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COMMUNICATION BY

Ms Judy Middlebrook
(House of Representatives, Australia)

VOTING METHODS IN PARLIAMENT

Geneva Meeting

1st – 3 October 2003

COMMUNICATION BY MS JUDY MIDDLEBROOK (AUSTRALIA)

VOTING METHODS IN PARLIAMENT

Members of the Committee have visited various legislative assemblies around the world where electronic voting is used. Most recently, we saw its operation in the Scottish Parliament. The general consensus of all of the legislators we have spoken to regarding electronic voting is positive. The technology exists and is reliable, and the results are accurate and readily available. [Extract from the Fifth Report of the Special Committee on the Modernization and Improvement of the Procedures of the House of Commons – Canada 2003]

There are arguments other than cost, moreover, against the adoption of electronic voting. ... including (a) loss of an opportunity for a pause or 'cooling off' period in proceedings, (b) no sign of how a Member is voting by where they are in the Chamber, (c) possibility of Members voting for absent colleagues and (d) more divisions being called. To this can be added the opportunity for Members to liaise with colleagues, for example Ministers, while divisions are in progress. [Extract from Australian House of Representatives Standing Committee on Procedure report, *Review of the conduct of divisions.* 2003]

Introduction

There is no activity more central to the functioning of a legislature than decision-making by the elected Members on questions before them be they approval of legislation, government expenditure, or opinions on matters of national and international affairs. At the last meeting of the Association in Santiago de Chile Australia listed on the draft agenda for the next meeting a *review of the issue of voting methods in Parliament.* While the topic covers voting methods in general, the particular focus of this paper will be on electronic or mechanical[1] voting when a formal vote is being taken. A formal vote may include any method of casting a vote where the individual decision of each Member is recorded[2]. Such votes often follow the more usual informal votes when the result of, for example, the voices or show of hands is indecisive. In one sense, it is an extension of the discussion on the impact of new technology which was held at the last autumn meeting in Geneva.

To gather updated information on the topic an informal questionnaire consisting of 19 items was circulated to 64 secretaries-general in May 2003. Responses have been received from 53 parliaments[3]. The clerk has asked me to thank all those who have so generously given their time in responding to

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[1] The term "electronic voting" is used in this paper to encompass older mechanical systems as well as state of the art computerised information systems.

[2] This is not a precise category. For example the Israel Knesset does not use its electronic voting system for roll-call votes – even through roll-calls are an example of a formal vote. Several legislatures – for example Ireland – do not use electronic voting for electing office holders or for a motion of confidence in the Government. The response from the Polish Sejm provides detailed information on a range of voting possibilities provided for in the constitution.

[3] A list of respondents is at appendix A.

the questionnaire. Only those parliaments which had experience of electronic voting were asked to respond to all 19 questions. Parliaments which have not installed electronic voting were asked to respond to three questions relating to provisions for electronic voting, interest in installing a system in the future and reasons for not installing an electronic voting system if relevant.

Scope of the paper

This paper considers the use of electronic voting and tallying of formal votes particularly from the perspective of those legislatures which may be considering the introduction of new technology but which currently record formal votes in traditional ways. This approach varies from previous ASGP studies of voting methods which focused on the ways in which decisions are reached by legislatures. In these reports[4] electronic voting was treated as merely a method of assessing the result of a vote. At that time the potential for adding value to electronic voting by means of the Internet and other technological advances was in its infancy. Improvements in technology provide the opportunity to expand electronic voting from a means of recording and counting votes to a tool for communicating with electors and the world.

While the focus of this paper is on the technology of electronic voting, the two quotations at the beginning of this paper are a reminder that technology may be viewed primarily as a tool or, alternatively, mainly as a procedure which operates in a social and political context. In the first quote electronic voting is viewed merely as a means of achieving quickly and efficiently what would otherwise be done by an alternative and less efficient method. The second quote highlights the social and political dimension in which technology operates.

The 1982 report by Mr K A Bradshaw, Clerk Assistant of the House of Commons of the United Kingdom, is a comprehensive and relevant account of the different approaches used by legislatures to reach decisions. It covers preliminary matters including the timing of votes, the interval between the warning of a vote and the vote, quorum issues and explaining the vote. It then considers categories of voting procedures and explains each by using a particular legislature as a model of that type of voting. Mr Bradshaw's report also includes an evaluation section in which conclusions on different categories of voting are drawn. The report is recommended reading. There is no attempt in this paper to cover topics already so comprehensively presented.

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[4]   The ASGP previously considered voting methods in 1951 and 1978/79. Reports were published in 1951 and 1982. The first report, by the Clerk of the Irish Dail, was a short report based on the responses to a questionnaire by 16 parliaments. The latter report which was presented to the ASGP in 1982 by Mr K Bradshaw from the United Kingdom House of Commons (and published in report No. 132 [3rd series]) is a comprehensive report.

Mr Bradshaw's report noted that since 1945 "a dozen Parliaments have taken up electronic methods of voting and others are thinking about it". The informal questionnaire which was used to gather material for the current paper included responses from 32 Parliaments with electronic voting (by no means an exhaustive total) and still "others are thinking of taking it up". I hope that this paper will be of most use to those who are "thinking of taking it up". It is one means by which they can learn from the successes (and failures) of those legislatures which have already installed electronic voting.

