

Electoral pilot scheme evaluation

Rushmoor Borough Council

August 2007



Translations and other formats

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Tel: 020 7271 0500

Email: publications@electoralcommission.org.uk

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Summary

In response to a prospectus issued to local authorities in England inviting applications for electoral pilot schemes at the May 2007 local government elections, Rushmoor Borough Council submitted an application to pilot remote internet voting and, in conjunction with this, the development of an interactive website for electors.

Conclusions and findings

The pilot scheme facilitated and encouraged voting. By offering new voting channels, electronic voting gave electors more convenient voting options. A total of 18% of voters voted using the internet. This amounts to 11% of the electorate and included members of the Armed Forces and those based overseas. In addition, qualitative and quantitative feedback from users was generally positive.

The pilot scheme had no impact on reducing the time taken to undertake the count.

Overall, the pilot scheme had no impact on turnout. Turnout decreased slightly from 36% in 2006 to 35.2% at the 2007 elections. This meant that the Council did not achieve its aim of increasing the total number of people who voted at the last elections by five percentage points.

Public opinion research suggests that one in three internet voters (30%) indicated that they might not have voted in the absence of the availability of internet voting. However, most internet voters (70%) would have voted anyway.

The pilot scheme provided for electronic voting was generally easy to use. Voters generally found the procedures for electronic voting easy to follow. However, many registered electronic voters found their username difficult to remember, which led to a high volume of calls to the Council's helpline. Seventy-nine per cent of these calls related to electors not being able to recall their username.

The pilot scheme does not appear to have led to any increase in personation or other offences or malpractice.

The pilot scheme led to an increase in expenditure for the Council, with the majority of these costs related to the supplier. Overall the cost of the pilot scheme was £584,775. Although this is significantly higher than the cost of running a normal election, large savings (15%) were made against Rushmoor's last electronic voting pilot in 2003.

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 Affairs¹ 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 evaluation of the electoral pilot scheme carried out by Rushmoor Borough Council at the elections 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

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 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 stakeholders. The report also incorporates findings from work undertaken by the following contractors:

- public opinion research carried out by ICM Research
- an evaluation of technical elements of the pilot by Actica Consulting and Ovum
- an accessibility evaluation of the pilot by PA Consulting, Equal Ability CIC and Churchill, Minty & Friend Ltd

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 Officer and the Electoral Services department of Rushmoor Borough Council for their assistance in undertaking this evaluation and for supplying it with the information and data to support the evaluation.

2 Context

The area

2.1 The borough of Rushmoor is located in the Blackwater valley, in the north east of Hampshire, bordering Surrey to the north, east and south. The Blackwater valley comprises around 300,000 people, with the Rushmoor borough making up 30% (91,000) of this.

2.2 The borough covers approximately 3,900 hectares with a population density of 22.7 persons per hectare. It is principally urban, with 57,000 and 34,000 people living in its two main towns, Farnborough and Aldershot, respectively. Rushmoor also has a large contingent of military bases, and the fourth highest² number of electors registered as Service voters in England and Wales.

2.3 There are 35,580 dwellings in the borough, with 3,000 new homes completed between 1996 and 2006. Unemployment is low (1.3%), and compares favourably with the UK average of 2.4%. Most employment is in management and technical and business services. There are high levels of commuting in and out of the borough, with a net commutation into the area.

The Council

2.4 Rushmoor Borough Council is made up of 42 councillors, elected once every four years. It is comprised of 14 wards, elected by thirds, with approximately 60,000 electors in the borough.

2.5 The political composition of the Council prior to the 2007 elections was: Conservative – 26; Liberal Democrats – 10; Labour – five; Independent – one. The borough is represented by Gerald Howarth, Conservative Member of Parliament for Aldershot, and is in the South East of England electoral region for elections to the European Parliament.

² Office for National Statistics registration data, December 2006.

3 Pilot scheme description

The pilot scheme application

3.1 In response to the October 2006 electoral pilot scheme prospectus, Rushmoor Borough Council (hereafter known as 'the Council') submitted an application to pilot a series of innovations and changes to electoral procedures, including:

- remote electronic voting (e-voting) using the internet
- an interactive website for electors

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 Council to pilot the above innovations.³

3.3 The final Pilot Order, Rushmoor Borough Council (Electronic Voting) Pilot Order 2007, was made on 26 March 2007 and came into force on the same day.⁴

Pilot scheme summary

3.4 The Council made remote internet voting available to electors from 6am on 26 April until close of poll at 10pm on 3 May. The system employed by the Council was provided by Election Systems & Software (ES&S), supported by three subcontractors (Intelivote Systems, ScytI and Firstserv Hosting Solutions).

3.5 As with the other four e-voting pilot schemes that took place at the May 2007 elections, all Rushmoor electors wishing to vote by internet were required to register for the service in advance. Once registered, prospective e-voters could then switch back to an existing channel such as polling station or postal voting.⁵ To revert to polling station voting, electors had to prove their identity at the polling station, whereby an election official would cancel their e-voting notation and issue them with a ballot paper.

3.6 Accordingly, the Council sent a letter and a registration form to all electors inviting them to register to vote electronically. A form could also be downloaded from the Council's website. The registration form required electors to provide their name, date of birth, a six to 10 character username and a signature. The final date to register to vote electronically was 18 April, which was the same as the deadline for applying for a postal vote. Once the forms had been returned to the Council, registered e-voters were subsequently sent a secure poll card containing a unique voter identification number (VIN). Queries about the e-voting process were addressed by a helpline, which was staffed mainly by the Council, with members of the ES&S team also available to handle queries of a more technical nature.

