN SCOPE

37. The AEC initially identified 58 documents as being within the scope of my request.[8]

38. On internal review the AEC determined that two of those documents ("**EasyCount Manuals**", forming part of the documentation) were outside the scope of my request as they were available for purchase from the AEC by members of the public.[9]

39. On that basis I am satisfied that the EasyCount Manuals are not subject to the FOI Act.[10] I do not seek review of this finding.

40. In the absence of any information about the 56 identified documents I cannot contend that there are any other issues in terms of the scope of my request.

SCHEDULE OF DOCUMENTS

41. The AEC decided not to release a schedule of documents because:

> *"…listing the documents in this notifying you of my decision* [sic] *would necessitate disclosing exempt material by reason that it would give general guidance to a person on how to uncover the trade secret protecting the EasyCount Software."*[11]

42. This decision was affirmed by the Internal Review with identical reasoning using precisely the same words.[12]

ACCESS REFUSAL

43. The AEC decided not to release the 56 documents requested claiming that all documents were exempt. The AEC claimed that all of the documents were exempt:

    (a) under s 47(1)(a) of the FOI Act as trade secrets; or in the alternative

    (b) under s 47(1)(b) of the FOI Act as information having a commercial value that would be, or could reasonably be expected to be, destroyed or diminished if the information were disclosed.

44. The AEC found that the s 47(2) carve-out does not apply.[13] I do not contest this finding.

1. _____

[8] *Initial Decision*, [4].

[9] *Internal Review Decision*, [9] and [24]-[25].

[10] S 12(1)(c).

[11] *Initial Decision*, [24].

[12] *Internal Review Decision*, [84].

[13] *Initial Decision*, [12]; *Internal Review Decision*, [14].

45. The AEC found that it is engaged in commerce, and that EasyCount is used commercially, in when the AEC provides services for:

    (a) industrial elections; and

    (b) fee-for-service elections.[14]

46. The AEC also found on internal review that EasyCount is leased (presumably on commercial terms) to other electoral bodies.[15]

47. I do not contest these findings.

48. The AEC found that in providing fee-for-service elections and some industrial elections they had a number of government and non-government competitors.[16]

49. I note that the relevant industrial elections market is only those elections for which an exemption has been granted under the *Fair Work (Registered Organisations) Act 2009* from the provisions requiring elections to be conducted by the AEC. This is relevant to the size of the market and the degree of competition. However, nothing significant turns on this.

50. I do not contest the findings that the AEC:

    (a) engages in commercial activities;

    (b) uses a version or versions of EasyCount in those activities; and

    (c) has competitors in those commercial activities.

Grounds for review – schedule of documents

51. The grounds for review relating to access refusal (see page 12) are also relevant to the schedule of documents. If the documents themselves are not exempt, as I contend, then the schedule cannot be exempt.

52. It remains my preference that a decision is made on access to the schedule of documents before a decision is made on access to the documents themselves.

53. The following contentions do not depend on the documents being exempt or not. It is my contention that access to the schedule should be provided in any event on this basis.

54. It is important to note that by the following arguments I do not concede the existence of any exemptions in the documents themselves.

1. _____

[14] *Initial Decision*, [13]; *Internal Review Decision*, [15].

[15] *Internal Review Decision*, [15](c).

[16] *Initial Decision*, Annexure 1; *Internal Review Decision*, Attachment B.

NO REASONS GIVEN

55. The AEC claimed that the schedule of documents was not provided on the basis of s 26(2) of the FOI Act.[17] Impliedly the entirety of the schedule is claimed to be exempt under the FOI Act.

56. Access to the schedule of documents was specifically requested in the course of the Internal Review Request.[18]

57. No specific reason why the schedule would be exempt was cited. This constitutes a failure by the AEC to give reasons as required by s 26(1)(a) of the FOI Act.

NO VALID EXEMPTION CLAIMED

58. To the extent reasons for the decision to not provide access to the schedule were provided, those reasons do not disclose an available exemption under the FOI Act.

59. At [84] of the *Internal Review Decision*, the decision-maker found that:

> *listing the documents […] would give general guidance to a person on how to uncover the trade secret protecting the EasyCount Software.*

60. There is no exemption in the FOI Act for documents which give general guidance to a person on how to uncover a trade secret.

