

**OFFICE OF THE RETURNING OFFICER,
John M. Fitzpatrick,
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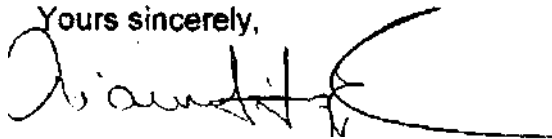
**TO : Peter Greene
FAX NO: 8882888**

**FROM : John Fitzpatrick
RE : Post Election Report**

Dear Peter,

Please find following a copy of our Post Election Report for your attention ahead of our meeting on Thursday 20th June.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'John M Fitzpatrick', with a large, sweeping flourish extending to the right.

John M Fitzpatrick
Returning Officer

DUBLIN COUNTY POST ELECTION REPORT

(Incorporating report from Manalog Ltd.)

June 2002

PRE-ELECTION

Electoral Register

This was an absolute disgrace and caused major problems with both the Postal Vote and ordinary voting, people were left off the register and were designated incorrectly. Something will have to be done in relation to the register as the number of errors are increasing.

Voting machines

The single most common complaint that we received concerning the machines was the poor visibility of the displays down the side of each column. It would be far preferable if these could be backlit for future production.

We felt that when the machines were used at single spacing that the candidates appeared squashed together and the photographs were far too small. In addition the buttons are too close together for comfort. At double spacing the ballot paper looked much better and the spacing between buttons was much improved. The only real drawback with this is that the redundant displays for the unused buttons were confusing to some users. Some thought should be given to this to see if we really need all these buttons/displays or could we standardise on somewhere between 14 and 16 rows per column and do away with the single spacing possibility. Having tried it both ways we felt that if there were more than 14 candidates in any constituency then it would be better to use a second column instead of going for single spacing.

The use of the cover sheets to blank out unused columns was a good idea and should be continued. If the machines are going to be left as they currently are then the possibility of having the cover sheets printed to obscure the unused displays on each column could be investigated.

Before polling day we tested the voting machine for disabled voters with the help of some people from the Irish Wheelchair association. The machine was found to be inaccessible to the voter that we used in this test. Amongst the problems, the cast vote button was too high for the voter to reach.

The paperwork associated with the electronic voting system gave some headaches. For example, we had to photocopy the VM2 forms ourselves instead of being supplied with sufficient numbers for all the voting machines. With the number of forms involved this was an extremely time consuming and costly task. Also, the amount of actual paperwork given to polling staff was far too much for them to handle - they had an overabundance of manuals/instruction sheets. One straightforward document would be preferable to the three or so booklets that they received. This would cut down not only on the confusion amongst polling staff as to which one to actually read but also on the huge time and cost factor in actually distributing the manuals.

The seals to be placed over the module in the machines were unsuitable in that rather than being protective seals, they were simply sticky labels. We found that these were easily removed and transferred to another machine.

I.E.S. Software

The I.E.S. software appears well written and is not overly difficult to use. The main problems that we found with the software related to the number of changes that were made throughout the period of the trial and right up to a couple of days before polling day. This is not unusual in a pilot scheme for a new system but it would have been better if we had received a written list of changes with each new revision, particularly the last couple of revisions, as this would have highlighted changes that we needed to be aware of.

The ability to read modules on more than one machine and to transfer the data to a master machine for processing was only added the week before polling day and we therefore had far less time to practice this area than for most other parts of the system. It is no coincidence that this area caused us problems at the count for both Dublin North and Dublin West. We believe that the steps involved in transferring the data to the master machine changed in the final version of the software but have not yet been able to reload the earlier versions to verify this.

The software occasionally hangs (which is a problem that can affect any Windows program) but we have never found a case where there was any evidence of data loss or corruption afterwards. In particular the software hung on the night of the count at the end of the mixing and numbering procedure in both Dublin constituencies. In each case we ran the mixing and numbering procedure a second time and did not have this problem. This did however delay the proceedings at a time when we could have done without this. It should be mentioned that we were relaying the output of the system to the projectors in each case and that we disabled this for the second attempt in case the relay software was having any effect on the program. We had previously run the entire count procedure using test data and relaying to a projector without problems during testing so it appears to be just bad luck that it should hang on the night.