³ Official Record (House of Lords), 29 January 2007, Column WS1.

⁴ 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.

⁵ The deadline for reverting to a postal vote was 18 April.

3.7 Once registered, electors could then vote by visiting the website address provided on the poll card to access the voting system. Having entered their username, date of birth and VIN in order to obtain access to the e-voting system, electors were directed to cast their vote, confirm (or change) their selection and then exit the system. A receipt was provided to internet voters to confirm that the ballot had been successfully recorded. The system did not allow electors to over-vote or spoil the ballot, but did allow them to cast a blank ballot.

3.8 After the close of poll, the data in the electronic ballot box was downloaded to a personal computer (PC) within the count centre. The ballot box was unlocked and the votes cast verified. Once verification was complete, the ballots were counted in parallel with the manual count. These results were added to ballot papers returned to polling stations and postal results. Candidates were presented with the results (including the split of votes between the internet and traditional vote). After it was confirmed that a recount was not required, the Returning Officer declared the results. A process was in place to perform a complete recount of the electronic ballots if this had been required.

3.9 These processes are discussed in more detail in Chapter 4, 'Evaluation', with further technical information available in the Commission's technical report.

Objectives of the pilot scheme

3.10 In its pilot scheme application, the Council stated that the pilot scheme aimed to:

- increase elector choice – residents are more likely to access electoral services if there are different ways of doing so
- increase voter turnout – increase the level of participation at local government elections by increasing the opportunities to vote and to raise awareness
- improve security – through the use of proven voting systems that, having passed stringent tests, provide appropriate levels of security to ensure integrity and robustness
- build confidence – through the use of new technology applications to increase support for the use of such systems
- facilitate voting among hard-to-reach groups, especially Service personnel and overseas voters
- assess integration – examine how practical it is to mainstream the channel with existing electoral systems and processes

3.11 Commenting on pilot scheme applications, the Commission stated that a small number of further e-voting pilots would enable a detailed assessment of patterns of usage and take-up, accessibility, security and confidence in e-voting.⁶

3.12 The Council had prior experience of e-voting, as it performed a similar pilot scheme in 2003, which also required pre-registration. As well as emulating this previous pilot scheme, the Council planned to develop a website to provide

⁶ Comments by the Commission on pilot scheme applications under Section 10, RPA 2000, December 2006, www.electoralcommission.org.uk/templates/search/document.cfm/17797

information about the elections process and internet voting. The website would provide an information database for electors on a ward-by-ward basis and provide additional information for particular groups, especially Service personnel. The Council piloted advance voting at the 2006 local government elections.

3.13 The background paper attached to the approval provided by the Secretary of State noted the Government's view that providing remote internet voting would build on the evidence available from pilot schemes undertaken in 2003, facilitating the assessment of the areas proposed by the Commission.⁷

3.14 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

3.15 It was expected by the Council that e-voting would facilitate voting by increasing the choice of voting methods available to the Rushmoor electorate. The application set out an aspirational target of 20% of votes being cast via the internet.

3.16 As previously stated, it was expected that the pilot scheme evaluation would provide an assessment of patterns of take-up and usage.

3.17 The electoral pilot scheme prospectus noted that e-voting pilot schemes provided a further opportunity to assess demand among the 18–24 age group. The prospectus also identified likely learning on how barriers to accessibility might be reduced through remote e-voting and related instructions provided to electors. The Council aimed to increase uptake in marginal groups, such as the Armed Forces. In addition, the internet voting channel would seek to improve accessibility to the democratic process by supporting the objectives of the Council's equality and diversity policy, especially for disabled people and those who speak English as a second language.

Facilitating the counting of votes

3.18 One anticipated effect of e-voting was to reduce the time taken to undertake the count and the resources required to complete the count process.

Turnout

3.19 The Council hoped that the provision of e-voting at the elections would result in an increase in turnout, although this was not a key objective of the pilot scheme. The application set out an aspirational target of increasing the number of people voting at the elections by 5% compared with the 2006 local government elections.

⁷ Official Record (House of Commons), 29 January 2007, Column 3WS.

Security and confidence

3.20 It was expected that the pilot scheme evaluation would provide a detailed assessment of security and user confidence in relation to e-voting. As well as any technical measures undertaken to secure the e-voting system, such a security assessment would include the effectiveness of the paper-based pre-registration process, the management of e-voting processes and results and the extent to which they were auditable or transparent, and any efforts to strengthen the secrecy of the remote electronic ballot. Similar issues around technical security, process management and transparency applied to the e-counting element of the pilot scheme.

Efficiency

3.21 It was anticipated that efficiencies would be provided through a planned reduction in the number of polling stations within the borough on polling day by at least 5%.

3.22 The main impact of e-voting on the overall efficiency of the elections was expected to be the additional costs incurred through the provision of hardware and software and printing costs for the pre-registration process. For this pilot, the majority of these costs were met by the Ministry of Justice (MoJ). However, there is also the need to consider the no less tangible impact of managing pilot scheme processes on the time required by the Returning Officer and his staff to manage and administer the remainder of the elections.

4 Evaluation

Efficiency

Project management

4.1 The project was managed using PRINCE2 management methodology, and the Council placed the scheme under the overarching control of the Head of Democratic Services, who possessed extensive electoral experience, and also worked on both the 2003 and 2006 pilot projects.

