The Electoral Commission

Electoral pilot scheme evaluation

Stratford-on-Avon District Council and Warwick District Council

August 2007

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Summary

Stratford-on-Avon District Council ('Stratford') and Warwick District Council ('Warwick') conducted an electoral pilot that involved the electronic counting of ballot papers and the joint centralisation of the management of postal votes.

Conclusions and findings

The pilot scheme did not facilitate the counting of votes. In Stratford, only six wards were counted electronically, while in Warwick, no contests were counted electronically. The scanning of ballot papers took a lot longer than expected due to the need to scan certain batches more than once. A large number of ballot papers (an estimated 22% in Stratford) were also sent for adjudication, which further delayed the process. In Stratford, both these issues led to significant delays in the count process and to a reversion to a manual count. In Warwick, they also led to significant delays, additional problems arising from attempts to speed up the process, and a subsequent reversion to a manual count.

The pilot scheme had no effect in terms of facilitating the voting process. No issues were reported arising from the instruction to polling station voters not to fold their ballot paper when inserting it into the ballot box.

Turnout of voters was no higher or lower than it would otherwise have been. Electronic counting is an administrative process with minimal impact on the voting process.

Voters found procedures easy to follow. The only change in voting procedure related to the instruction to polling station voters not to fold their ballot paper when inserting it into the ballot box; no issues were reported.

There is currently no evidence to suggest that the pilot scheme led to any increase in personation or other offences or malpractice. The Electoral Commission has seen no evidence to suggest that the pilot scheme led to any increase in electoral malpractice. No reports or allegations of malpractice were made either to the police or to the Councils.

The use of electronic counting significantly increased the total cost of delivering these elections compared with a manual count. If the electronic counting system had been successful, it would have cost significantly more than a comparative manual count. The additional technical costs of the electronic counting system have been estimated as £166,179 for the Warwick count and £115,326 for the Stratford count. These costs are in addition to all the usual election costs, including those of conducting the manual count.

1 Introduction

1.1   Under the Representation of the People Act (RPA) 2000, any local authority in England and Wales can submit proposals to the Secretary of State for Justice (prior to 9 May 2007, the Secretary of State for Constitutional Affairs) to carry out an electoral pilot scheme. Electoral pilot schemes can involve changes to when, where and how voting at local government elections is to take place, how the votes cast at the elections are to be counted, or candidates sending election communications free of postage charges. The Electoral Commission has a statutory duty to evaluate and report on any pilot scheme approved by the Secretary of State.

1.2   A total of 312 local authorities in England held elections in May 2007. In October 2006, the Department for Constitutional Affairs[1] and the Commission issued a joint prospectus to local authorities inviting applications for electoral pilot schemes at the May 2007 elections. Fourteen applications were received in response to the prospectus, and in January 2007 the Secretary of State for Constitutional Affairs announced that he had approved 12 pilot schemes in a total of 13 local authority areas. A full list of all the authorities that held pilot schemes in May 2007 is available on the Commission's website at www.electoralcommission.org.uk.

1.3   This report presents the Commission's statutory evaluation of the electoral pilot scheme carried out by Stratford-on-Avon District Council and Warwick District Council on 3 May 2007. The evaluation includes a description of the pilot scheme and an assessment as to:

- the scheme's success or otherwise in facilitating voting or the counting of votes, or in encouraging voting or enabling voters to make informed choices at the elections
- whether the turnout of voters was higher than it would have been if the scheme had not applied
- whether voters found the procedures provided for their assistance by the scheme easy to use
- whether the procedures provided for by the scheme led to any increase in personation or other electoral offences, or in any other malpractice in connection with elections
- whether those procedures led to any increase in expenditure, or to any savings, by the authority

1.4   In addition to these statutory requirements, the Commission's evaluation also considers, where appropriate:

- the extent to which the pilot scheme facilitated or otherwise encouraged participation among particular communities, including young people, people from minority ethnic communities and disabled people
- overall levels of user awareness and comprehension of the voting method being tested, including an assessment of the effectiveness of any literature or other materials used in the promotion of the pilot scheme

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[1] Hereafter referred to as the Ministry of Justice following the machinery of government changes on 9 May 2007.

- the attitudes and opinions of key stakeholders, including voters, with a view to determining overall levels of confidence in the voting method being tested
- whether the pilot scheme resulted in measurable improvements, or had any adverse impact, with respect to the provision of more efficient and effective service delivery to voters
- whether the pilot scheme resulted in measurable improvements to, or had any adverse impact on, the existing system of electoral administration
- whether the pilot scheme represented good 'value for money'

1.5   Where appropriate, the Commission may also make recommendations as to whether changes should be made to electoral arrangements more generally through roll-out of the pilot scheme procedures.

1.6   The Commission is required to submit its evaluation report to the Secretary of State and to any of the local authorities involved in the pilot scheme and those local authorities are required to publish the evaluation report within three months of the elections. The Commission has also published this report on its website, together with a copy of the Statutory Order that allowed the pilot scheme to take place.