61. At best the reasons claim an exemption under s 47(1)(a), that the schedule would disclose a trade secret. I address this matter at paragraph 63 below.

62. Alternatively the AEC may intend to imply that disclosure of this "general guidance" would interfere with the proper and efficient conduct of its operations. This would be the basis for a conditional exemption under s 47E(d). I address this matter at paragraph 81 below.

IMPLIED CLAIM OF EXEMPTION UNDER S 47(1)(A)

63. A document is exempt under s 47(1)(a) of the FOI Act where granting access would result in the disclosure of a trade secret.

64. In accordance with the FOI Guidelines, to be a trade secret:[19]

    (a) the information is used in a trade or business;

    (b) the owner must limit the dissemination of it or at least not encourage or permit widespread publication; and

1. ---

[17] *Internal Review Decision*, [83]; *Initial Decision*, [23].

[18] Line 22.

[19] [5.185], citing *Lansing Linde Ltd v Kerr* (1990) 21 IPR 529 [536], as quoted in *Searle Australia Pty Ltd and Public Interest Advocacy Centre and Department of Community Services and Health* [1992] 108 ALR 163.

(c) if disclosed to a competitor, the information would be liable to cause real or significant harm to the owner of the secret.

65. It may be that the list of documents is used in the course of trade or business, being the AEC's fee for service and industrial elections programs.

66. It is clear that the AEC intends to limit dissemination of the list, though it has indicated it would disclose this information to political parties.[20]

67. My contention is that the disclosure of the list of documents could not cause real or significant (commercial) harm to the AEC.

68. At the core of the AEC's claim to trade secrecy is that:[21]

> *disclosure of EasyCount to a competitor would […] enable a competitor to provide commercial voting and counting services at a lower cost without the need the incur and recoup the development costs.*

69. Disclosing the list of documents would not reduce the development costs of vote counting software.

70. At worst this disclosure would provide some information about the structure of the software. For example, the names of component files could give indications about how the software handles particular tasks and how modules relate to each other.

71. This information would not significantly reduce the time taken to reproduce the software product.

72. The value of this information to competitors is minimal[22], especially given the existence of standard software design patterns[23] and the existence of alternative vote counting software for which the source code is readily available[24].

73. Competitors would still be required to expend significant time and money developing a vote counting system. This expenditure would put them on an equal playing field with the AEC in terms of the cost of competing in the relevant field.

74. On that basis the disclosure of the list of documents (the schedule) would not be liable to cause real or significant harm to the AEC. Therefore the exemption under s 47(1)(a) does not apply to the schedule.

1. _____

[20] *Internal Review Decision*, [30].

[21] *Internal Review Decision*, [78](h).

[22] A relevant consideration: Guidelines [5.186].

[23] See e.g. http://en.wikipedia.org/wiki/Software_design_pattern accessed 15 Jan 2014.

[24] See e.g. the Elections ACT EVAC system, source code for which is available online at http://www.elections.act.gov.au/elections_and_voting/electronic_voting_and_counting accessed 15 Jan 2014.

Impact of disclosing desired outcome of algorithm

75. At paragraph 108 below I discuss the difference between describing an algorithm and describing a desired outcome of an algorithm.

76. The disclosure of the schedule would be at worst equivalent to disclosing the desired outcome of the algorithm.

77. If the algorithm is secret then disclosing the desired outcome does not disclose the algorithm.

78. If the algorithm is public then disclosing the desired outcome may give an individual the ability to determine the algorithm. However, that algorithm is not secret, so not protected under s 47.

79. If the algorithm is obvious from the statement of the desired outcome then stating the desired outcome may determine the algorithm. However, given its obviousness, it has no commercial value, so is not protected under s 47.

80. In any case, the desired outcome of EasyCount is public knowledge: the input is a list of votes and the output is the winner determined in accordance with certain published systems. I discuss this further at 106 below.

IMPLIED CLAIM OF CONDITIONAL EXEMPTION UNDER S 47E(D)

81. This conditional exemption may apply if the documents contain information not normally disclosed which would interfere with the operations of the AEC.

82. This exemption may be claimed where information that creates a risk to the agency would be disclosed.[25] In this case the risk is that disclosure will provide general guidance on how to discover a trade secret.