4.2 The ES&S Project Manager worked with the Electoral Services Officer on the delivery and operation of the technical solution, and managed the other subcontractors. The ES&S Project Manager was also responsible for an internet voting pilot in the district of South Bucks, which meant that the supplier's resources were often divided between the two projects. However, this did not appear adversely to affect the management of the project.

4.3 The Council maintained an overarching project plan for the pilot scheme which included key milestones, with ES&S maintaining separately a detailed project plan and risk/issue register for the technical elements of the pilot scheme. A document further clarifying Council and supplier responsibilities was added during the MoJ security audit process in late April 2007.

4.4 The Project Board established to oversee the pilot scheme met or teleconferenced weekly from February onwards. The Board was chaired by the Head of Democratic Services. Its membership comprised the Council and ES&S Project Leads and the ES&S Regional Sales Manager.

4.5 The factor that most adversely affected the management of the project was the time allotted to its implementation. Once the pilot scheme had been approved by the Secretary of State and the Council had selected ES&S from the framework of MoJ-approved suppliers, less than three months remained until the elections on 3 May.

4.6 Although tasks critical to the delivery of the pilot scheme were prioritised accordingly, these time constraints had an adverse effect on the comprehensiveness of risk management and security documentation and the scope and timing of testing and quality assurance processes.

4.7 Notwithstanding the negative impact of time constraints, the Commission considers that the Council's project management of the pilot scheme worked well, and shows the benefit of such an approach to a complex electoral project with many external dependencies and stakeholders.

Training

4.8 To support the e-voting trial, ES&S delivered training to Electoral Services staff, which provided them with an overview of the e-voting system and specific training in the ability to determine whether an elector contacting them had registered

to vote electronically, how to cancel VINs, how to issue new VINs and the procedure to be followed if users had forgotten their usernames. In addition, the Head of Democratic Services was provided with training on the use of the administrative console that provided him with the ability to monitor the elections.

4.9 Training was conducted on a one-to-one basis with instructions from ES&S on how to use the system. No issues were raised with regard to the training, with most members of staff finding the system easy to use. Feedback from Electoral Services staff was generally positive.

Supplier management

4.10 The key supplier relationship for the Council was with ES&S, which was responsible for the delivery and operation of the technical solution and managed its e-voting subcontractors. In addition to involvement in pilot schemes at English local government elections in 2003 and 2006, ES&S has experience of delivering electronic election services in the US and a number of other countries, including France and Canada.

4.11 In addition to its project management role (discussed in paragraph 4.2) ES&S provided:

- the electronic counting solution for votes cast on the internet
- the results collection application that consolidated the results from e-voting
- training of Council staff where required
- assistance to the Council in responding to queries of a technical nature from electors

4.12 ES&S also managed three subcontractors:

- **Intelivote Systems** provided the voting front end
- **Scytl** provided the electronic ballot box application that stored the e-votes cast
- **Firstserv Hosting Solutions** hosted the e-voting system

4.13 The implementation of the pilot scheme appears to have been facilitated by the strong working relationship between the Council and ES&S and between the Project Leads in both organisations. The project plan and risk/issue register were reviewed at regular weekly checkpoint meetings or teleconferences. Highlight reports and minutes of the meetings were produced. However, minor difficulties were experienced due to the geographic spread of the team during the early stages of the project.

4.14 The tight time constraints applied by the MoJ meant that some aspects of the project planning were completed in a very short space of time and were not clearly defined. This led to the requirements evolving during the course of the pilot. For example, the responsibilities for providing call centre support for the project were only finalised a month before the online voting system went live.

4.15 There were a number of shortfalls in the supplier's project and quality management arrangements, namely inadequacy in maintaining project documentation and quality, testing and acceptance procedures.

Use of technology

4.16 This section of the report briefly summarises the technology used to deliver the e-voting pilot scheme and the testing and quality assurance processes undertaken prior to use. A more detailed discussion may be found in the separate reports provided by the Commission's technical contractors.

Electronic voting

4.17 The e-voting solution consisted of functional components:

- an internet voting interface
- the ballot presentation and management application
- an electronic ballot box providing encrypted storage for the e-votes cast until they were counted

4.18 This equipment was shared between the Rushmoor and South Bucks counts.

4.19 The system was hosted by Firstserv Hosting Solutions in a single location providing internet connectivity to the solution for electors and remote access for system administrators. Back-up servers for the e-voting interface and the electronic ballot box, as well as replacement internet connections and power supplies, had been tested and were available in the event of problems arising with the primary system. Back-ups were also carried out at regular intervals during the e-voting period to prevent loss of data.

4.20 ES&S stated that it would usually scale an e-voting solution to support double the expected scale of the elections. However, the relatively small number of voters expected to use the system in South Bucks and Rushmoor meant that the capacity of the system provided far exceeded requirements.

4.21 Table 1 summarises the steps voters had to follow to use the internet interface.

Table 1: Internet voting procedure

Step	Description of procedure
1	Log on to internet address provided on e-voting poll card
2	Enter randomly generated code displayed on screen or audio alternative
3	Enter VIN and username
4	Read information on voting
5	Select candidates from on-screen ballot paper
6	Confirm selection or return to step 5
7	Receive unique receipt number confirming that ballot was successfully recorded

4.22 Once the voter had cast their vote, it was encrypted by the ballot presentation application on the client machine, which then passed it to the electronic ballot box for storage. The electronic ballot box provided storage of cast ballots from the point at which they were recorded by the system until they were required for counting at the close of poll.