The software also hangs quite frequently when exporting to Microsoft Word. We have found that having Word open in the background appears to reduce the frequency of these crashes but not eliminate them altogether

Candidate Information

It was found that most of the image files provided by the candidates could not be read by the I.E.S. software as this only accepts JPEG files (and not all forms of JPEG at that). Although the nomination forms issued to the candidates did specify that images should be provided as JPEG many candidates ignored this and provided TIFF or BMP formats. After the first day of nominations we installed a trial version of a graphics program on the computers in Dublin and Meath to allow files to be accepted in any format and then converted to JPEG for use in the I.E.S. software.

For future elections it must be decided whether only JPEG files are acceptable (and if so what type of JPEG files are required) or whether the IES program can be amended to accept other formats as well. Failing this each returning officer will need suitable graphics software to allow other formats to be converted to JPEG.

Ballot Paper Production

When the Meath ballot papers were being readied for production in Cahill Printers it was found that the script being used to generate the print layout files from the output of the IES software were not properly scaling the candidates and/or the party logos correctly. The script was altered by Nedap and the amended version was sent to IDFA who were to print the Dublin papers the following day. It was also found that the picture quality of two of the photographs was very poor and showed marked posterisation (conversion of varied shades of a colour into a single shade leading to a reduction in the overall level of detail in the picture.) The original image files were emailed to the printers by the Meath election office and were manually inserted into the ballot paper with much improved results.

It was also noted at this time that the party logos were of poor quality but it was decided to live with this for the pilot project. This area should be looked at before the next election to ensure that the ballot papers are of the highest quality that we can reasonably obtain.

On bringing the Dublin constituency files to IDFA it was found that the new layout script did not function correctly and they reverted to the old script and manually made the same adjustments that had been made in Cahills the previous day. Once this had been done the ballot paper proofs were produced and were acceptable with the same reservations concerning the quality of the party logos. The candidates photos all reproduced correctly with none of the posterisation seen the previous day.

Programming of the Ballot Modules

The software frequently displays an error message saying that it is "Unable to open the COM port" but it is found that simply trying again is usually enough to correct the problem.

Setup of the Voting Machines

This operation went quite smoothly though one or two machines were discovered to be non-functional at this time.

Training of poll staff

At training sessions there were many questions that related to issues unknown to the IPA trainers. We need to look at the option of having future training sessions given by experienced Returning Office staff, who know about election procedures as well as electronic voting.

There were reports of conflicting instructions given to polling staff attending different training sessions. This obviously caused confusion and needs to be sorted for next time.

Several poll staff mentioned that during training they were not taught about some things that came up on polling day - such as switching the machine off and on again if the 'error' message came up. Dealing with such issues during training would help prevent the sense of panic when such a message came up on the day.

Now that the system has been tried it is important that the lessons learned are included in the training plan for any future training sessions.

POLLING DAY

In general the operation of the polling stations appears to have gone well. We attended at a number of stations during the morning of polling day to investigate the following reported problems.

- a. In one station a member of staff inadvertently cast a vote before the opening of the polling station. The Presiding Officer rang the helpline and was instructed to use one of their standby machines instead of the affected machine. The machine in question was replaced. The machine was checked to verify that there was only a single vote on the module and the module was marked and was not read in during the count.
- b. In another station the staff were unable to start up one of the machines. On visiting the station it was found that the key had been inserted into the keyhole beside the module and turned thereby shutting of the entire machine. Once this keyswitch was reactivated then the machine operated normally.
- c. One station had trouble printing their initial report and it was found that the lever on the printer was not fully forward. When this was rectified the printer worked properly.
- d. One machine in Malahide failed to operate correctly but by the time we got there the area Inspector had been to the station and had replaced the machine.

One voter called the election office on the morning of the election and was very irate because he had selected his first preference and then pressed the cast vote button before selecting his second preference. The operator of the machine, correctly, refused to allow the voter to re-cast his vote. It should be stressed in future training sessions that operators must refuse any such requests since, while this operator handled the matter correctly, there is no guarantee that another operator, in the same circumstances, would not have acted differently. Improved voter education could also take care of this issue.

One station (Booth number 1019) reported the following problem which we have not been able to verify or reproduce. *"Voter gave in ticket. No. 1 was pressed. Voter leaned on machine with left hand. Then control unit went from open to stand-by without cast vote button being pressed. Ticket 71. Time approx 3:20pm."*

During the input of the postal votes at the count centre it was found that the machine being used in Dublin North had a flickering fluorescent tube fitted. This is not a major problem when a voter is casting a single vote but when the same person is casting a couple of hundred votes it is very aggravating. The availability of spare tubes, or a spare machine, at the postal vote input should be noted as a requirement for future elections.