For this reason, the paper focuses on issues of particular importance to those who have not yet decided to use electronic voting. At the same time, it should also prove useful to those legislatures which already use electronic voting but which have experienced some difficulties with the technology or accompanying procedures.

Responses to the informal questionnaire are detailed in appendix B. This communication will use examples from the responses but in the context of commenting on issues rather than as a comprehensive survey. The paper covers four main issues:

- financial aspects;
- technological issues:
- security issues; and
- procedural or context issues.

Overview of responses to the questionnaire

Appendix A (pages 11-12) shows all the legislatures (a term used to indicate either a Parliament or a House of Parliament) which responded to the questionnaire. It also indicates which responses are from legislatures that use electronic voting (or not). Appendix B (pages 13-19) is a report on responses to the questionnaire. The responses themselves are not included in this paper but as they may be of particular interest to any legislature considering the introduction of electronic voting, they can be obtained from the office of the President if required. The responses have also been summarised in a statistical table (appendix C – pages 20-26). More than half the responses (32 of the 53) were from parliaments which *do* use a form of mechanical or electronic voting.

Legislatures, which do not use electronic voting
Twenty-one responses were from legislatures which do not currently use electronic voting. They include legislatures which have never seriously considered using electronic voting for various reasons including the small number of members or because the legislature meets in a heritage building which would not be suitable for electronic voting, or both (as in the case of the Parliament of Andorra). Almost 80% of legislatures using electronic voting also display the results on a large panel in the chamber and the display panel

may be more difficult to incorporate into a heritage building than the electronic voting technology itself.

In relation to legislatures, which have not (or have not yet) given serious consideration to the installation of electronic voting, the fact that they responded to the questionnaire is much appreciated. Their reasons for not using electronic voting are of much interest to other legislatures which have not (or not yet) installed the technology. Of course many legislatures which have no interest in installing electronic voting may have decided against responding to the questionnaire so this must be taken into account in interpreting the results. It is also the case that legislatures which officially have no intention of installing electronic voting in the near future may still be very interested in keeping up with the latest technology. In the case of the England for example, the House of Commons Factsheet (Series P No 9) states that ...*the House of Commons has not adopted a mechanical or electronic means of voting. This possibility was considered most recently in 1998 by the Modernisation Committee but was rejected because it would not have resulted in a significant saving of time to the House, and for other reasons was not convenient*. While this is the official position there is interest in the subject. A media release of 3 March 2003 reported that *MPs from the House of Commons Modernisation Committee, led by Robin Cook MP, will be in Edinburgh on Tuesday for a fact-finding mission to look at the Scottish Parliament's electronic voting system and innovative public petitions committee. ... The visit to the Mound will be the second time the [then] Leader of the House of Commons has been to the Scottish Parliament to look at possible ways of updating Westminster's procedures.*[5]

For other legislatures that do not currently use electronic voting, 20% plan to do so in the near future and others consider they might do so in the longer term. Still others may have considered the possibility and rejected it for the present, but realise that the future may bring a change of mind. All of these legislatures will have a particular interest in the experience of the 60% of responses which provided details of electronic voting systems now in place.

Legislatures, which have a form of electronic voting
For those parliaments which do have a form of mechanical or electronic voting, the remaining 18 questions in the questionnaire were divided into three sections - *system parameters and development* - which encompasses design and set-up issues; *technical effectiveness* - which covers how the system actually works; and - *procedural issues*- which cover the practical implementation of the systems as a decision making tool.

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[5]   The House of Commons has an additional problem in relation to electronic voting since there are more Members than there are seats. The popular method of delivering one's electronic vote from one's seat in the chamber is not therefore a possibility. As Mr Robin Cook has resigned as Leader of the House there may no longer be such an active interest in electronic voting.

Financial aspects

The financial implications of installing and operating electronic voting systems appear to be of more interest to those legislatures which do not use such systems than those which do. The informal questionnaire revealed that cost is an important consideration for 60% of the legislatures which do not have electronic voting and which were able to identify reasons for its non-introduction. Even where the cost is not the most important factor in whether a legislature adopts electronic voting, it is likely to be one of the factors.

The informal questionnaire did not inquire into set-up costs because variation in design and size would have rendered the information difficult to interpret. However, some legislatures did include the cost of installation and most did not experience cost overruns. The Japanese House of Councillors for example reported that *the cost of installation was less than expected from the prior examination.*

The size and sophistication of the system is clearly the most relevant factor in the cost. The European Parliament for example, provides each of 630 seats with a voting terminal. The system cost E1,607,630.00 to install and annual maintenance and running costs are approximately E97,470.00.The system requires the attendance of a technical backup team of 4-5 technicians who supervise the operation of the equipment from a booth in the chamber.

The report on responses to the informal questionnaire (appendix B) provides a sample of estimated running costs. However, it is difficult to draw reliable conclusions from the information provided because of the range of costs included. Those legislatures which are considering introducing electronic voting and want to address the issue of costs more closely are advised to obtain the full copies of responses from the President's office. Even then, it is probably advisable to contact relevant legislatures to investigate more accurately how costs were estimated.

Technological issues

Technical effectiveness

For those legislatures which do not currently use electronic voting the issue of the technical effectiveness or accuracy of systems is a concern. This is a separate topic from deliberate fraud and focuses on issues such as Members changing their minds about how they wish to vote, Members accidentally voting the wrong way or technical breakdown and the need for a "back-up" system. All legislatures using electronic and mechanical voting systems have addressed these issues by a variety of technical and procedural methods[6].