4.23 The ballot presentation application encrypted ballots using the public half of an encryption key, which had been generated at the start of the e-voting period. The other, private half of the encryption key was stored on three smartcards held by three different people – the Returning Officer, the Head of Democratic Services and the Elections Manager, at least two of whom were required to decrypt the ballots after the close of poll. The decryption process also caused the mixing of the receipts that provided a link between the ballot and the VIN to ensure that the secrecy of the ballot was maintained.

4.24 Testing on the e-voting solution was carried out by the suppliers, the Council, and the MoJ and its contractors. The supplier and its subcontractors stated that they conducted unit integration testing remotely before installing the system in the UK. In addition, the Council held a mock election in which 599 ballots were cast by the Council's staff. The results were verified against the results generated by the system.

4.25 However, the tight timescales for implementation of e-voting at these elections adversely affected the quality of the testing that took place. There is little evidence that the suppliers or the Council had fully verified:

- the full functionality of the e-voting system – e.g. the issuing of replacement VINs and the impact that this may have on the overall count
- possible failure modes while voting
- that the system met the specified requirements as set out by the MoJ

4.26 At the conclusion of the mock election, the Council formally accepted the solution as fit for purpose, demonstrating its intent to manage the work of the supplier and take ownership of the e-voting system effectively. However, the test script against which this acceptance testing was completed is not sufficiently detailed to confirm whether it provided officers with a comprehensive assessment that the system was functioning as they required.

Voting

Public awareness and feedback

4.27 The Council's project documentation envisaged a range of communications activities to inform electors about the pilot scheme and to promote the option of e-voting.

4.28 The principal communications channel to encourage take-up of e-voting was the letter and registration form sent to all electors in the borough between 9 March and 18 March.

4.29 Additional methods used to promote the pilot scheme, usually under the slogan 'Voting just got easier', included:

- issuing postcards, flyers and posters – with a different design for Service personnel, for greater appeal
- press releases – including advertising in external publications
- promotion on the Council's website
- displays and banners – including electronic window displays in Aldershot and Farnborough town centres

4.30 Knowledge of the pilot scheme was high at 55%, and this awareness was usually driven by Council-backed communications schemes, with 63% of those who were aware of the pilot scheme citing Council leaflets as the source of their knowledge. The presence of internet voting in Rushmoor clearly had an effect on local people's attitude towards it. Six in 10 (58%) think it should be made available at all future elections.⁸

4.31 The local media also picked up on the e-voting opportunity, with 27% of those who were aware of the pilot scheme saying they had come across various media sources linked to it. A number of other factors also had a marginal impact on awareness.

4.32 There was some innovative and targeted work done with Service personnel based in Rushmoor, including visits to military bases and targeted marketing (e.g. a 'Ready Aim Vote' postcard). Beyond this group, however, there was limited targeting of particular communities or their involvement in developing communications materials.

Take-up of internet voting

4.33 In total, 6.3% of an electorate of 60,938 chose to cast their ballot using the internet. Table 2 provides a breakdown of the days on which individuals voted, by ward.

4.34 Table 2 shows that e-voting became progressively more popular as polling day (3 May) drew closer. Indeed, 44% of e-voters cast their ballot between 5pm on 2 May and the close of poll at 10pm on 3 May.

4.35 In total, 11% of the electorate (6,686 people) registered for e-voting, which was lower than the percentage of people who had indicated in a pre-election consultation that they would take up e-voting – at this consultation 14% had said e-voting would facilitate their voting.

4.36 Approximately 18% of those who voted did so over the internet, which is similar to the levels of postal voting (17.6%), but slightly lower than the target the Council had set of 20%. Take-up varied significantly by area, from over 23% in one ward to just over 14% in the area with the lowest take-up.

⁸ ICM Research, public opinion research for the Commission, 2007.

Table 2: Timeline of internet use in Rushmoor

Ward	Time and date												Total
	6am– 5pm, 26 April	5pm, 27 April	5pm, 28 April	5pm, 29 April	5pm, 30 April	5pm, 1 May	5pm, 2 May	5pm, 3 May	5pm, 2 May	5pm, to 5pm, 3 May	5pm– 10pm, 3 May	5pm– 10pm, 3 May	
Fernhill	8	25	21	16	27	26	24	74	57	278			
Wellington	9	18	15	29	14	21	18	45	38	207			
Rowhill	17	16	16	17	13	24	33	56	59	251			
Manor Park	10	18	15	19	26	34	28	75	58	283			
North Town	15	28	19	14	18	28	21	46	36	225			
Heron Wood	9	10	16	5	12	17	21	36	32	158			
Grange	14	22	17	19	16	20	15	62	48	233			
St John's	27	28	22	15	29	40	54	105	57	377			
Mayfield	4	20	7	8	10	32	27	34	37	179			
West Heath	15	32	12	16	29	30	32	49	57	272			
Empress	17	37	29	30	26	28	41	90	88	386			
Cove & Southwood	24	37	23	26	29	48	50	93	71	401			
Knellwood	15	24	15	11	21	25	41	65	71	288			
St Mark's	18	20	12	21	21	24	30	77	64	287			
Daily total	202	335	239	246	291	397	435	907	773	3,825			

4.37 The Commission's public opinion research shows that men (60%) were more likely than women (40%) to have e-voted, with something of an intuitive age bias towards younger e-voters observed (34% aged 18–24). However, 'silver-surfers' also e-voted (13% of e-voters were aged 65 or over) so it is clear that there was some interest among all age groups.