According to the Inspectors who toured the polling stations throughout the day, things went very well in general. The spare machines were deemed not only useful but essential in the avoidance of queues. They reported that the helpdesk was an excellent resource for polling staff. It provided peace of mind as staff knew that help was near. They also said that the response from the public was very positive, although some voters were wary at first, once they actually used the machine they were full of praise for the system.

COUNT

In all three constituencies the counts were completed within four hours of the close of poll and more importantly the results can be relied on to be fully accurate. Having said this there are a number of areas in the Dublin Count Centre, in which we could have improved and which would have reduced the wait for everybody.

- a. A proper reception area for modules is essential for future elections. At this stage modules should be accepted from one collector at a time and it should be verified that all of the modules that that collector is expected to supply are actually present along with the relevant paperwork.
- b. The forms used in the polling stations are poorly worded and led to substantial confusion when it came to carrying out the reconciliation of each station. In the end it was decided to perform the count without reconciling the stations as it proved impossible to do so on the night. In particular many presiding officers filled in the total number on their register or the total number of tickets issued to them instead of the number of voters marked off on their register (the number of tickets issued). Some staff also recorded each person that they sent to a standby machine as a voter who left their station without voting.
- c. The start-of-poll and end-of-poll printouts proved time consuming to handle and some system whereby these could be attached together with the other paperwork, preferably folded so that the section of the close-of-poll report that shows the number of votes cast is visible, without having to unfold the printouts, would be preferable. It was also found that one station had printed an intermediate report part way through the day and enclosed this also. This report was initially mistaken for the stations close-of-poll report and the confusion was only resolved after rechecking the paperwork for the station in question.
- d. We decided to use the figures on the printouts to produce displays suitable for projection to give the audience something to see while the modules were being read in. In the event this was counter-productive as the additional manual handling of the printouts that this necessitated only served to divert staff from more productive work. For future elections we would like to see the I.E.S. software modified to produce output suitable for projection automatically as the modules are read in. Ideally this could be the running total of the first preference votes for each candidate as this would lend an air of excitement to the proceedings.
- e. In Dublin West one module was found to have been left in the election office in Glasnevin. This was a module that had been programmed for a spare machine which was carried around by an inspector for the day. Even though the module was known to be empty we had made the decision to read all the spare modules in so that we could prove that every module that had been programmed for the election had been accounted for. I understand that in the Meath count centre they did not read in these spare modules and as long as everybody is satisfied that this practice is satisfactory then we should standardise on it for future counts. It should be noted that had we set up a proper reception area as detailed in (a) above then the absence of this module would have been noticed much sooner and it would not have delayed proceedings at all.
- f. In Dublin North one module was also found to be missing but was discovered within two or three minutes having been left with the incoming envelopes and not passed on to the readers. Again better organisation of the incoming modules would have prevented this.
- g. In Dublin West it was found that the first attempt at mixing and numbering completed far too rapidly and it took some time to discover that this was because one step had been

missed out in the procedure for transferring results from the reader machines to the master PC for processing. We feel that earlier versions of the software may not have required this step as neither of us can recall doing this on any of the trials that we carried out the week prior to the election. In any event the software should be modified to ensure that a warning message is displayed if this step is missed out to prevent this from happening at future counts.

- h. In both constituencies the mixing and numbering procedure failed to finish at the first attempt. In both cases the progress bar indicated ongoing progress right up to completion and the progress bar then disappeared from the screen as normal but the message indicating mixing and numbering complete never appeared and the computer had stopped responding. In both cases the procedure was retried successfully though this added a further 10 or 15 minutes to the overall count time.
- i. It had originally intended that the results would be presented count by count but this was later changed so that only the final results would initially be presented. It was felt on the night that this was too clinical and that to have gone through each count would have been kinder to candidates who failed to take a seat as they would have had a few minutes to see the result coming.
- j. On projecting the result screens from the I.E.S. software it was found that they were not very legible from more than a few feet away. In fairness these screens have not been designed for projection at all so this is no criticism of the software. It would be useful if later versions included a single page for each count that is formatted in large type suitable for projection. The amount of information on these pages should be minimal to allow for the largest possible type size. The name of the candidates along with their total number of votes at the end of that count is probably sufficient.
- k. The location and size of the count centre added to our problems as also did the layout. In future the count area should be given much more room and the public kept from the count operation. Also the media will have to be controlled better. RTE almost took over the count and hampered the work of the Returning Officers.