For legislatures which regularly use electronic voting systems technical reliability is not a major concern. This is hardly surprising. One would expect

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[6] An example of a procedural response to a technical difficulty is deferring the vote — one of the possible responses in the Irish Parliament.

that on a matter as fundamental as casting a formal vote, any technical problems would either be solved or the system abandoned. An example of the latter solution is the German Bundestag. Past technical difficulties have resulted in the decision to retain traditional voting methods in the new building.[7] On the other hand, the Israel Knesset had technical difficulties with the system first installed in 1989. This system was planned by staff and students of the Electronics Department in a technical high school. A professional firm (the same outsourced firm which now operates the Knesset's Computer Unit) was brought in to solve the problems.

Some legislatures have been through various upgrades of their voting systems. The Polish Sejm, for example, installed its third system in 2001. For legislatures which are considering installing electronic voting for the first time perhaps I could suggest that legislatures which have a history of using electronic systems and have recently upgraded their systems (such as the Sejm) would be in an excellent position to give advice on technical matters.[8]

Integrated systems

Electronic voting systems are often part of an integrated information system in the Chamber. The Finnish Parliament is one of many which has such a system. Finland noted in a contribution to the impact of technology item in Geneva 2002:

> *The information system in the Chamber of the Finnish Parliament consists of three parts: a voting system, a monitoring system for plenary session matters, and a sound reproduction and recording system. These systems take care of recording votes, roll calls, signing up for the floor, sound reproduction and recording speeches. MPs can also use the system to monitor plenary session matters and decisions.*

The public information aspect of many electronic voting systems is a major aspect of the attitude of many legislatures to electronic voting. The Lebanese Parliament has a system designed by Suny/CLD. The website of the company states that *SUNY/CLD worked closely with the Parliament to determine its internal needs, as well as steps to render Lebanese Parliament procedures more open to the public, and then designed the Electronic Voting and Sound System (EV & SS). Through the EV & SS, voting results are displayed on a wall display apparent to the media and the public alike, increasing Parliament's transparency and enhancing the public's perception of the voting process.*

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[7] An electronic voting system installed in 1970 in the old plenary chamber in Bonn was dismantled in 1973 following several unsuccessful attempts to fix it. The problems apparently related to the complexity of the system as well as its technical problems. As the legislature has now moved to a third location the debate over the use of electronic voting has arisen on three occasions. While costs, possible abuse of the system and doubts about a significant saving of time were raised, technical reliability is an ongoing concern.

[8] The new system was custom designed for the Sejm and is based on Oracle, Windows and DELPHI technology. A different system is used in the committee rooms.

Linking electronic voting systems with display devices need not be hugely expensive. The Estonian Riigikogu uses two 32" television screens for this purpose (as well as a larger video screen with an LCD video projector). As well as reporting the result of votes, the Estonian display device indicates the order of speakers. Other information provided on display screens might include the subject before the chamber and the immediate question being voted on (the Senate of the Czech Republic). The Czech House of Representatives also notes that one of the most significant benefits of the electronic voting system is the ability to provide immediate information to citizens (by means of the Internet site).

Many legislatures now broadcast live coverage of proceedings on the Internet. There are some excellent examples of the enhanced effectiveness of the broadcasts provided by screens displaying captions explaining proceedings. The Scottish Parliament's website is a good example of this use of technology associated with electronic voting but with much wider value and application. The link Welcome to the Scottish Parliament provides access to the webcast.

The Australian House of Representatives 2003 report reviewing the conduct of divisions (http://www.aph.gov.au/house/committee/proc/reports/divisions/report.pdf) concluded that for various reasons the House should not install electronic voting at this time but that electronic information display panels (which are usually associated with electronic voting), have a value in their own right and should be installed as a service to the public visiting the chamber.

Security issues

For those legislatures which already have electronic voting, security is probably the most sensitive issue. There have been at least two incidents in which the vote cast was not that of the Member purporting to vote. Legislatures which do not yet have electronic voting but which are considering installing a system will have a much broader menu of security options available than those in the past. The increased threat of the "new terrorism" has been the occasion of a flowering of security technology which can be expected to be available for future electronic voting systems. Since 1998 the Mexican Chamber of Representatives has used a PIN (personal identification number) together with scanning Members' fingerprints in a laser scanner installed at each Member's seat. That legislature reports that *The system is very secure, since it can only be accessed by the members of the Chamber by introducing their personal code and by scanning their fingerprints in the machines installed in their seats. Therefore it is impossible to vote by proxy, and each member needs to be physically present in the Chamber in order to vote.*[9]

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[9] The system was designed and installed by Auditel LTD (a British company) and was installed in 1998. The annual running cost is approximately $US240,000. Mexico is one of the larger chambers with 500 members.

The range of security related technology which could be a feature of future electronic voting systems includes "smart cards", touch screens and infra red handsets. Iris recognition technology also has possible application to ensure the security of future electronic voting systems.