83. This exemption is conditional on disclosure being contrary to the public interest. There is a presumption in favour of disclosure.[26]

84. I have discussed the impact of disclosure on the AEC at paragraphs 69-73 above.

85. On that basis the disclosure would not be reasonably expected to result in the disclosure of the trade secret in the documents themselves, should such a trade secret exist.

86. Even if the documents were disclosed as a result the expected effect would not be substantially adverse. I discuss this in more detail in the section *Grounds for review – access refusal* below.

1. _____

[25] See e.g. *'AW' and Australian Taxation Office* [2014] AICmr 1 where user IDs were held to be exempt given the risk to the security of the ATO's computer systems from their disclosure.

[26] FOI Act s 11A(5).

87. In applying the public interest test there must be a balance between factors in favour of and opposed to disclosure.

Factors in favour of disclosure

88. The disclosure would promote the objects of the Act[27] by increasing scrutiny, discussion, comment and review of the Government's activities[28]. In particular the disclosure of the schedule would permit scrutiny both of the decision made by the Government (i.e. the AEC's FOI decision) and through providing information about the AEC's activities.

89. The disclosure of the schedule would inform debate on a matter of public importance[29], namely the counting of votes and conduct of Commonwealth elections. It would inform that debate by providing some information about the EasyCount system, possibly including the structure of the software.

90. The disclosure would promote effective oversight of public expenditure[30] by providing some information about the EasyCount system, potentially including whether its structure is similar to that of existing systems. That could permit analysis of whether existing, less expensive systems could have been used.

91. The disclosure would further promote effective oversight of public expenditure by permitting more substantial analysis of the AEC's FOI decision.

92. It is in the public interest for the reasons for decisions to be published unless there is a compelling reason not to publish those reasons, as an essential element of procedural fairness.[31]

Factors against disclosure

93. Impliedly the AEC weighed heavily that disclosure could reasonably be expected to prejudice the competitive commercial activities of an agency.[32]

94. I have outlined above disclosure of the schedule will not prejudice the competitive commercial activities of the AEC.

95. In particular, the types of considerations used by customers in the competitive environment in which the AEC operates are not limited to considerations about the counting software.

1. _____

[27] FOI Act s 11B(3)(a).

[28] FOI Act s 3(2)(b).

[29] FOI Act s 11B(3)(b).

[30] FOI Act s 11B(3)(c).

[31] Guidelines, [6.25](6).

[32] Guidelines, [6.29](10).

96. The existence of EasyCount is not one of the competitive advantages on which the AEC promotes its competitive services.[33]

97. The only part of the competitive field which could be influenced by this disclosure would be cost, and the change would be at best minimal.

98. Even if there is any prejudice to the commercial activities of the AEC, this should not be given significant weight compared to the public interest factors in favour of disclosure.

99. On balance the public interest test weighs in favour of disclosure of the schedule.

PROVISION OF AN EDITED VERSION

100. It is common practice for agencies (including the AEC[34]) to provide edited versions of schedules of documents in accordance with s 22 of the FOI Act.

101. The AEC has made no attempt to provide an edited version of the schedule.

102. To the extent that any of the schedule is exempt by virtue of ss 47, 47E or otherwise, an edited version of the schedule excluding that exempt material should be provided.

Grounds for review – access refusal

103. The AEC withheld the documents on the basis that they contained trade secrets or other information having a commercial value that would be, or could reasonably be expected to be, destroyed or diminished if the information were disclosed.[35]

104. In this submission I will, for convenience, refer to the information in question as the trade secret. In doing so I do not concede that it is in fact a trade secret, nor that it is commercial information which meets the test under s 47(1)(b).

105. I refer to the information as the trade secret because it is necessary that the information be identified before it is possible to consider the application of s 47(1).

BACKGROUND ON ALGORITHMS

106. In order to identify the trade secret it is necessary to first describe what an algorithm is and certain related matters.

1. _____

[33] See http://www.aec.gov.au/About_AEC/AEC_Services/Fee_for_service.htm accessed 15 Jan 2014.

[34] See e.g. the Schedule of Documents provided in response to *FOI Request No LS4746* in the AEC's Disclosure Log, http://www.aec.gov.au/About_AEC/foi/foi.htm accessed 19 Dec 2013.

[35] *Internal Review Decision*, [9].

What constitutes an algorithm?