4.38 Significantly, there was also some take-up of internet voting from those based overseas, including members of the Armed Forces. For example, one voter was able to vote from his military base in Sierra Leone, whereas some voters voted on the internet from the US and mainland Europe.

Accessibility

Pre-registration

4.39 Public opinion research indicates that the process of registering to e-vote was seamless and uncomplicated. Almost all internet voters (97%) considered it straightforward to register.

4.40 Nevertheless, according to the Commission's accessibility contractors, improvements could have been made to the pre-registration material in terms of accessibility to all sectors of the community. The majority of information was provided in print form with no indication of the availability of alternative formats. However, what was printed was found to be useful.

4.41 The registration process resulted in a large volume of queries during the verification process. These were mainly associated with incomplete registration forms. In addition, a number of people registered for internet voting who eventually decided to vote in person. The reasons for this include the fact that they had by mistake registered to e-vote, or that they experienced difficulties with the internet voting solution.

4.42 Remembering the six to 10 character username proved somewhat demanding for many people in all groups. Call logs show that the overwhelming number of helpline calls – 468 out of 591 (79.19%) – involved people not being able to recall their username. There is also some anecdotal evidence to suggest that some of the usernames were incorrectly entered into the database by Council staff, which led to some electors having to telephone the helpline to verify their usernames. The Council has informed the Commission that these issues did not arise in the e-voting pilot scheme in 2003 because usernames were generated electronically by the elector at those elections.

4.43 Of the 6,686 people who registered for e-voting, 4,157 attempted to vote. Of those who attempted to vote, 3,825 (92%) successfully cast their vote. Therefore 332 failed to cast their vote. There are no clear reasons for this but it is likely that some will not have telephoned the helpline to resolve any login issue, whereas others may have been 'testing' the system. Some electors appear to have just given up and not voted.

4.44 Electoral Services staff were available via telephone to help those electors who had questions about accessing their VIN if they had forgotten it, or wanted to check that their vote had been cast properly. The call centre received around 600 enquiries and was generally found to be helpful.

Voting

4.45 According to public opinion research, almost all internet voters (97%) were satisfied with the voting process. This was higher than the satisfaction ratings given to voting by all other methods: 91% of polling station voters were satisfied, as were 87% of postal voters.⁹ One internet voter stated:

I found internet voting straightforward. The actual process was no different in complexity than going to the polling booth. It was more convenient and meant I still voted. I'm absolutely convinced it will encourage more people to vote and that can only be a good thing.

Internet voter

4.46 'Mystery electors'¹⁰ working on behalf of the Commission's accessibility contractors also found the process easy to use, with one mystery elector saying:

More of the deaf community have access to personal computers or laptops as they use email as their main use of communication which is second to text messaging by mobile phones.

Mystery elector

4.47 Another found that:

The iVOTE website itself was easy to find using the information given from the letters and on the phone... The instructions even had screen shots of every page in the iVOTE process with written instructions alongside explaining exactly what was happening at each stage. This was very useful and made me familiar with the process before I had even started the real thing.

Mystery elector

4.48 Another voter found that:

Other than forgetting my password for a short time the voting process went extremely smoothly and exactly how the online examples showed it would work.

Internet voter

⁹ The base size for the internet voters is small – 74. This compares to a base size of 858 for polling station voters and 304 for postal voters in Rushmoor.

¹⁰ Mystery electors represented a range of communities, including two older voters, one member of the black and minority ethnic community, two deaf voters, three young people (18–24) and university students living away from home.

4.49 However, this was not the case for all of the mystery electors. One elector found that the site was unnecessarily complex, saying:

Where you are given the option to have the process carried out in English, Polish or Cantonese,¹¹ I assumed that selecting the English language option would then take me on to the voting process; however, it only took me to instructions.

Mystery elector

4.50 In addition, a usability tester¹² working on behalf of the Commission's accessibility contractors said:

[I was] a little bit disappointed to find on the second page one of those 'hack-proof' distorted text code thingies. I entered the site about a dozen times to check this out and only a couple of the codes were inaccessible. I still find these codes to be a little testing on my sight though, and would rather live without them.

Usability tester

4.51 A small number of electors could not use a local library internet system to vote because its firewall blocked active content.¹³ However, arrangements were made to remedy this before 3 May.

4.52 In the hope of being the first to cast a vote over the internet in Rushmoor, at 6am on 26 April, a Labour Party candidate logged on to the e-voting system. In doing so, the candidate discovered that one of his opponents, a Conservative Party candidate, was shown on the ballot with the Labour Party logo next to his name and a description of 'The Conservation Party Candidate'. This issue was resolved by 6.56am following contact by the Labour Party candidate with the Returning Officer and the Head of Democratic Services. In addition, the Council has confirmed that only one vote had been cast by the time the error had been fixed at 6.56am. It is therefore the Commission's view that the error on the ballot paper had no significant impact on voting at the elections in Rushmoor.

4.53 While the accessibility assessment generally found that the website was user-friendly, it also identified a number of issues:

- Absolute sizing was used rather than relative, meaning that the user was not able to change the text size to suit their needs. This also posed display issues for different access devices.
- Not all tasks could be carried out without the use of a mouse or similar device.
- The graphical security code posed accessibility issues for users with a visual impairment due to the complexity of the image and the low colour contrast. There was an audio alternative to this, although it was often difficult to understand and not effectively administered. Additionally, it would have been

¹¹ Note that instructions were available in English, Polish and Nepalese, but not Cantonese.