1.7   In preparing this report, the Commission has drawn on its own observations and assessment of the pilot scheme, as well as on the views expressed to it by a number of other stakeholders. The report incorporates findings from work undertaken by the following contractors:

- an evaluation of technical elements of the pilot by Ovum
- public opinion research carried out by ICM Research

1.8   Copies of the reports produced by the Commission's contractors are available from its website, and in other formats on request.

1.9   The Commission would particularly like to thank the Returning Officers and the Electoral Services departments of Stratford-on-Avon District Council and Warwick District Council, as well as Software AG and Dominion Voting for their assistance in undertaking this evaluation and for supplying it with the information and data to support the evaluation.

2   Context

Stratford-on-Avon District Council

2.1   Stratford-on-Avon is one of the largest of England's districts, covering 97,900 hectares of the southern part of the County of Warwickshire in the West Midlands region. Mainly rural, it includes the historic town of Stratford-upon-Avon and approximately 200 villages. The district's population was approximately 115,000 at the time of the last census in 2001.

2.2   The District Council has 53 elected councillors, representing 31 single-, two- and three-member wards. It is elected by thirds in a four-year cycle; 18 wards held elections on 3 May 2007, one of which was uncontested. There are also 113 parishes in the district, and four parish and town councils held contested elections in May 2007.

2.3   The political composition of the District Council prior to the 2007 elections was 30 Conservative councillors, 20 Liberal Democrat councillors and three Independents. The two Members of Parliament who represent electors in the local authority area are John Maples (Conservative, Stratford-on-Avon) and James Plaskitt (Labour, Warwick & Leamington).

Warwick District Council

2.4   Warwick district covers 28,200 hectares in the central part of the County of Warwickshire. Although most of the district is rural, it includes the county town of Warwick and the towns of Kenilworth, Whitnash and Royal Leamington Spa. The district's population was approximately 126,000 at the time of the last census in 2001.

2.5   The District Council has 46 elected councillors, representing 20 single-, two- and three-member wards. Elections for all councillors are held every four years. There are also 23 parishes in the district, and eight parish and town councils held contested elections in May 2007.

2.6   The political composition of the District Council prior to the 2007 elections was 17 Conservative councillors, 13 Labour councillors, nine Liberal Democrat councillors and six Independents with one vacancy. The two Members of Parliament who represent electors in the local authority area are James Plaskitt (Labour, Warwick & Leamington) and Jeremy Wright (Conservative, Rugby & Kenilworth).

3   Pilot scheme description

The pilot scheme application

3.1   In response to the October 2006 electoral pilot scheme prospectus, Stratford-on-Avon District Council and Warwick District Council (hereafter referred to as 'Stratford' and 'Warwick' or 'the Councils') submitted an application to pilot the electronic counting (e-counting) of ballot papers.

3.2   In a Written Ministerial Statement on 29 January 2007, the Secretary of State for Constitutional Affairs announced that the Government had given approval for the Councils to pilot the e-counting of ballot papers.[2]

3.3   Following the statutory consultation with the Commission over the proposals, the final Pilot Order, Stratford on Avon District Council and Warwick District Council (Electronic Counting) Pilot Order 2007, was made on 26 March 2007 and came into force on the same day.[3]

Pilot scheme summary

3.4   Stratford and Warwick, supported by Software AG and Dominion Voting, piloted the use of an e-counting system that recorded and counted ballot papers for both District Council and parish council elections in the two local authority areas.

3.5   One of the main aspects of this pilot was the collaboration of the two Councils. Stratford and Warwick centrally project managed the contractors and operated the postal vote opening and verification sessions for both Councils at one venue (Leamington Spa), using staff from both Stratford and Warwick. The Returning Officers for both districts operated a count centre on the night of the elections, but to emphasise the collaborative aspect of the pilot, each centre also counted several elections for the other district. The rationale for doing so was that the affected wards and parishes were closer to the other district's count centre.

3.6   The main changes to support the e-counting system were:

- The ballot paper was redesigned, using barcodes as the unique identifying mark in addition to ballot paper numbers.
- The official mark was a combination of the unique identifying mark and the use of under-printed paper for the ballot papers.
- The e-counting system captured ballot images and provided a complete solution – from verification through to the final result.
- Projected displays gave candidates information on the progress of their count.

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[2] Official Record (House of Lords), 29 January 2007, Column WS1.

[3] The Commission's response to all Pilot Orders can be found on the Commission website at www.electoralcommission.org.uk/files/dms/AllResponses_25780-19142_E_N_S_W_.pdf.

3.7   These processes are discussed in more detail in Chapter 4, 'Evaluation', with further technical information available in a separate technical report produced for the Commission by Ovum.