Procedural or context issues

Some legislatures are so large that the idea of not using electronic voting is particularly unattractive not to mention impractical. The Russian State Duma for example has 450 Members. It takes 15 minutes to vote without using the system (which is an option if so decided by the chamber) and an average of 20 seconds using the electronic voting system. There were 4774 votes during 71 sessions in 2002. With some degree of understatement the response from the Duma noted that without the electronic voting system, determining the will of Members would be *unwarrantedly delayed*. For a legislature this size consideration of procedural issues may be considered as irrelevant.

On the other hand, the number of Members may not be so relevant as the number of formal votes taken. The First Chamber of the States General of the Netherlands has no plans to introduce electronic voting because formal votes are only conducted a few times a year. In the case of the New Zealand House of Representatives the fact that most formal votes are party votes (rather than personal votes) means that there is no relevant application for electronic voting.

In most legislatures context or procedural issues are critical to the potential impact electronic voting may have on the operations of the chamber. In almost all cases, those legislatures which use electronic voting require Members to vote from their seats. There are very persuasive technical reasons for this but it may be seen as detracting from the "drama" of formal votes by those legislatures which traditionally require a physical grouping of Members voting in the same way. Typically Members voting "yes" assemble on a particular side of the chamber or in a separate place from those voting "no". While the time taken to move to the position which indicates a particular vote may be regarded as inefficient or a waste of time, it is seen as having symbolic value in terms of Members publicly supporting a particular decision. The loss of this symbolism has been cited as a reason for not installing electronic voting.[10]

The issue of visible grouping is not considered significant by legislatures which use electronic voting although they sometimes do not employ the electronic technology for particularly sensitive votes such as changes to the constitution or the election of office holders. Far from considering electronic voting as detracting from the symbolism of formal voting, it may be seen as supporting it. In response to the question in the informal questionnaire

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[10]   This issue has been raised in both the United Kingdom House of Commons and the Australian House of Representatives.

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regarding the overall impact of electronic voting on the conduct of business in the chamber, the Japan House of Councillors, for example, noted that *Opportunities of putting on record the attitude of Members have dramatically increased following the adoption of the electronic voting system. Thus the system seems to be effective in clarifying the political responsibility of the Members.*

The style of formal voting (particularly the time taken) may have the potential to influence the level of confrontation in the chamber when feelings are impassioned by the sensitivity of the question before the chamber. Again, there is a perception amongst legislatures which do not use electronic voting that not only is the "drama" of the occasion lost by a quick formal vote, but the opportunity to take stock and regain equilibrium in the chamber may also be lost. Again, the absence of a "cooling-off" period appears not to be a concern of those legislatures which actually use electronic voting.

One of the threshold questions for parliaments which are considering the introduction of electronic voting is whether the technology will affect, either positively or adversely, the procedural aspects of formal voting.

Views on this issue are not confined to the informal questionnaire which forms the basis of most of this paper. The contribution made Mr Kang Yong Sik, Secretary-General of the National Assembly of the Republic of Korea in the discussion of the impact of new technology in Geneva in September 2002 noted that:

> ... *the electronic voting system in reality is not used often.*

> *However, it is anticipated that the electronic voting system will be put into full use when the people's call heightens for a more accountable move from the part of the Members in all bills as well as when free voting becomes commonplace where Members hold fast to their belief regardless of their respective parties' policies.*

Conclusion

Although the arguments in favour of electronic systems are well established several problems have been identified with such systems. The opinion that traditional parliamentary procedures are not only reliable but have other inherent values plays an important role in the decision not to introduce electronic voting, particularly in small and old legislatures. The existence of numerous inter-related procedures in larger legislatures may also play a role in the decision not to introduce electronic voting. The framework within which these legislatures operate can be very complicated and this high degree of complexity may be a deterrent against implementing technological changes.

The act of visiting a legislature which uses electronic voting may have a positive impact on Members and staff from legislatures which have not yet installed the technology. It appears that after visiting and reviewing electronic

practices of other legislatures, many of the Houses of Parliament that have not introduced electronic voting are examining seriously the introduction of such systems. This is particularly the case when they undertake a major retrofit of the existing infrastructure of the Chamber. Major infrastructure projects affecting the Chamber provide a window of opportunity to introduce electronic voting. In other cases, a legislature may agree in principle to the introduction of electronic voting whilst waiting for a more favourable financial or reformist climate.

For most legislatures which use electronic voting the technology has improved the overall conduct of business of the House. It is a common view that the electronic system represents a saving in time. The two most positive features of electronic voting that have been reported, are directly related to both proceedings and publication, namely the speeding of the counting and tallying processes and the immediate display of the results both in the Chamber and on the Internet.

Hopefully the information provided by our colleagues in responses to the informal questionnaire will assist legislatures which do not have electronic voting to assess the value of such systems. The thanks of all are due to all those who responded to the request for information.