Attached : Reports from Jan Janssen, Roy Loudon, & LGCSB.

Electronic Voting Pilots

Following our participation at the pilot Electronic Voting project for the two Dublin Consistencies and the Meath Constituency. We noted the following points that should be taken into consideration in future electronic voting counts:

IT Considerations:

- Ensure the electrics of the count centres are suitable for powering all the new equipment. Meath had made suitable provisions & no potentially overloaded circuits were necessary. The Dublin count centre was quite limited in the amount of electrics.
- Provide appropriate electrical extension blocks. In the Meath count we had just enough but had none spare in the case of a failure of any of them.
- Provision of a suitable Uninterruptible Power Supply (UPS) unit to filter possible power spikes & to provide battery backup for all module reading & final tally PCs involved in the count. The possibility of the provision of an UPS at the polling booths should also be considered. An UPS was provided in the Dublin & Meath Count Centres
- Provision of a suitable external generator. The occurrence of lightning in Meath on the day of the count reinforced this requirement.
- A high performance 25 pages per minute (ppm) printer would reduce the wait times & assist in the production of the copies of the final results. If this proves too expensive a printer capable of producing at least 19 ppm would suffice. A spare toner cartridge should also be provided.
- A high capacity photocopier more suited to the roll of producing a large volume of the final count results. The possibility of networking the photocopier & using it as a printer should also be considered as this is a feature on most modern photocopiers. However a stand-alone printer should still be retained as a backup. The photocopier supplier to the Meath count, while suitable for a small office environment, proved to be totally inadequate & the printer connected to the tally PC proved to be quicker at producing result copies.
- Two small 100BaseT hubs should be used for networking the PCs, one live & one spare in the event of failure. Because of the high profile of these counts, the possibility of setting up two separate networks (i.e. 2 network cards in each PC running suitable fault tolerant software, provided free with the network cards, connected to separate interlinked hubs) for the provision of a fault tolerant network should be considered.
- Sufficient network cables to setup the required network & to have at least 2 cables spare.
- Suitable background pictures & screen savers should be produced to ensure the PCs look suitable for the job in hand & no free advertising is given to PC manufacturers. The default background screen on the Meath PCs originally featured a large Dell logo prior to our modifications.

General observations:

1. The idea of separate coloured trays for segregating the modules (read & unread) and the different components of the envelope from the polling booth worked very well in Meath. This could also have been implemented in the Dublin Count Centre but space for this was very limited
2. A clear workflow environment was established in Meath. The distinct areas in the count centre & their inter-relation should be clearly laid out to ensure all Returning Officers are aware of them.
3. Proper security around the final count PC to ensure no one can overlook the results early and announce them prior to the Returning Officer's announcement. It was noticed in Meath that a senior Garda was privy to the results early by simply looking over our shoulders. He was asked to keep the results to himself as they still had to be manually verified.
4. Tidy management of the start-up and the final tally printouts from the booths should be considered as the narrow long slips proved difficult to handle & store neatly. When three final tally slips were found to be missing in Meath and a re-check of all the start-up & final tally slips was necessary it proved to be very awkward. Tidying up of the slips could include trimming, as some had excessive amounts of spare paper, and possibly some type of spike for pushing them onto.
5. The distribution of the different components of the envelope from the polling booths to the different work areas should be clearly identified & two individuals tasked to carry out this distribution. Only one person was assigned in Meath to the task of delivering all the components to their destinations with the result that people were sometimes waiting for additional material.
6. Early supervision of the count centre. Proper supervision in Meath was not implemented until the arrival of the Returning Officer at 9PM. Some of the media had setup cameras and lighting etc inside the barriers
7. The size of the Conference room used in the Dublin count centre was not really adequate for the two constituencies.

To overcome points 4 and 5 above it maybe suitable to implement some sort of bar code scanning on the tally slips. For example as the modules are brought to the Count Centres they could be handed to two people that are designated to scan each printout and then distribute the modules to the relevant people. The bar codes could possibly contain information like module Number, Polling Station, Votes cast etc. This sort of process could reduce the chance of misplacing modules and speed up the input of votes cast to give people in the count centre an idea of the percentage turnout. This could only be implemented if the polling booths can print bar codes.