Objectives of the pilot scheme

3.8   In their pilot scheme application, the Councils stated that the proposed innovations aimed to:

- realise economies of scale through the centralised management of postal votes
- reduce the cost of the count process and the time taken to count votes for both District Council and parish council elections
- improve the accuracy of the count, particularly in relation to multi-member elections to parish councils

3.9   In commenting on pilot scheme applications, the Commission supported the view expressed in the electoral pilot prospectus (October 2006) that further e-counting trials at English local government elections should investigate the feasibility of using standard commercial hardware for e-counting and establish whether such systems can provide a cost-effective alternative to manual counting at a local level. However, the Commission expressed concern that the initial application did not provide sufficient evidence of learning.[4] This issue was the subject of subsequent negotiations between the Councils and the Ministry of Justice (MoJ) prior to the acceptance of the pilot.

3.10 The background paper attached to the approval provided by the Secretary of State noted the Government's view that e-counting pilot schemes would provide further evidence about the benefits of automation and investigate the use of standard commercial hardware.[5]

3.11 The following section outlines the key objectives of the pilot scheme, as they relate to the statutory evaluation criteria specified in Chapter 1, 'Introduction'.

Facilitating voting and ease of use

3.12 The voting experience was relatively unchanged at these elections. In order to facilitate the scanning process at the e-count, voters at polling stations were requested not to fold their ballot paper when delivering their paper(s) to the ballot box. All ballot papers were printed on A4 paper, and the ballot box had therefore been designed with a slot wide enough to allow unfolded A4 papers to be inserted face down. Postal ballots could be folded and returned in the usual manner.

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[4] Comments by the Commission on pilot scheme applications under Section 10, RPA 2000, December 2006, www.electoralcommission.org.uk/templates/search/document.cfm/17797
[5] Official Record (House of Commons), 29 January 2007, Column 3WS.

Facilitating the counting of votes

3.13 The principal benefit and key objective of using e-counting technology was to achieve improvements in the speed at which the count could be completed compared with the speed of previous manual counts. The increased speed of an e-count was also expected to be welcomed by candidates and agents.

3.14 Furthermore, the counting of votes at combined local government elections with multi-seat wards is complex and can be prone to human error. The use of technology was expected to facilitate greater accuracy in the counting of ballot papers for contests with more than one vacancy to be filled.

Turnout

3.15 The Councils submitted in their application that additional publicity relating to the pilot schemes had the potential to raise awareness of the elections among the general public and thus increase turnout. However, turnout is affected by many factors and it is difficult to attribute any increase or decrease in turnout to any one element such as this.

3.16 Given that e-counting is itself largely an administrative process, the Commission therefore considers that it is not possible to evaluate effectively the impact of this pilot on turnout.

Security and confidence

3.17 In previous pilots, concern has been raised by candidates and agents about the transparency of the process, due to the absence of counted bundles of ballot papers that they can usually observe at a manual count. The pilot scheme aimed to increase stakeholder confidence in e-counting through the provision of information on progress during the counting process.

Efficiency

3.18 The main impact of e-counting on the overall efficiency of the elections was expected to be due to the additional costs incurred through the provision of an e-counting system. For this pilot it, was envisaged that the majority of these costs were to be met by the MoJ.

3.19 Notwithstanding this additional expense, it was anticipated that the use of e-counting would reduce the number of resources and associated costs of a manual count; most notably in the number of staff required to assist the Returning Officer at the count. The collaborative approach taken by Stratford and Warwick was also expected to provide efficiency savings; for example, shared project meetings and a reduction in the number of staff needed to open and verify postal votes. However, these areas do not form part of the pilot scheme as such and therefore fall outside the remit of this report.

4   Evaluation

Efficiency

Project management

4.1   Overall management responsibility for the elections was undertaken by the Electoral Services Manager of Warwick, who was supported by the Democratic Services Manager of Stratford; both Councils had the support of a strong and experienced Electoral Services team.

4.2   However, Stratford and Warwick needed a partner to deliver the e-counting system and technical expertise. To deliver technical pilot solutions for pilot schemes in England and Wales, the MoJ established a framework agreement following a procurement exercise of suitable suppliers to support pilots that utilised electronic services.

4.3   One of the key risks to the successful delivery of the pilot was the time allotted to its implementation. Once the pilot scheme had been approved by the Secretary of State, on the request of the MoJ the Councils appointed Software AG from the framework of MoJ-approved suppliers less than three months before the election on 3 May 2007. Software AG was the lead contractor managing Dominion Voting, which provided the hardware and software equipment and expertise in delivering the e-counting system to the two Councils.

4.4   Communication between all parties was good, helped by weekly project meetings between the Electoral Services Manager of Warwick, the Democratic Services Manager of Stratford and the Project Manager of Software AG. At these meetings, problematic issues were flagged up and courses of action required to rectify them were developed. Other Council staff attended when required and the representative of Dominion Voting was also available by teleconference if necessary. Minutes of the Project Board meetings were provided and kept, and action points were made and acted upon.