ASSOCIATION OF SECRETARIES GENERAL OF PARLIAMENTS

SURVEY ON VOTING METHODS IN PARLIAMENTS[11]
(as at 19 August 2003)

NO.	FROM	SUBMITTED BY OR FOR
1	Albania, Parliament √	Artan Banushi, Secretary General
2	Andorra, General Council X	Valenti Marti Castanyer, Secretary General
3	Argentine, Chamber of Deputies √	Prof. Eduardo Rollano, Parliamentary Secretary
4	Australia, House of Representatives X	Ian Harris, Clerk
5	Austria, Parliament X	Dr. Guenther Schefbeck, Parliamentary administration
6	Belarus, National Assembly √	Dmitry Shilo. Secretary General
7	Belgium, Senate X	Willy Henrard, Secretary General
8	Canada, House of Commons X	William C Corbett, Clerk
9	Canada, Senate X	Gary O'Brien, Deputy Clerk
10	Cape Verde, Popular National Assembly X	Eutropio Lima Da Cruz, Secretary General
11	Central African Republic, National Assembly X	Amon Lougo-Dino, Secretary General
12	Cote d'Ivoire, National Assembly X	Brissi Lucas Guehi, Secretary General
13	Croatia, Sabor √	Danica Orcic, Secretary General
14	Cyprus, House of Representatives X	Costakis Christoforou, Secretary General
15	Czech Republic, House of Representatives √	Petr Kynštetr, Secretary General
16	Czech Republic, Senate √	Pavel Pelant, Secretary General
17	Denmark, Folketinget √	Henrik Tvarno, Secretary General
18	Ecuador, National Congress X	Dr. Gilberto Vaca Garcia
19	Estonia, Riigikogu √	Heiki Sibul, Secretary General
20	European Union, Parliament √	Julian Priestley, Secretary General
21	France, National Assembly √	Jean-Louis Pezant, Secretary General
22	Germany, Bundestag X	Prof. Dr. Wolfgang Zeh, Director
23	Guinea (Rep. of), National Assembly X	El Hadj Mohamed Salifou Toure, Secretary General

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[11] A tick next to the legislature indicates that electronic voting is used. A cross indicates that electronic voting is not used.

24	Hungary, National Assembly √	Dr. István Soltész, Secretary General
25	India, Rajya Sabha √	R. C. Tripathi, Secretary General
26	India, Lok Sabha √	U. S. Saxena, Deputy Secretary
27	Ireland, Dail Eireann √	Kieran Coughlan, Clerk
28	Israel, Knesset √	Arie Hahn, Secretary General
29	Italy, Chamber of Deputies √	Ugo Zampetti, Secretary General
30	Japan, House of Councillors, National Diet √	Yoshinori Kawamura, Secretary General
31	Japan, House of Representatives, Nat. Diet X	Fukumaru Tani, Secretary General
32	Mexico, Chamber of Representatives √	Javier Santillan Oceguera, Secretary General
33	Namibia, National Assembly X	Moses Ndjarakana, Secretary General
34	Netherlands, First House of Representatives of the States General X	Bas Nieuwenhuizen, Deputy Clerk
35	New Zealand, House of Representatives X	David McGee, Clerk
36	Norway, Stortinget √	Hans Brattesta, Secretary General
37	Pakistan, Senate X	Amjed Pervez, Deputy Secretary
38	Philippines, Senate X	Emma LIRIO-REYES, Deputy Secretary for Legislation
39	Poland, Sejm √	Dr. Hanna Popowska, Chancellery of the Sejm
40	Poland, Senate √	Adam Witalec, Secretary General
41	Romania, Senate √	Constantin Sava, Secretary General
42	Russia, Federal Assembly √	Alexander Lotorev, Secretary General
43	Samoa, Legislative Assembly √	Dr. Fetuao Toia Alama, Secrétary General
44	São Tome and Principe, National Assembly √	Francisco Silva, Secretary Genera
45	Serbia and Montenegro, Parliament √	Milan Luci, Secretary General
46	Slovenia, National Assembly √	Jožica Velišček, Secretary General
47	South Africa, National Assembly √	Sindiso Mfenyana, Secretary General
48	South Africa, National Council of Provinces √	BVL Momoti, Senior Procedural Adviser
49	Sri Lanka, Parliament √	Priyanee Wijesekera, Secretary General
50	Sudan, National Assembly √	Ibrahim Mohamed Ibrahim, Secretary General
51	United Kingdom, House of Commons X	Simon Patrick, Deputy Principal Clerk
52	United Kingdom, House of Lords X	Paul Hayter, Clerk Assistant
53	Zambia, National Assembly X	Doris Katai Katebe Mwinga, Clerk

Responses to the informal questionnaire
on
electronic voting

Introduction
The questionnaire consisted of 19 items including a threshold question to identify those legislatures where formal voting is (or is not) carried out by electronic voting. The remaining 18 questions focused on aspects of electronic voting encompassing systems parameters and the development of electronic voting; the technical effectiveness of the systems; and procedural issues related to the methods of voting.

In total 53 individual legislatures responded to the informal questionnaire covering 47 countries. This report should be read together with the statistical summary of responses (appendix C). The table in appendix C provides additional details and links the responses to the questions.

Threshold question *(responses on not installing and using electronic voting)*
The responses showed that 40% of respondents do not carry out formal voting by electronic means. The legislatures that do not currently carry out formal voting by electronic means, are: the House of Representatives of Australia, the Parliament of Andorra, the Parliament of Austria, the Senate and House of Commons of Canada, the Parliament of Cape Verde, the Parliament of Central African, the National Assembly of Cote d'Ivoire, the Cyprus House of Representatives, the National Congress of Ecuador, the German Bundestag, the National Assembly of Guinea, the House of Representatives of Japan, the National Assembly of Namibia, the First Chamber of the States General of Netherlands, the New Zealand Parliament, the Senate of the Philippines, the United Kingdom Parliament (both House of Commons and House of Lords), the Parliament of Zambia Although the Senate of Pakistan is not currently carrying out formal voting electronically, it has, however, made provisions for the installation of such equipment and is planing in the near future to switch over to electronic voting system.