107. The AEC defines algorithm by reference to the Macquarie Dictionary as "an effective procedure for solving a particular mathematical problem in a finite number of steps."[36]

108. The requirement that an algorithm solve a mathematical problem is merely a formal one. All computer programs can be described as solving mathematical problems.[37]

109. The work of Alan Turing created a formal mathematical description of computers as so-called Turing Machines. Modern programming languages are described as being "Turing complete" (see http://en.wikipedia.org/wiki/Turing_completeness), meaning they can solve general problems that can be expressed algorithmically as being solvable by a Turing machine.

110. Any computer program that can be executed on a modern computer can ultimately be expressed as a program for a Turing Machine and is therefore, to that extent, mathematical in nature.

111. At its core what this means is that every computer program operates on the basis of an algorithm (or several algorithms).

112. It may be simpler to use an informal definition of algorithm as a sequence of well-defined steps, each able to be executed by a computer, which bring about a desired result.[38]

113. Algorithms will often operate on some data supplied by a user (input) and then supply data back to the user (output). It is this transformation of input into output that is the desired result. It is the series of well-defined steps used to bring about this result that is the algorithm.

Describing algorithms, input and output

114. I take this brief diversion to ensure the principle is well-understood.

115. It is possible to describe desired outcome without describing an algorithm for achieving this outcome.

116. As a simple example, the statement "given ten different numbers as an input, the output should be the largest of those numbers."

117. A simple algorithm to achieve this might be described as follows:[39]

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[36] *Internal Review Decision*, [64].

[37] See http://en.wikipedia.org/wiki/Algorithm as it discusses the formal meaning of algorithm.

[38] Again http://en.wikipedia.org/wiki/Algorithm contains a series of examples and detailed discussion of this.

[39] See http://en.wikipedia.org/wiki/Algorithm#Algorithm_example for the origin of this example.

(a) Look at the first number provided and remember it (we will say it is the "currently largest number").

(b) Look at the next number provided. If it is larger that the currently largest number, remember that instead as the currently largest number.

(c) Repeat step (b) until there are no more numbers left to test.

(d) Provide the currently largest number as the output.

118. This example algorithm is easy to figure out but is the part which is secret.

119. In this example there is no other way of solving the problem.[40] There can be no other algorithm.

120. In those circumstances it may be that the algorithm is not widely known, even though the desired outcome is known.

121. For some types of problems there may also be multiple ways of solving the problem. Take, for example, a program which takes as input a number and provides as output all prime numbers less than that number. There are many different algorithms which could solve this problem. Many of those are well-known.

Compound programs

122. Most computer programs will in fact solve multiple problems.

123. These programs operate by having an overarching algorithm which in turn calls other algorithms (sometimes described as subroutines).

124. For example, a program might take a list of numbers and then ask the user what information they would like to receive about that list (e.g. largest number, smallest number or average). This program could be described as containing four algorithms:

(a) An algorithm that takes user input about which operation to perform, provides the list of numbers as input to an algorithm which performs that operation and then provides as output the output of that algorithm.

(b) An algorithm that takes a list of numbers as input and provides the largest number as output.

(c) An algorithm that takes a list of numbers as input and provides the smallest number as output.

(d) An algorithm that takes a list of numbers as input and provides the average of those numbers as output.

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[40] Technically there are trivially different solutions, for example starting with the last number and moving backwards, but in essence all solutions are the same.

125. In this way all programs can be described in terms of these parts, each of which is a simple algorithm. The offering of an option of which operation to run is a trivial algorithm in and of itself.

126. Further, complex computer programs can have multiple levels of these simple algorithms to provide a result.

WHAT IS THE TRADE SECRET?

127. The *Internal Review Decision* states that:[41]

> *[t]he algorithm is the trade secret.*

Specific identification of the trade secret

128. In general, to seek protection of a trade secret, that trade secret must be sufficiently identified.[42]

129. The identification of the trade secret as "the algorithm" provides very little guidance as to precisely what protection is being sought. This limits my ability to respond to this contention.

130. The identification of the trade secret provided by the AEC would not meet the requirement for a court to grant equitable relief in an action for breach of confidence.

131. I recognise that the principles around certainty of claim required for a court to grant equitable relief may not be identical to those required in an administrative decision under the FOI Act.

132. I submit that the requirement in s 26 to provide reasons for decisions should be interpreted as requiring the information claimed to be confidential to be adequately specified, consistent with the principle in *O'Brien v Komesaroff*[43].