4.5   One of the key objectives of the pilot was to establish a collaborative approach to managing the electoral process between two local authorities. In this, both Councils were outstanding and both Electoral Services teams had a clear understanding of the division of responsibilities, aided by informal communication and contact at the weekly meetings.

4.6   Notwithstanding the encouraging relationship between the two Councils, the project documentation and risk management were insufficient for the inherent risks to the pilot. PRINCE2 methodology was not employed, and the risk register produced for the MoJ at the start of the pilot was not regularly reviewed. For example, when ballot paper production slipped, its impact – the postponement of testing until close to the election and a resulting increase in overall project risk – was not effectively managed.

Training

4.7   The operators of the e-counting system were all engaged by the supplier; therefore there was no need to provide staff of either Council with formal training on how to use the system. The Councils were to provide 'runners' to deal with the ballot boxes once they arrived at their respective venues. The training for that process took place at the user acceptance tests on 2 May 2007 and 3 May 2007 (see paragraph 4.26 for details on testing).

Supplier management

4.8   The key supplier relationship for Stratford and Warwick was with Software AG, which was responsible for managing Dominion Voting. Dominion Voting provided the technology and expertise for the e-counting solution. There was a close working relationship between the Councils and with representatives of Software AG and Dominion Voting. It had been assumed that the suppliers could provide a managed service with little intervention. This was perceived as being particularly beneficial, given the need for elections staff to implement the provisions of the Electoral Administration Act 2006 for the first time at these elections.

4.9   However, the subsequent technical problems at the counts suggest a more 'hands-on' approach to supplier management would have been more appropriate, had local authority capacity permitted. Since neither Software AG nor Dominion Voting had prior experience of providing electronic services for elections in the UK, it is likely that they would have benefited from more detailed practical direction on matters of electoral law and practice. This is also evidenced by the fact that several changes had to be made shortly before the elections subsequent to testing, to ensure compliance with the MoJ's statement of requirement and electoral law (see paragraphs 4.27 and 4.28 for further details).

4.10 A third supplier, Opt2Vote, was responsible for managing the printing of the ballot papers by a subcontractor. However, there were problems with the late delivery of both postal ballot papers and ballot papers that were used at polling stations. This impacted on the time available to undertake testing. The discovery of ballot paper quality issues also contributed to the problems experienced with the e-count in both local authorities.

4.11 In Stratford, the ballot papers for polling stations were delivered on 28 April 2007. Officers checked all the ballot books and discovered a number of problems: there were books missing, some were stapled incorrectly, some were perforated incorrectly and the print quality of some books was not to the standard required. This resulted in some ballots having to be reprinted. Warwick also experienced problems, as their polling station ballot papers arrived the day before polling day. This contributed to the late testing of the e-counting system.

Use of technology

4.12 This section of the report briefly summarises the technology used to deliver the e-counting pilot scheme and the testing, quality assurance and training undertaken to support the pilot. A more detailed discussion can be found in the separate report provided by the Commission's technical contractors.

4.13 The e-counting system used Böwe Bell + Howell Spectrum 8120DBI scanners. These scanners constituted off-the-shelf technology rather than a proprietary scanning solution, and were capable of a maximum scanning rate of 120 sheets per minute. Each scanner fed images and data to a personal computer (PC) with MS Windows operating system, running Dominion Voting's proprietary ballot recognition and tallying software.

4.14 The counts, which were to take place on 3 May 2007 after 10pm, were intended to follow the process summarised below. Due to technical difficulties which are considered later in this report, the e-count was abandoned before any results were declared in Warwick. A manual count subsequently took place on 8 May 2007. In Stratford, six results were declared electronically, but the majority of contests were counted manually on 4 May 2007.

Proposed process

Registration
4.15 Prior to the count, a 'zero' report was to be produced to assure the Returning Officers that no data was stored in the system before counting commenced. The number of expected ballot papers for each District Council and parish council contest, based on the Presiding Officers' ballot paper accounts and the number of postal votes, would also be registered with the e-counting system.

4.16 The ballot boxes were to be emptied and any folded papers were to be unfolded. In Stratford, parish council and District Council papers from the same ballot box were to be separated so that they could be scanned separately. In Warwick, due to the greater numbers of contested parish council and town council elections, ballot papers were to be left unsorted. The piles of ballot papers were then to be placed in a tray to await scanning.

Scanning
4.17 At the scanner, the operator (a member of Dominion Voting or Software AG staff) would scan a batch of approximately 150 ballot papers for a given contest. The number of ballot papers successfully scanned for each batch was to be written down on a batch control sheet. If, during the scanning of a batch, any ballot papers were unable to be scanned, the whole batch would be re-scanned without them. This ballot paper was placed in a clear plastic folder, for manual entry into the system later on in the process. Once the batch had been successfully scanned, the ballot papers were to be placed in a transfer case in preparation for the next part of the process.