Of the legislatures that are not using electronic voting, 33% report having made some provisions for the possible installation of an electronic voting system. The provisions are not necessarily technical. In the Austrian Parliament for example, the provision is in the Federal law on the rules of procedure although there is no corresponding provision in the rules of procedure of the Federal Council.

Only 19% of those legislatures that responded negatively to the threshold question report having made plans to move towards electronic voting in the near future. However, the question of installing an electronic device is usually discussed when the construction of a new plenary Chamber occurs or when the refurbishment of the existing one is on the agenda. The Canadian House of Commons, for instance, is planning a major refurbishment of the existing infrastructure in the Chamber. It will update the present equipment, such as cameras, audio, network etc. In doing so, cabling and below the surface infrastructure will be installed to allow for electronic voting, if the House were to decide to proceed in this fashion. Concurrently, the Special Committee on Modernisation and Improvement of Procedure recommended

that the Clerk of the House, in conjunction with the Committee, prepares a detailed proposal so that if approved, electronic voting could be implemented as part of the renovations.

The bulk of the legislatures that do not have electronic voting do <u>not</u> consider the move necessary. The value accorded to traditional parliamentary procedures and the view that they are reliable are central to these decisions. For instance, a large majority of Members in the United Kingdom House of Commons prefer using the traditional voting procedure primarily because it is reliable. Members are also of the view that the system is known and understood by the public and that it should not be changed unless necessary.

In one response the provision of the technology for electronic voting has not been accompanied by the acceptance of the majority of Members. In the Legislative Assembly of Samoa, an electronic voting system was installed in 1996. The system was funded by the Australian agency AUSAID. It was designed and installed by Phillips Scientific and Industrial Electronics as a component of the Audio and associated Recording System currently in use. However, Members were comfortable with the current voting practice and do not use the electronic system.

Additional reasons why some legislatures do <u>not</u> plan to implement electronic voting in the near future are: the layout of the Chamber (30%), or the belief that the costs of installation and maintenance of such systems are not warranted (60%). These two reasons may be closely associated.

In other responses concern about technological failure is cited as the main reason why electronic equipment has not been installed. For example, in 1970 an electronic voting system was installed in the old plenary Chamber in Bonn. This system was dismantled in 1973. The Members of the German Bundestag did not have confidence in the system because it was complicated and also because its use resulted in a series of technical problems. Apparently because of this history it was decided in 1988 not to install an electronic system in the new plenary building in Bonn. Again, in connection with the transfer of the seat of the German Bundestag from Bonn to Berlin almost a decade later, the Chamber opted against the installation of an electronic voting system.

The responses to the questionnaire also reveal the use of electronic devices as peripheral tools although there is not electronic voting system. For instance, in the United Kingdom House of Lords the voting process involves traditional counting but the votes are scanned (electronically) away from the Chamber and then processed.

In other cases the use of electronic voting may be restricted by the rules of procedure. In the European Parliament, for instance, an electronic system is available but it is used as a standby system as the initial vote is taken by a show of hands. In this particular case, if the result is unclear, then the President can invite Members to carry out an electronic check using the voting system. The rule of procedure also provides for roll-call votes, which are taken using the electronic voting system.

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Systems parameters and development

Electronic voting systems are generally made locally, although some systems are directly designed and installed by international companies. Philips DCN (Digital Congress Network), for instance, provided electronic voting systems in the Senate of the Czech Republic, in the Parliament of the Republic of South Africa (both National Assembly and National Council of Provinces), in the Legislative Assembly of the Samoa, in the Slovenian National Assembly. Doctronics designed and installed the electronic voting system of the Albanian Parliament. The electronic system of the Sudan National Assembly is a British design installed by a Jordanian company. One of the Mexican chambers also has a system designed by a British company.

Systems parameters are designed around the specific needs of the plenary chamber, or for other rooms (for example committees meetings). Systems currently in operation are mostly less than 10 years old or have been updated within the last 10 years (97% of respondents). They have generally been delivered within budget. Only a small number of legislatures (6%) report that mistakes in software design have extended the time taken to install the system.

The informal questionnaire asked for financial details of systems and an attempt has been made to assemble a sampling of these into a comparative list in the following table.

Legislature	Costs converted to SF as at 01/01/2003
1. Czech Senate	18,420
2. Estonian Rii	9,270
3. Ireland	101,556
4. Israel Knesset	17,967
5. European Parliament	141,409
6. Albania	1,589
7. Japan HC	279,377
8. Hungary	61,623
9. Belgium Senate	21,762
10. Norway ST	3,991
11. Romania Sen.	2901
12. Mexico	331,704
13. Italy	362,700
14. Denmark	97,728
15. Russia	11,530

The costs of running electronic voting systems naturally vary according to the sophistication of the system, the number of members and the technology available when the system was designed. The wide variation in estimated costs probably also reflects other variables including the integration of the voting system into the wider framework of Chamber technology. The wide variation also suggests that different items are being measured. The fifteen responses included in the comparison show annual running costs converted into Swiss francs using the currency conversion current at 01/01/2003.