¹² Usability testers found various barriers to access.

¹³ The internet facilities in the library had not been provided specifically for e-voting.

useful to provide the audio alternative above the graphic version to give those users relying on screen readers the choice up front.

- The helpline number was embedded in the background graphic, making it inaccessible to users relying on screen readers.
- The button sizes and text were inconsistent (e.g. upper case for some buttons, lower case for others, different font sizes, etc.).

4.54 The Commission's accessibility contractors assessed the e-voting website as meeting Web Content Accessibility Guidelines 1.0 (WCAG 1.0) conformance level A.¹⁴ However, the MoJ's statement of requirement for its e-voting supplier framework required such sites to meet a higher accessibility standard, namely WCAG 1.0 conformance level Double-A.

Engagement with particular groups

4.55 The accessibility contractors found that the Council had some effective practice when engaging Service personnel with the elections, including some regiments that were due to leave for deployment overseas. In addition, although short timescales prevented a comprehensive engagement programme with community groups, the Council made presentations to senior citizens groups, the local college and several community groups. The local Access Group, representing disability organisations, was also consulted on the design and implementation of the e-voting pilot scheme. There is still, however, some scope for development with respect to engaging with these groups to identify and meet their access needs through the whole process of voting (informing and communicating as well as voting itself).

Campaigning

4.56 The presence of e-voting appeared to have little impact on the way in which candidates conducted their campaigns, and campaigns were not focused on the new voting methods.

Impact on counting

4.57 The production of the count figures for the e-votes took place in the Princes Hall Theatre, Aldershot along with the traditional count. ES&S and its partners who were managing the process were based on the stage of the hall while the main count took place in the auditorium.

4.58 The count commenced at 10.15pm on 3 May and finished at approximately 1am on 4 May.

4.59 The counting process was performed in two steps. The first step involved counting the number of receipts in the electronic ballot box for each ward and comparing this with the record of the number of ballots cast for each ward as determined from the vote collection system. Once this verification process had been completed, the votes were counted.

¹⁴ Web Content Accessibility Guidelines (WCAG) are a recognised standard in website accessibility developed by the World Wide Web Consortium (W3C). See www.accessibility101.org.uk/index.htm for further details.

4.60 However, the importing of e-voting results into the vote tallying application identified errors in the underlying data records for a small number of ballots. These errors prevented the importing of any e-voting results until the issue was resolved. The reason for the errors was a blank data field (the ward identifier) in a number of records, eventually traced to an issue with the process of reissuing a VIN to an elector. Once the reason for the error was identified, the affected ballots were modified manually before the importing process could continue.

4.61 Although this introduced only a small delay to the process, it is concerning that these errors were not picked up during testing and were not identified until count night.

4.62 Additionally, a few printer problems were encountered on the night, which further slowed down the ballot verification and results generation process. These issues should have been resolved through prior testing. The total delay caused by this and the issue identified in paragraph 4.60 was in the order of half an hour. Due to this delay, no time-efficiency savings were made at the count through internet voting.

4.63 A process for performing a complete recount was defined, which involved cleaning all the tallying PCs of ballot information and downloading and reopening the electronic ballot box. This was not needed.

4.64 The candidates and agents were kept informed of progress during the count through a rolling Microsoft PowerPoint presentation.

Turnout

4.65 The overall aggregate turnout for the May 2007 elections in Rushmoor was 35.2%. This is slightly less than the turnout at the 2006 local government elections (36%), but significantly higher than the last local government elections at which internet voting was piloted in 2003 (29%). Turnout in individual wards at the May 2007 elections ranged from 21% in Wellington to 44% in West Heath.

4.66 Public opinion research found that 70% of individuals who e-voted in Rushmoor reported that it was likely that they would have voted anyway. But one in three, or 30%, indicated that they might not have voted in the absence of the availability of e-voting, which is a positive outcome.¹⁵

4.67 Although around 11% of the electorate pre-registered for e-voting, only 57% eventually voted over the internet. This does not compare favourably with the figure of 85% at the 2003 elections, which in part is attributable to 332 electors failing to vote over the internet, despite entering their VIN, username and date of birth correctly. However, this still left approximately 2,500 electors who did not attempt to access the system. There are no clear reasons as to why this was but many may have just decided not to vote or may have forgotten. Some voters also went straight to the polling station on polling day and arranged to have their e-voting registration cancelled in order to vote in person.

¹⁵ ICM Research, public opinion research for the Commission, 2007.

4.68 On balance, therefore, it cannot be said that the pilot scheme had any significant impact on turnout in Rushmoor.

Security and confidence

Security

4.69 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.

4.70 As previously noted, prospective e-voters were required to provide their name and address, date of birth, a six to 10 character username and a signature when registering. When voting electronically, e-voters then had to provide their password and a VIN, which they had received on a secure poll card. No reports of false registrations or intercepted poll cards were received by the Council.

4.71 The design of the e-voting user interface included a number of further security features. Electors wishing to vote electronically were required to enter a randomly generated code displayed on the screen or an audio alternative in order to reduce the risk of automated attempts to access the e-voting system. All e-voters were locked out of the system if their password was entered incorrectly five times.