Verification
4.18 The number of ballot papers scanned from a given ballot box was to be compared by a Council official with the expected total from the registration stage. If the total of the scanned ballot papers differed by no more than three votes from the total registered, the contest would be deemed verified. In all other cases, an investigation would be launched to uncover the reason for any discrepancy.

Adjudication
4.19 When all the batches for a particular contest were successfully scanned and verified, the operator would assign the numerous batches stored in the system to a contest by selecting the relevant batch numbers on the system.

4.20 The system would then flag up all ballot papers that were unclear for adjudication. Adjudication was to be undertaken by a Council official with the support of a representative from Dominion Voting. Unlike other e-counting pilots that took place at the May 2007 elections, the Stratford and Warwick e-counts had only one adjudication stage, rather than also having a second stage for adjudications by the Returning Officers.

4.21 The system would display a graphical representation of the ballot paper on screen, so that Council officers could provisionally record to whom the votes should be allotted. All ballot papers that were unclear were to go through this process, and – as for the equivalent manual process – could be accepted, accepted in part or rejected.

Manual entry
4.22 Council officers would then manually enter into the system ballots that could not be scanned. Candidates and agents would be shown all the ballot papers that were to be manually entered, to reach agreement on what votes needed to be added to the system for that specific contest.

4.23 As implemented, the system did not make provision for manually entered ballot papers to be rejected (i.e. if they were not only unable to be scanned but did not display a clear voting intent). Had such a situation arisen, an additional manual record would have had to be kept.

Counting
4.24 After the adjudication and manual entry stages, the voting data relating to the contest was to be sent to the results application software. This would display the number of ballot papers in that ward that had been counted, which could be cross-referenced with the expected total from the verification stage. After this stage, the results could then be printed to form the official declaration and could be publicly declared.

4.25 At the conclusion of the count, the Returning Officers would receive all the information used to count the votes on a removable storage device for safekeeping at the Councils. The whole system was then to be wiped clean in the presence of the Returning Officers to ensure that all sensitive information was destroyed.

Testing

4.26 Testing was undertaken by Software AG and Dominion Voting using a small set of test ballot papers. For Warwick, approximately 400 ballot papers for District Council and parish council elections were tested. In Stratford, a total of around 280 ballot papers for both types of election were tested. The ballot papers in all cases were marked by Software AG's Project Manager using clear, neat and orientated crosses. The suppliers were satisfied that the system could cope with the increased number of ballot papers a 'live' election would yield and that the system would calculate the correct result. This testing was undertaken in Warwick on 2 May 2007 and in Stratford on 3 May 2007. The test was not witnessed or assessed in full by officers of either Council.

4.27 The Commission's lead evaluator and technical contractor observed the system in use before the user acceptance tests. During the demonstration, it became evident that the system did not conform to either the Statutory Order or the MoJ's statement of requirements in the following regards:

- Ballot papers could in theory be scanned and accepted more than once without the system automatically flagging up any duplicates.
- The reasons for the rejection of ballot papers during adjudication were not recorded on the system in accordance with UK electoral law.
- The system could not record objections to any adjudication decisions by candidates, agents or counting agents.
- The official mark on each ballot paper was not checked for validity before being accepted by the e-counting system.

4.28 Changes were subsequently made to the system to address these points. In particular, it was agreed that Dominion Voting staff would run an additional query following verification to ascertain whether or not a ballot paper had apparently been scanned twice. In the event of a duplicate scan being identified, a manual check of the ballot papers would be conducted to ensure that the ballot paper(s) concerned contained the official mark. Any duplicate scans identified would be deleted from the system. Further detail is provided in the technical report that informs the Commission's statutory report.

4.29 Acceptance testing was severely delayed due to the late arrival of ballot papers as noted in paragraphs 4.10 and 4.11. In Warwick it took place on 2 May 2007, in Stratford on 3 May 2007. In Warwick, the acceptance test was mostly regarded as an opportunity to confirm the procedure to be used on the night. No clear acceptance criteria were in evidence for the Council to confirm that the system was fit for purpose. Stratford's acceptance test took place at 7pm on polling day and was, again, considered to be more of a last-minute confirmation of count procedure, although a number of test ballot papers were run through the system.

4.30 In both cases, the scheduling of the tests was in the Commission's view too late to test the system's viability for the elections. Had the Returning Officers been dissatisfied with the outcome of the acceptance test, they could have reverted to a manual process before the count. However, the limited time available and the lack of clear criteria on which such a decision could be based mitigated against the abandonment of the e-count at that point.

Voting

4.31 The principal effect of the pilot scheme on the experience of voting in person was that voters were required not to fold their ballot paper when placing it in the ballot box face down. This was to facilitate scanning at the count. The Commission has received no negative feedback on this process. Other than the minor changes to the ballot paper to facilitate e-counting, postal voters in Stratford and Warwick did not experience any differences to the process from other postal voters around the country.

Impact on counting

4.32 The two counts experienced similar problems but for clarity this section considers events at each separately.

Stratford

4.33 Postal vote opening and verification for both local authorities took place at Leamington Town Hall in Warwick district. All postal ballot papers received and processed for Stratford contests prior to polling day were transported to the Stratford count centre, the Civic Hall, on 3 May 2007.