Overall, the Meath count ran very smoothly with the staff very aware of the role they needed to play. Any small problems or issues that arose were dealt with quickly & professionally. The close proximity of the Meath Co Co offices & the participation of it's IT manager, Tommy Kavanagh, ensured that spare equipment & additional resources were available at short notice.

The Dublin count didn't experience any PC/Printer/Network problems that required intervention from ourselves during the count process. As with Meath, any problems or issues that arose were dealt with quickly, calmly & professionally by all staff on hand.

20.05.02

Brief notes re pilot Dublin constits.

- 1 The Powervote system delivered final results at each constituency.
2. The voting machine was well received by public and staff (exception seemed to be limited to comments that preference displays not clear enough).
3. Some operator errors occurred at set up but these were relatively small 9 cases in Dublin constits. Our phone at helpdesk was receiving some calls of non technical nature and these are included for info only,
 - (a) inspector repted no tickets in bag for boxes 10 and 11.
 - (b) Box165. Error 35701 . Nedap engineer visit and found ballot module not fully inserted in connector? Plugged in and all ok.
 - (c) Box 114 faint print when making opening statement. Nedap engineer check - lever not in correct position. Reprinted ok.
 - (d) Box1017 (and all others at this location?) call was that no machines working at 07.35. One person had instructed all staff to set up in a particular way! Seemed to have all turned machine off at ballot module lock! Talked through set up process on phone and all ok.
 - (e) Box 9 no preferences showing. Tried again and all ok. Maybe pressing wrong area?
 - (f) Box 69 in functions mode. How do I get back? Resolved on phone.
 - (g) Box 65. Vote cast by member of staff in error! Advised them use spare vm and advise inspector when call.
 - (h) Box 186 allowed voter to vote twice. Instructed make note of and return with BM at close of poll.
 - (i) Box 67. Piece of ballot paper'fragment' obscuring preference display window. Talked staff through process of opening cover and removal of item. All ok.
4. One reported machine failure at 22.00 hrs. This was sent complete to count centre. Upon inspection at count centre we were able to make back up and print as normal. The error message reported by polling station staff was 7002. This machine to be sent to Nedap for investigation.
Box 68.
5. other reported error message was 14218. Machines concerned simply restarted and continued normally. This error message seems to relate to communication between voters panel and associated interface pcb. Machine Box 1 to be returned to Nedap for investigation.
6. Questions at shutdown limited to 2. This was excellent in that no questions raised in terms of shutdown-back up and print procedure.
 - (a) do I put BM back in VM !
 - (b) How many envelopes to return?
7. The count.
 - (a) Staff here made it clear that a number of lessons were learnt and that reviews of procedures would result in improvements by next use of system.
 - (b) Our observations include but not necessarily limited to the following,
 - (b.1)decision to read in all modules including spares turned out be problem. At outset it seemed to be a good idea so as to avoid any misunderstanding in terms of which modules to read as there were a relatively large number of spares machines deployed to be used in the event of excessive queing developing. Dublin West held up as we waited for a spare module to be located. Took approx 45 minutes.This unerved staff and resulted in some errors being made in procedure. Problems with presentation screens showing wrong items and trying to shutdown added to the nerves problem plus overcrowding at the venue and audience tension.
 - (b.2) consider separate area where some items can be considered in peace and fully check before announcement.

Continued.....

(b.3) rehearse, rehearse, rehearse.

(b.4) taxi collection of ballot modules meant that first ones read in at 11.20 ? next time allow individual presiding officers who are very local to count to deliver themselves ? this might speed up start and also enable a steady flow to build up prior to larger taxi deliveries?

(b.5) 'sudden death' situation for candidates not best way to do it?

(b.6) for future use assign one person to presentation - ie someone not directly involved with reading in and count process. Make presentation structure so that audience see stages of progress through each step.

8. Conclusion. It worked. Software and machines did what they were supposed to do. Learning by doing and review meetings will lead to improvements in areas highlighted. Machines to be returned to Nedap for investigation/repair as follows,

Meath - faulty preference displays? Number not known at time of prep notes.

Dublin,

1 - control unit damaged during training phase - appears that plug was placed on top of CU leading to cracking of display - held at Tolka valley.

Box 1 - investigate error message 14218

Box 118 - investigate error message 14218

Box 68 - investigate error 7002. This was reported and so VM sent to count centre for withdrawal BM. All worked ok but error/event history print out showed 7002.

I will contact J Fitzpatrick to arrange .

Please advise when review meeting scheduled.

Regards

Roy Loudon
Powervote Ltd.