4.72 The risk of unauthorised access to the e-voting system leading to vote tampering was also addressed by the storage of ballots cast in encrypted format in the electronic ballot box application. The ballots could only be decrypted by the use of two of three smartcards held by the Returning Officer and the two Deputy Returning Officers. The risk of unauthorised access to the e-voting server was reduced by physical security measures undertaken by Firstserv Hosting Solutions, the hosting service provider. These measures included rooms being locked, with entry by digital keycard only, and CCTV in all receptions, hallways and security zones using alarms and card access. The environment was also equipped with climate control and fire protection facilities.

4.73 ES&S completed a high-level (but not systematic) assessment of the potential security risks based on its experience of similar e-voting solutions. The independent quality assurance process commissioned by the MoJ which took place in April found that some expected security measures were already in place. The quality assurance auditor established that the remaining measures were due to be implemented, which became the subject of an agreed resolution between the quality assurance auditor, the Council and the supplier.

4.74 However, the supplier consortium did not provide a risk management and accreditation document set (RMADS) as required by the MoJ supplier framework. Without a RMADS to provide evidence that an acceptable set of security measures was in place, and to form the basis of an independent security audit, there was a

significant risk that the e-voting solution could have had security weaknesses. It is possible that the RMADS was not provided due to the tight timetable associated with the implementation of the pilot scheme.

4.75 An independent penetration test of the system was completed by the MoJ contractors, albeit over a limited period of time, which nonetheless identified a number of weaknesses. Although ES&S stated that it had updated the system to address a number of the weaknesses found, it was not able to respond to all concerns due to the fact that some changes would have required a reinstallation of the system and there was limited time before the system was due to go live.

User and stakeholder confidence

4.76 The Commission's public opinion researchers found that around six in 10 people in Rushmoor would support wider use of e-voting, with the same number feeling that it is a secure system.

4.77 Nevertheless, two out of three people still preferred to use established methods of voting, although around one in five said they would vote over the internet. Men were more likely to vote this way than women, and there is a preference for internet voting among young people. However, 13% of those who actually voted via the internet were 65 or over, showing a wide range of take-up of the system. Convenience was cited as the main reason why voters used the internet-based process.

4.78 Candidates and agents were informed of the e-voting processes prior to the elections through the briefing held for agents and sitting councillors in the early part of March. Generally, feedback from these stakeholders was positive and supportive of the pilot scheme.

4.79 Candidates and agents reported no specific problems with the process of electronic counting itself at the Rushmoor count. However, they reported a little frustration about the level of transparency associated with the system:

There is no way of checking it and no transparency. As a candidate you have no way of seeing how they arrived at the final figures. I would like more access to the systems, partly for my own peace of mind but also on the principle that the system is above suspicion and everyone can remain confident that the right outcome has been reached.

Party candidate

Cost and value for money

4.80 The overall cost of the pilot scheme was £584,775.¹⁶ As summarised in Table 3, the largest single cost (£524,375) related to the provision of staffing and the internet voting solution etc., by the supplier ES&S and its partners. Other large costs included development expenses (£22,000), which relate to technical support and testing, and the delivery of registration information and voter credentials (£17,400).

¹⁶ Note that this figure may vary slightly, as final costs are currently being finalised.

Table 3: Total cost of pilot scheme in Rushmoor

Category	Cost (£)	Description
Supplier costs	524,375	Provision of staffing (including project management), internet voting solution and helpline set-up
Development expenses	22,000	Provision of staffing, technical support and equipment to ensure compatibility with existing systems, manual registration, printing, testing and acceptance
Operating equipment and call centre	9,500	Provision of laptops and staffing costs for voter management and results generation
Printing of registration forms	5,500	Provision of registration forms through third-party supplier
Delivery of registration information and voter credentials	17,400	Delivery and postage costs of letters/forms and information to electors
Communications plan costs	6,000	Costs of delivering the communications plan, including posters, banners, online information, advertisements and giveaways
Total	584,775	

4.81 The total cost of the pilot per elector was approximately £9.60, whereas the cost per elector who registered to use e-voting was £78.43. The cost per voter at the elections was £27.26, which rises to £137.00 per internet voter.

4.82 Although the overall cost of the pilot scheme equates to much more than a normal election, it does compare favourably with the costs of the first Rushmoor internet voting pilot in 2003, which cost £685,000. Table 4 provides a breakdown of comparative unit costs between the 2003 and 2007 pilot schemes.

Table 4: Comparative unit costs of internet voting pilot schemes

	2007 pilot	2003 pilot*
Total cost	£584,775	£685,000
Cost per vote (all votes)	£27.26	£37.34
Cost per e-vote	£137.00	£248.19
Total voted	21,449	18,345
Total e-votes	3,827	2,760

Note: *These figures have not been indexed for inflation.

4.83 The figures reveal that the 2007 internet pilot scheme led to approximately 15% savings on the 2003 pilot scheme. The 2007 pilot was also more cost effective with respect to cost per voter and e-voter than the 2003 pilot. The reasons for the savings are not entirely clear. However, they may, in part, be attributed to the procurement of a supplier at the 2007 pilot with vast experience of implementing

e-voting solutions, which may allow the supplier to achieve greater economies of scale¹⁷ than other e-voting solution providers. It can then pass on the lower unit costs achieved through economies of scale to its clients in the form of lower prices.