While the table might give an indication of costs, they vary so greatly that there is probably no safe conclusion to be drawn. It cannot be assumed that the above figures and other cost estimates provided in questionnaire responses are truly comparative and used the same method of calculation. In each case the cost needs to be compared with the technological specifications including the sophistication of the system, the number of members and the date of installation. For this reason legislatures which would like to be able to assess for themselves the usefulness of the data on costs are advised to get copies of the full responses from the office of the President.

Technology and design
97% of legislatures carrying out voting electronically do not use voting stations located in or outside the chamber. Electronic voting takes place from each Member's seat in the chamber and Members. Voting cards are sometimes used (47%). Entering a personal identification number on a keyboard is another method of ensuring that only the relevant Member can vote from his or her seat. The Mexican Chamber of Representatives is the only chamber which has introduced a personal identification system using fingerprint scanning technology (though from information provided apart from the questionnaire, other parliaments are interested in this sort of bio-technology). The majority of Members vote by simply pressing a "Yes" or "No" or "Abstain" button on a panel in front of seat which has been assigned to them.

Most chambers (78%) with electronic voting, display large panels which can be seen by all Members (and usually the public). The size of display panels in the Mexican Chamber of Representatives is: 5 metres by 15 metres. The Belgian Senate displays the result of votes on a large panel which can be viewed by all in the assembly and also displays the plan of the House. Each seat in the Chamber is represented by a number and three different colours provide information on individual votes – as well as on linguistic groups.

The format and size of the display panels range from simple rectangular modules generally located on the left and right side of the meeting hall to large advanced performance screens situated behind the President/Speaker's chair. Just under half of the chambers (41%) provide Members with a personal display on their desk, although the extent of information available might differ from that displayed on the larger screens. In the Assembly of Serbia and Montenegro the individual desktop units can display multimedia information (pictures etc.) as well as tallies.

The majority of legislatures report that such large display panels provide information other than the traditional tallies of the votes including the immediate question being voted on (34%); the principal subject before the Chamber (38%); and summaries of the outcomes of divisions (38%). Only 22% of respondents report that such displays reflect the seating plan of the Assembly. Similarly, individual votes are only shown in 22% of the cases.

Some legislatures (28%) report that the electronic voting system is directly linked to the Internet and digital sound recording systems, and that the results are immediately displayed on the Parliament Web page. In the Estonian Riigikogu, the Senate of the Czech Republic, the House of Councillors of Japan, the Slovenian National Assembly and the Polish Senate, for instance, results are directly displayed on the web site.

Some Houses of Parliament report that for security reasons the voting results are only stored in a database. For example in the Irish Parliament while information can be extracted and logged into the parliamentary records, the electronic voting system is currently independent of the main parliamentary IT system.

Parliamentary staff members generally operate the equipment whilst the system is maintained by specialist staff and experts from the company which designed and installed it.

Procedural/practical issues
Number of Members
The size of legislatures may be a factor in whether electronic voting delivers a substantially faster and more accurate result. The average number of each chamber which uses electronic voting for formal votes is 250 with a minimum of 49 Members (for the Legislative Assembly of Samoa which does not actually use the system) to a maximum of 630 (Italian Chamber of Deputes). Most of these legislatures report that electronic votes occur all the time and for almost all formal votes. Nominations and appointments of the highest officials are usually effected by means of secret ballot using either traditional or electronic voting methods.

Value attributed to electronic voting
Many of the legislatures which do not use electronic voting and have no intention of introducing it in the near future remain to be convinced that it is a desirable technology. By contrast, amongst (almost) all legislatures using electronic voting, it is a common view that the benefits outweigh the upfront cost. None of the chambers using electronic systems consider that they have suppressed or significantly altered the 'cooling-off' effect that may be attributed to non-electronic procedures. 84% report that the introduction of electronic voting represents a significant saving in the time of the House thereby contributing to the smoother flow of business.

The European Parliament reports that electronic voting has the advantage of being very rapid and reliable. The use of electronic voting allows disputed votes to be checked and carried with complete transparency without delaying the business of the House. It would be impossible to obtain such rapid and reliable results without recourse to an electronic system. The South African National Council of Provinces reported that the introduction of electronic procedures has improved the running of the business of the house. One of the advantages is that it is possible to track attendance in the Chamber as well as a print out of formal voting.

Saving time
While it is obvious that time saving has been a substantial benefit of the use of electronic voting, details of the amount of time saved may be of interest to those legislatures which are considering the introduction of electronic voting. With the exception of the Sudan National Assembly, the Argentinean Chamber of Deputies and the Mexican Chamber of Representatives, the average time for voting is 15 to 20 seconds against many minutes previously. The Parliament of the Republic of South Africa reports that since electronic voting has been installed it takes approximately 30 seconds from member's voting to the announcement of the results. By comparison the system of manual counting used before the new system was installed took approximately 15 minutes. The Mexican Chamber of Representatives reports that

before electronic voting was introduced the voting process could take more than one hour.