4.34 Preparatory stages – the delivery and registration of ballot boxes, the sorting of ballot papers into the relevant wards, and the production of the zero report to show that no votes were stored in the e-counting system – all took place without incident. The Returning Officer invited agents and candidates to observe the production of the zero report.

4.35 Five scanning stations had been established at the start of the count. Each scanner had been assigned certain contests to be scanned. However, the Returning Officer decided that wards would be scanned at all five scanners, to enable contests to be declared more swiftly. This caused some confusion with agents and candidates uncertain as to where their ward was being scanned.

4.36 Scanning started at 10.30pm on 3 May 2007 and initially appeared to go well until a batch had to be re-scanned due to the low print quality of the ballot papers for that contest. This would occur frequently (423 times) over the course of the e-count, slowing the progress of the count. A further minor delay was caused by a power cut which stopped four of the five available scanners at 12 midnight, halting the scanning of ballot papers. The back-up power generator protected the data and full power was operational some 15 minutes later.

4.37 At 12.21am on 4 May, the first contest (Bidford & Salford ward) was ready for adjudication. Of a total of 2,031 ballot papers for this contest, 200 ballot papers were sent for adjudication. Adjudication was performed in the presence of candidates and agents and no ballot papers were objected to. On the contrary, most adjudicated ballots showed a clear voting intention and some candidates and agents were observed questioning the effectiveness of the e-counting system.

4.38 However, after the adjudication stage and after the provisional result had been printed, it was discovered that the number of ballots counted for this contest was 100 lower than the number of ballot papers registered. The Returning Officer refused to accept the result, and supplier staff had to search the file system on the server to locate the missing votes. The missing ballot papers were subsequently added. Once it had been confirmed that the revised total number of ballots counted was equal to the number registered, the result for Bidford & Salford ward was then declared.

4.39 While this problem was being investigated, the Returning Officer's staff manually counted the ballots for one of the two Warwick district wards that were being counted at the Stratford count centre. The remaining Warwick contest had already been scanned and was thus adjudicated and counted electronically. After the results for these two wards had been declared, the Returning Officer suspended the count until the next morning, because it became clear that the remaining results would not be completed before 4am due to the delays caused by re-scanning and the high levels of adjudication.

4.40 Following that decision, the Returning Officer asked Dominion Voting to provide information on the number of scanned ballot papers that needed adjudication, to help inform him of the viability of using the e-counting system. The proportion to be adjudicated stood at 22% of all ballot papers scanned. The main causes of ballot papers being referred for adjudication were: poor print quality (an estimated 40% of ballot papers requiring adjudication); other cross (X) recognition problems (an estimated 21%); and fold lines on postal ballots (an estimated 13%). There is further discussion of adjudication issues in the technical report.

4.41 Counting resumed at 9.45am on 4 May 2007. The Returning Officer felt that the single vacancy wards (all of the District Council elections in Stratford) would be declared more rapidly using a manual count than the e-counting system; however, the remaining four parishes would be counted electronically.

4.42 Clearly valid ballot papers for the parish count continued to be sent for adjudication. A similar discrepancy between ballots counted and ballots verified occurred with one of the parish contests as for Bidford & Salford ward (see paragraph 4.38). After some investigation by Dominion Voting, it was found that the last batch scanned the evening before had not been 'accepted' when the machines were closed down and therefore had not been included in the count. This batch was then processed and the correct total achieved.

4.43 The 17 district wards were declared manually before the last of the four electronically counted parishes were completed at 1pm. Dominion Voting provided the Returning Officer with a DVD containing the electoral data and all information was deleted from the system in his presence.

Warwick

4.44 The preparatory stages of the Warwick count at Leamington Town Hall took place without incident. A zero report was produced and shown to the Returning Officer; however, the zeroing process itself was not witnessed. Scanning started

at 10.15pm on 3 May 2007, with seven scanning stations. By 11.30pm all ballot boxes had been received from their respective polling stations. However, a delay in the checking of absent voting identifiers on postal voting statements meant that no postal ballots were delivered to the count area until around midnight, with the final ballots being delivered at 3.45am.

4.45 While scanning appeared to progress well, many batches had to be re-scanned. Ballots that were unable to be scanned after several attempts were removed for manual entry. Ballot papers could not be scanned for a number of reasons, including poor print quality and tears in some papers. The need to re-scan batches became particularly acute for the postal ballot papers, once delivered. Accordingly, batch sizes were reduced from 150 to 50 for scanning postal ballots.

4.46 By approximately 1am on 4 May 2007, the Returning Officer was ready to start adjudicating ballots in the elections to the Leamington Manor ward for the District Council and town council. It became clear early on that there was a high number of adjudications. As at the Stratford count, a significant number of adjudicated ballots were found to show a clear voting intention and should not have been referred, although no estimates equivalent to those for Stratford have been made available to the Commission. At about 1.45am, adjudication for this contest was approximately two-thirds of the way through, when the terminal presented a blank screen where the adjudicated image should have been. The reason for this remains unclear.