133. Adequate description of the protected information would involve, for an algorithm, describing input, output and desired outcome from the algorithm.

Describing the trade secret

134. Here I attempt to describe the elements of EasyCount (a compound program) and what algorithms are involved.

135. One element of EasyCount may be to convert above the line votes into their relevant group voting ticket.

1. _____

[41] [57], see also [62].

[42] See e.g. *O'Brien v Komesaroff* (1982) 150 CLR 310.

[43] Ibid, in particular per Mason J at [46]-[47] (CLR page 328); see also *Corrs Pavey Whiting & Byrne v Collector of Customs* [1987] FCA 266, [14] per Gummow J.

(a) The input for this subroutine will be the group voting tickets of each group and the number of above-the-line first preferences for that group.

(b) The output for this subroutine will be vote data that can be used as input for the vote counting subroutine (i.e. vote data that is similar to below-the-line vote data).

(c) The process for converting above-the-line votes into their below-the-line equivalents is trivial; it effectively involves returning an element of a list based on the input value.

136. EasyCount may also have other vote transformation subroutines which do not follow the Senate GVT rules but which operate on a similar principle.

137. EasyCount will also have a number of different counting routines for the different voting systems which can be accommodated by the software.

(a) The input for each counting routine will be a set of votes (the precise data format of each vote will depend on the voting system).

(b) The output for each counting routine will be the declared winner (or winners) under that voting system.

(c) For some voting systems additional output may be produced. For example, the Senate voting system operates in a loop with the following steps:

(i) Provide interim output describing the current state of the count.

(ii) If there is a candidate with more than a quota, declare them elected and redistribute their preferences, then return to start.

(iii) If there is not a candidate with more than a quota, exclude the candidate with the fewest votes and redistribute their preferences, then return to start.

138. EasyCount will have a range of user interface options, for example to modify input or output formats. It may have other functions which are trivially implemented.

139. If there are functions which I have not identified I would like a further opportunity to be heard on the secrecy of those functions.

140. Even if there are other functions which are secret, I demonstrate below that at least these algorithms are not secret. On that basis at least the documents containing the source code implementing these functions is not exempt under s 47.

GENERAL KNOWLEDGE OF THE TRADE SECRET

141. The *Internal Review Decision* states:[44]

> *The AEC webpage Industrial Elections Voting Systems at http://www.aec.gov.au/About_AEC/AEC_Services/Industrial_Elections/voting.htm (the 'Industrial Elections webpage') that you cite describes voting systems and is not itself an algorithm. At best it is the drafting instructions that the drafter of the algorithm would have regards to in preparing an effective procedure to express the voting process as a mathematical problem for the purposes of a computer program that would produce the outcomes required by the Industrial Elections webpage.*

Public knowledge of the algorithm

142. The Industrial Elections webpage describes various voting systems which can be counted using EasyCount.

143. For each of those systems the counting algorithm is well-known.

144. The Industrial Elections webpage describes the procedure for counting each of those votes.

145. The process of translating that procedure into an algorithm is trivial. The descriptions are such that they are in the nature of an algorithm. On this basis there is only one algorithm that can be used for each system[45]

146. In addition, detailed, step-by-step descriptions of voting methods are available by searching for their names on the internet.[46]

147. Many alternative software implementations of these systems have source code freely available on the internet.[47]

148. Algorithmic and mathematical descriptions of all these voting methods have appeared in academic publications.[48]

1. _____

[44] [65].

[45] It is possible for there to be voting systems (broadly described) for which there are multiple algorithms. For example, there are many counting algorithms which fit the description of providing as output the Condorcet winner(s). However the systems are generally – and by the AEC – described by the actual counting algorithm, e.g. ranked pairs or Schulze method. For more information on this example, see http://en.wikipedia.org/wiki/Condorcet_criterion.

[46] See e.g. http://en.wikipedia.org/wiki/Plurality-at-large_voting for block voting; http://en.wikipedia.org/wiki/Instant-runoff_voting for the standard preferential system.

[47] For example, https://github.com/guillaumegildas/openSTV, https://github.com/rameshvs/irv, http://www.elections.act.gov.au/elections_and_voting/electronic_voting_and_counting, https://github.com/ppau/votingsystem, http://sourceforge.net/projects/escrutinio/, http://www.accuratedemocracy.com/z_tools.htm, http://vote.sourceforge.net/ve/docs.html.