4.84 In addition, the fact that ES&S was acting as a supplier to two pilot schemes (i.e. also South Bucks) may have allowed it to achieve increasing returns to scale,¹⁸ and pass on the lower unit costs associated with this to its clients.

4.85 Internet voting allowed for a contraction in polling stations open on 3 May from 42 to 38, which is a 9.5% reduction in stations. This had inevitable knock-on reductions in staffing costs etc., but these cost savings were reversed by the substantial additional costs associated with implementing and running the e-voting system.

4.86 The Council is of the view that the manual-based registration process for e-voting at the 2007 elections imposed greater resource implications on it than the process in place for the 2003 pilot scheme in Rushmoor. The manual nature of registration at the 2007 pilot scheme required electors to submit a username to the Council on an application form. This had significant resource implications for the Council, which included usernames having to be entered into a database by Council staff, and the Council's helpline having to handle a number of queries from electors who had either forgotten their username or had their username incorrectly entered into the Council's database.

4.87 In the 2003 pilot scheme, the registration process involved electors generating their usernames electronically. These usernames were then stored on the e-voting system. This removed the need for electors to have to remember their username or for the Council to employ resources to enter such details into a database. The Council does, however, recognise the need for a manual-based registration system, for accessibility and security issues (i.e. collection of signatures).

4.88 The cost of the pilot was undeniably high, which reflected the considerable cost of the technical element. However, public opinion research suggests that remote internet voters may have found the service particularly convenient, with more than one-quarter of e-voters also saying that they would have been otherwise unlikely to vote had the facility not been available. Having said that, given the negligible impact on turnout, it is questionable whether the pilot scheme represented good value for money.

¹⁷ Economies of scale occur where an increase in the scale of the firm causes a decrease in the cost of each unit.

¹⁸ Increasing returns to scale occur where simply increasing output within current capacity reduces the short run cost per unit.

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 Rushmoor are as follows.

5.2 **The pilot scheme facilitated and encouraged voting.** By offering new voting channels, e-voting gave electors more convenient voting options. A total of 18% of voters voted using the internet. This amounts to 11% of the electorate and included members of the Armed Forces and those based overseas. In addition, qualitative and quantitative feedback from users was generally positive.

5.3 **The pilot scheme had no impact on reducing the time taken to undertake the count.**

5.4 **Overall, the pilot scheme had no impact on turnout.** Turnout decreased slightly from 36% in 2006 to 35.2% at the 2007 elections, with the Council not achieving its aim of increasing the total number of people voting from the last elections by five percentage points.

5.5 Public opinion research suggests that one in three internet voters (30%) indicated that they might not have voted in the absence of the availability of internet voting. However, most internet voters (70%) would have voted anyway.

5.6 **The pilot scheme provided for e-voting was generally easy to use.**

Voters generally found the procedures for e-voting easy to follow. However, many registered e-voters found their username difficult to remember, which led to a high volume of calls to the Council's helpline. Seventy-nine per cent of these calls related to electors not being able to recall their username.

5.7 **The pilot scheme does not appear to have led to any increase in personation or other offences or malpractice.** The Commission has no evidence to suggest that the pilot scheme led to an increase in personation or other malpractice. There were no complaints to the Council or the police regarding the pilot procedures or regarding potential fraud or security breaches.

5.8 **The pilot scheme led to an increase in expenditure for the Council, with the majority of these costs related to the supplier.** Overall the cost of the pilot scheme was £584,775. Although this is significantly higher than the cost of running a traditional election, large savings were made against Rushmoor's last e-voting pilot in 2003.

Non-statutory criteria

5.9 In respect of other conclusions based on non-statutory criteria:

- The Commission considers that further attempts need to be made to consult hard-to-reach groups to ensure that their needs are addressed.

- There was a high level of awareness of the internet voting method.
- The general opinion of voters on the new voting methods was positive.
- The provision of internet voting generally improved the delivery of service to those voters using it. The e-voting website was assessed as meeting WCAG 1.0 conformance level A. However, the MoJ's statement of requirement for its e-voting supplier framework required such sites to meet a higher accessibility standard, namely WCAG 1.0 conformance level Double-A.
- It is questionable whether the pilot scheme represented good value for money, because the significant extra expenditure did not result in a similar increase in voter turnout or a significant increase in the administrative efficiency of the elections.

Learning

5.10 The Commission's evaluation of this pilot scheme has identified the following key learning points:

- The importance of good project management was reflected in the Council's ability to project manage an electoral pilot scheme with many external dependencies and stakeholders effectively.
- Evidence received by the Commission suggests that a significant number of electors experienced difficulties in remembering their username. The Council has stated that the problem of electors forgetting their usernames did not occur during the 2003 pilot scheme, due to the absence of a manual-based registration system.
- The most popular period for e-voting was between 5pm on 2 May and the close of poll on 3 May, with 44% of registered e-voters casting their ballot during this time period. This suggests that there is value in e-voting channels remaining open until the close of poll.
- Approximately 60% of e-voters surveyed considered the e-voting processes used in Rushmoor to have been secure.

Issues

5.11 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 Council:

- Consideration should be given to greater involvement of disability organisations and the representatives of other hard-to-reach groups in the design and implementation of voter-facing pilot schemes to address the accessibility issues identified.
- The short implementation timescale had an adverse impact on overall project risk. It impacted on the time available to the supplier for the production of technical documentation as well as for testing and quality assurance processes.
- With additional time, it would also have been possible for the Council to give greater consideration to issues such as acceptance testing and accessibility.

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