4.47 By 2.20am on 4 May 2007, no results had been declared. The Returning Officer therefore decided to suspend the count and subsequently sent candidates and agents home. The count was intended to begin again at 1pm later that same day.

4.48 Overnight, Dominion Voting and the Council's solicitor considered how to reduce the high level of adjudications and thus increase the speed of the e-count. The solution arrived at was to continue to scan the ballot papers overnight, and then reconfigure the seven scanning stations, the communication station and the results monitoring station as adjudication stations, in order to maximise the throughput of ballot papers requiring adjudication. Dominion Voting staff continued scanning until 6am in the presence of the solicitor and other Returning Officer staff.

4.49 At about 1pm on 4 May 2007, the count resumed. At 3.40pm, a serious problem occurred: at one adjudication station, candidates' surnames retrieved from the database did not match those contesting the relevant election. This called into question whether votes were being correctly allocated. It has been suggested by the supplier that this problem may be attributable to incorrect ballot image files having been copied during the reconfiguration process. Consequently, at 3.45pm the Returning Officer assembled the candidates and agents to inform them that a decision had been made to abandon the e-count and that all the contests would be counted manually on 8 May 2007.

4.50 The hall then needed to be cleared for other uses. Ballot papers were retrieved from their cases and sealed and locked away for storage for the manual count. There was no time to delete the images of the ballot papers and other sensitive information. The equipment was transported to Software AG's headquarters in Derby, where a DVD of the information was made and delivered to the Returning Officer and the data deleted from the system. This was not done in the presence of the Returning Officer.

4.51 The manual count proceeded on 8 May 2007 and the results had the full confidence of candidates and agents. It took 100 staff six hours to declare all the results.

Security and confidence

Security

4.52 The Commission has not been made aware of any allegations of fraud or malpractice arising from the pilot scheme at these elections. At present, therefore, there is no substantiated evidence to suggest that the procedures provided by the pilot scheme led to any increase in electoral offences, or in any other malpractice in connection with elections. The Commission notes that the period in which a prosecution can be launched is one year, and so such evidence may still come to light.

4.53 The independent quality assurance process commissioned by the MoJ considered the security of the e-counting solution on 20 April 2007. However, Electoral Services staff and suppliers were unable to devote a full day at that point in the project to participation in the quality assurance process, preferring to prioritise the implementation of the pilot scheme and the management of the elections. Indeed, in accordance with the Councils' assumption that the suppliers could provide a managed service with little intervention, key staff from Stratford and Warwick were unaware that they were meant to participate in this audit.

4.54 Physical security at the count was influenced by feedback from the MoJ quality assurance audit (e.g. the secure placement of equipment and ensuring that access to the count area was controlled). An installation plan was also created by Software AG, on which it received some feedback from the quality assurance team. As a result, the local area network connecting the various machines was made into a standalone network, isolated from networks at the venue and from the internet.

Stakeholder confidence

4.55 The Commission appointed ICM Research to conduct telephone interviews with candidates and election agents in Stratford and Warwick. No quantitative research was undertaken with members of the electorate or voters because the electorate would have known little about the e-counting process.

4.56 There was little enthusiasm for e-counting. One candidate queried the benefits of e-counting compared to the manual process:

> Hand counts are reasonably quick, so what was the benefit? The results would come out roughly at the same time. Hand counting is also accurate and you have observers, so again, there are no real benefits from switching over to an automated system.

Conservative candidate

4.57 Feedback received from a number of candidates and agents contacted by the Commission's technical contractors and Commission representatives at the two count venues, and through correspondence after the event, confirms this view. It is important to note in this context that count attendees could see large numbers of apparently valid ballot papers being adjudicated; as well as the impact this had on the speed of the count, it was unlikely to increase confidence in the system.

4.58 Throughout the process, data on the number of ballots scanned and any results declared was displayed on a screen at both count centres. However, the small number of results declared and the delays experienced in scanning ballot paper batches mean that it is difficult to draw definite conclusions as to the value of the display in terms of improving transparency of and confidence in e-counting. Some measure of general concern was also expressed regarding the transparency of the e-count process, as an agent interviewed by ICM Research commented:

> We were presented with a circle of desks which was the scanning equipment and computers and it was almost like a corral of wagons, so to speak – there was a big division between them and us. On previous counts the count was visible, the process is visible, you're part of the process.

Independent agent

4.59 In particular, some candidates appear to have found it difficult to follow their own ward's progress. Several candidates would have welcomed information that a particular ward was being counted on a particular scanner, so that they could view the progress of their own count and be able to make an informed decision about the validity of the provisional result when presented with it by the Returning Officer.