149. The core of my FOI request is for documents relating to Senate counts. The algorithm for counting Senate votes is described in precise detail by the *Commonwealth Electoral Act 1918*.[49] This detail is sufficient to constitute an algorithm.

150. On the basis that the alleged trade secret (the algorithm(s) underlying EasyCount) is publicly known, the information is not confidential.

151. As the information is not confidential it cannot be a trade secret and therefore is not exempt under s 47(1)(a) of the FOI Act.

Ease of re-creating the algorithm

152. A relevant consideration in the confidentiality or otherwise of information – in particular computer software – is the ease with which another individual could re-create them.[50]

153. In the *Dais Studio* case, the Jessup J held:[51]

> *…that these two files, or files substantially performing the same functions, could have been re-created from scratch by a developer of reasonable experience in about a week of normal work. Indeed, similar files might, and I would find probably could, be downloaded readily, freely and legally from open-source sites on the Internet. I do not, therefore, think that the files had any element of confidentiality about them by reason of the difficulty or expense associated with re-creating them or something similar.*

154. It would be a simple process for an individual to re-create any of the code used by EasyCount. It has been estimated replicating the Senate counting module would take approximately two working days.[52]

155. In fact, Grahame Bowland developed software which replicates the work of EasyCount Senate in "two long nights of work"[53] and released the source code for the system under an open source licence[54].

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[48] See, for example, http://www.dia.govt.nz/diawebsite.NSF/Files/meekm/%24file/meekm.pdf which discusses preferential voting systems and was first published in 1985. Organisations like http://www.idea.int/ and http://aceproject.org/ provide descriptions of voting systems. There is even a dedicated open-access academic journal *Electoral Studies*, details of which are available at http://www.journals.elsevier.com/electoral-studies/.

[49] Sub-sections 273(8)-(18).

[50] See e.g. *Dais Studio Ptv Ltd v Bullet Creative Pty Ltd* [2007] FCA 2054.

[51] Ibid, [80].

[52] Letter from Christopher Neugebauer, 17 Jan 2014, attached.

[53] http://blog.angrygoats.net/2014/01/25/counting-the-west-australian-senate-election/ accessed 28 Jan 2014.

[54] https://github.com/grahame/dividebatur accessed 28 Jan 2014.

156. On this basis the information does not have the necessary character of confidence, so cannot be confidential.

157. That the Senate counting system is not confidential means it cannot be exempted under s 47 of the FOI Act.

COMMERCIAL VALUE OF THE TRADE SECRET

158. The identified secret is the algorithm. The algorithm is the way votes are counted.

159. Even if the algorithm, one of the algorithms or some part of the algorithm is not disclosed, it does not have commercial value.

160. To attract exemption as a trade secret under s 47(1)(a) the information must be such that:[55]

> *if disclosed to a competitor, the information would be liable to cause real or significant harm to the owner of the secret.*

161. Alternately to attract exemption under s 47(1)(b):[56]

> *the commercial value of the information would, or could reasonably be expected to be, destroyed or diminished if [the information] was disclosed.*

162. Importantly EasyCount is only of commercial value or a trade secret insofar as it is used by the AEC as part of their commercial activities.

There is no commercial value in the information

163. In considering whether information has commercial value, the following matters are relevant:[57]

    (a) whether the information is known only to the agency or person for whom it has value or, if it is known to others, to what extent that detracts from its intrinsic commercial value;

    (b) whether the information confers a competitive advantage on the agency or person to whom it relates - for example, if it lowers the cost of production or allows access to markets not available to competitors;

    (c) whether a genuine 'arm's-length' buyer would be prepared to pay to obtain that information;

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[55] Guidelines [5.185] quoting *Lansing Linde Ltd v Kerr* (1990) 21 IPR 529 per Staughton LJ [536], cited in *Searle Australia Pty Ltd and Public Interest Advocacy Centre and Department of Community Services and Health* [1992] 108 ALR 163.

[56] Guidelines [5.188] referring to *McKinnon and Department of Immigration and Citizenship* [2012] AICmr 34.

[57] Guidelines [5.189] (footnotes omitted).

(d) whether the information is still current or out of date (out of date information may no longer have any value);

(e) whether disclosing the information would reduce the value of a business operation or commercial activity - reflected, perhaps, in a lower share price.