Cost and value for money

4.60 Because of the technical difficulties experienced with the e-counting system and the use of manual counting to determine the results for the majority of the elections, final costs for the system remain the subject of negotiation between Stratford and Warwick, the MoJ and Software AG.

4.61 If the count had gone to plan, the additional technical costs of the e-counting system would have been £166,179 for the Warwick count and £115,326 for the Stratford count, according to the assignment contract between Software AG and the Councils. This would have equated to £1.74 per elector (£2.08 per voter) in Warwick and £1.74 per elector (£3.88 per voter) in Stratford. A more detailed breakdown is provided in the technical report written by the Commission's contractors, Ovum.

4.62 The manual counts (excluding location and facility costs) are estimated to have cost Stratford £5,895 and Warwick £7,785.

5   Conclusions and findings

Statutory criteria

5.1   In terms of the five statutory evaluation criteria, the Commission's conclusions in relation to the electoral pilot scheme in Stratford and Warwick are as follows.

5.2   **The pilot scheme did not facilitate the counting of votes.** In Stratford, only six wards were counted electronically (out of 31 District Council and four parish council contests), while in Warwick, no contests were counted electronically. The scanning of ballot papers took a lot longer than expected due to the need to scan certain batches more than once. A large number of ballot papers (an estimated 22% in Stratford) were also sent for adjudication, which further delayed the process.

5.3   In Stratford, both these issues led to significant delays in the count process and to a reversion to a manual count. In Warwick, they also led to significant delays, additional problems arising from attempts to speed up the process, and a subsequent reversion to a manual count.

5.4   **The pilot scheme had no effect in terms of facilitating the voting process.** No issues were reported arising from the instruction to polling station voters not to fold their ballot paper when inserting it into the ballot box.

5.5   **Turnout of voters was no higher or lower than it would otherwise have been.** Electronic counting is an administrative process with minimal impact on the voting process.

5.6   **Voters found procedures easy to follow.** The only change in voting procedure related to the instruction to polling station voters not to fold their ballot paper when inserting it into the ballot box; no issues were reported.

5.7   **There is currently no evidence to suggest that the pilot scheme led to any increase in personation or other offences or malpractice.** The Commission has seen no evidence to suggest that the pilot scheme led to any increase in electoral malpractice. No reports or allegations of malpractice were made either to the police or to the Councils.

5.8   **The use of e-counting significantly increased the total cost of delivering these elections compared with a manual count.** If the e-counting system had been successful, it would have cost significantly more than a comparative manual count. The additional technical costs of the e-counting system have been estimated as £166,179 for the Warwick count and £115,326 for the Stratford count. These costs are in addition to all the usual election costs, including those of conducting the manual count.

Learning

5.9   The Commission's evaluation of this pilot scheme has identified the following key learning points as they relate to the e-counting system and count processes used in Stratford and Warwick:

- It is necessary to test all equipment thoroughly an appropriate length of time prior to the elections to ensure viability.
- The importance of contingency planning at the count. For example, if there is a larger than expected number of ballot papers for adjudication, resources should be able to be reassigned to reduce the potential bottleneck.
- Consideration needs be given to the needs of candidates, agents and counting agents in understanding the progress of their specific ward count.
- Further consideration should be given to how candidates, agents, count agents and electoral observers can be provided with a level of information and ability to scrutinise the process which as near as practicable approximates to a manual count.
- Further thought is needed on how the e-counting process can replicate a similar level of transparency to a manual count.
- Candidates and agents should be more involved with the process and, if e-counting is piloted further, should be given the opportunity to witness the zeroing of the system, if they so wish.

Issues

5.10 The following issues will need to be considered further in relation to any future pilot schemes or wider implementation of the processes trialled by the Councils:

- The two Councils as well as the e-counting suppliers have highlighted the tight timescales as one of the causes of the abandonment of the e-count. It impacted on the time available for project planning and the production of project documentation, for the production of ballot papers suitable for the e-counting system and for testing and quality assurance processes.
- Introducing e-counting or other technological innovations may make unfamiliar demands on electoral officers. For this pilot scheme, this was most evident in relation to the expected involvement of administrative staff in the quality assurance process, and also in relation to user acceptance testing and the importance of a transparent zeroing process prior to the commencement of the e-count. More extensive guidance and support for both the Councils and the suppliers would therefore have been beneficial.
- The timely production of ballot papers of the necessary quality is important to maximise the value of pre-election testing and to ensure the effective implementation of an e-counting system. Where more than one supplier or contractor is involved in this process, clear co-ordination and understanding of requirements are important.
- Testing the capacity of the e-counting system is important – conducting such a test could not only improve the e-counting system but the process management as well.
- Scanning of ballot papers continued until 6am at the Warwick count centre without candidates and agents being present. While this took place under exceptional circumstances in the presence of the Returning Officer's team, the absence of external scrutiny may be an issue which requires further consideration if developing guidance for future e-counts.

5.11 Further recommendations can be found in the technical report by the Commission's contractors.