164. I've already explained that the information is known to others.

165. The information does not confer a competitive advantage. The AEC's competitive advantage arises from its experience and the trust placed in it by the public.

(a) Of the fourteen competitors named by the AEC, all have electronic vote counting software.

(b) All are aware of how to conduct elections using at lease some of the algorithms implemented by EasyCount.

(c) The algorithms implemented by EasyCount do not lower the cost of production, nor allow access to markets not available to competitors.

166. A genuine arms-length buyer would be unlikely to pay to obtain the algorithms used by EasyCount, as details of them are readily and freely available from other sources. In particular the EasyCount Senate algorithm – and indeed the entire software – has been duplicated by Grahame Bowland.[58]

(a) This directly contradicts the finding in the Internal Review Decision that "there are no commonly available alternative software programs that have been published."[59]

(b) A range of other similar software exists to conduct counts in a range of ways. These include:

(i) EVAC, published by Elections ACT http://www.elections.act.gov.au/elections_and_voting/electronic_voting_and_counting

(ii) The Pirate Party of Australia voting systems https://github.com/ppau/votingsystem and https://github.com/ppau/schulze

(iii) OpenSTV https://github.com/guillaumegildas/openSTV and http://www.openstv.org/

(iv) eScrutinio Vote Counting System http://sourceforge.net/projects/escrutinio/

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[58] http://blog.angrygoats.net/2014/01/25/counting-the-west-australian-senate-election/ accessed 28 Jan 2014.

[59] [72].

(v) Droop
https://code.google.com/p/droop/

167. The information remains current, but that is of no relevance.

168. The release of the information is unlikely to result in a reduction in value.

169. It is noteworthy that one of the named competitors of the AEC, namely Elections ACT, has published the source code for their electronic counting system (EVACS) as open source software.[60] This is indicative of a lack of commercial value in the algorithm, which the source code necessarily discloses.

Commercial value not diminished by disclosure

170. Even if there is commercial value in the software in that it is more efficient than manual counting, that value is not diminished by disclosure.

171. Again the release of EVACS by Elections ACT, an identified competitor, is indicative of this.

172. The disclosure of the algorithm does not diminish the amount of time required to be spent developing the software. Competitors seeking to use this information to develop their own counting systems would still need to expend significant amounts on software development.

Real or significant harm from disclosure

173. In order to attract protection under s 47(1)(a) disclosure of the algorithm would have to cause real and significant harm to the AEC.

174. Again the release of EVACS by Elections ACT, an identified competitor, is indicative of a lack of harm caused to a public sector body, competitive in the elections market, from the release of the source code of their vote counting system.

175. The fact that all competitors already have electronic vote counting systems is indicative of the fact that there would be no significant harm, as it would not change their position in the market.

176. The release of the algorithm would still require competitors to expend the required time and money in development of software duplicating those results. That expenditure means that any competitive harm suffered by the AEC would not be significant.

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[60] http://www.elections.act.gov.au/elections_and_voting/electronic_voting_and_counting, accessed 5 Feb 2014.

ALTERNATIVE TRADE SECRET – THE CODE ITSELF

177. It may be that the AEC incorrectly identified the trade secret/commercially valuable information and wishes to rely on the code itself being the secret, rather than the algorithm.

178. I would seek to be further heard if the AEC intends to rely on this. However I will briefly address some relevant material here.

179. Most significantly, I would argue that there would be no diminution of commercial value, nor any real and significant harm to the AEC, by disclosure of the source code.

180. My earlier arguments about the availability of free alternatives, and about the existence of alternatives already in use by competitors, remain relevant.

181. Source code developed by the AEC is subject to copyright owned by the AEC.

182. That copyright protection would be preserved despite released under the FOI Act.

183. The existence of copyright protection would ensure that no competitor would be able to make use of the source code to replicate EasyCount.

184. Further any harm suffered by the AEC as a result of such use would be actionable copyright infringement. This would provide the AEC with a remedy against the harm that might otherwise be suffered.

Process of review

185. I wish to foreshadow the possibility that I will make further submissions, should it come to my attention that any material was omitted from my initial IC Review request.

186. I will also seek to make submissions in respect of any material presented by the AEC.

187. Nothing contained herein is confidential. I am content for any material contained herein to be given to the AEC or indeed any other interested party.

188. I do not seek anonymity in any aspect of this review.