In the National Assembly Council of the Republic of Belarus and in the European Parliament a vote can be taken in 10 to15 seconds, whilst both the House of Representatives of the Czech Republic and the Norwegian Parliament report that voting takes approximately 20 seconds, which is considerably less than the former method. The Hungarian National Assembly reported that electronic voting represents such a saving of time that there is no way the Chamber would use another voting method. The Indian Rajya Sabha indicated that electronic voting has improved the overall conduct of the business of the House to such an extent that it now takes only 10 seconds to process a division. In the Slovenian National Assembly, where electronic voting has been in place for the last three decades, voting lasts approximately 20 seconds. During the first 10 seconds the deputies cast their votes, and during the following 10 seconds the chairperson reads the voting results. In the House of Councillors of Japan voting takes about 30 seconds and approximately 45 seconds in the Albanian Parliament.

The actual display of results takes less than 5 seconds, with the exception of the Parliament of the Republic of South Africa where results are not immediately displayed. In this instance, Whips are provided with print outs of the results of each vote soon after the results are announced.

It should be noted that the saving of time may be achieved by procedural reforms as well as by the use of technology. The Irish Parliament reports that the real saving in time occurs when one division immediately follows another (successive divisions). The standing orders provide for a shorter period for the ringing of the division bells and the whole vote takes considerably less time. The Australian House of Representatives also uses the standing orders rather than technology to minimise the time taken for formal votes in successive divisions. The bells ring for 1 minute instead of 4 minutes and the Members are not counted again unless they did not vote in the previous division or they wish to change their vote. In either case they must indicate this to the tellers.

The questionnaire included an item on the possibility of electronic voting encouraging a higher incidence of formal voting – called for tactical reasons. None of the legislatures identified a link between electronic voting and more calls for formal votes specifically for tactical reasons.

Provisions in case of technical difficulties
All legislatures which use electronic voting have fall-back procedures in case the electronic equipment fails, if the Chair or a majority of Members request it, or eventually if the announced voting result is disputed. Even where the fall-back procedures are not spelled out, voting by a show of hands or other method has been used when the equipment fails.

Electronic voting and secret ballots
In the case of secret (in camera or confidential) ballots or voting there may be special procedures relating to the application of electronic voting. In the European Parliament such procedures apply in the event of votes on appointments and may also be taken on

any item if a request is made within the statutory deadline, by one-fifth of the Members.

Checking the results

The overwhelming majority of chambers report that Members are able to check that a correct vote has been recorded though there is a wide variety of practices relating to a challenge to the vote. In some legislatures Members cannot change their vote during the time allowed for voting, but are able to lodge objections. In those Houses where Members can actually change their vote during the time allowed for voting, it is generally accepted that they cannot cancel it and that the announcement of the results shall not be contested afterward. In the South African National Council of Provinces Members are able to change their votes and can see whether a vote has been correctly recorded. There is a print out at the end of the vote that indicates the Member's name and vote. Before the voting is closed Members are afforded the opportunity to change their votes. Once it has been closed, the opportunity is over. The Romanian Senate follows similar procedures.

Voting by proxy and fraudulent voting

In nearly all the legislatures surveyed voting by proxy is not permitted. In most cases the rules of procedure provide that Members cast their votes individually and in person. Amongst all the respondents, France is the only country where the Constitution gives to the Members of Parliament, a personal right of vote that can be delegated. The French organic law may authorise in specific cases the delegation of a vote, which, however, cannot be given to more than one Member. In the South African Parliament, the Delegation Head in the National Council of Provinces votes according to the mandate of the Province. The voting card can be given to another Member if the Delegation Head has to leave the Chamber.

Only 13% of Houses using electronic voting prescribes penalties against Members for using another Member's key or card with or without consent presumably on the assumption that such an occurrence is most unlikely. If the rules of procedure are violated during the course of voting, then the Presiding Officer/Chair might suspend the vote. Where a penalty is prescribed it may be as serious as suspension of the Member (European Parliament). The relevant rule provides for a motion of censure with the option of the immediate exclusion of the Member in question from the Chamber and his or her suspension for a period of two to five days. In the Mexican Chamber of Representatives the electronic system can only be accessed by the Members of the Chamber by introducing their personal identification code and by scanning their fingerprints in the machine installed in their seats. This reduces considerably the likelihood of fraud.

Conclusion

This overview of the responses to the informal questionnaire must be qualified by the observation that the information provided is subject to rapid change. The sort of technologies used in recording votes, ensuring the security and integrity of the system and the communication of information to Members and the public are constantly improving. One of the notable features of the responses is that so many legislatures have upgraded their mechanical or electronic voting systems. The relative costs of such technologies is decreasing making the use of efficient systems within the reach of more parliaments.

19

DETAILED ANALYSIS OF THE ANSWERS SENT BY THE MEMBERS OF THE ASSOCIATION OF SECRETARIES GENERAL OF PARLIAMENTS

TALLY OF QUESTIONNAIRES RESPONSES ON VOTING METHODS IN PARLIAMENTS

THRESHOLD QUESTION		
1. In your Parliament, is formal voting carried out, in totality or partially, by electronic means?	YES 60% of responses: Czech Republic HR & SE, Estonia, Poland Sjem & SE, Ireland, Israel, Republic of South Africa NA & NCP, France NA, Croatia, Samoa, European PA, Sri Lanka, Albania, Japan HC, Slovenia, Hungary, India RS & LS, Serbia, Belgium SE, Norway, Romania SE, Sudan NA, Belarus NAC, Argentina CD, Mexico CR, Sao Tome Principe, Italia CD, Denmark, Russia FA.	NO 40% of responses: Australia HR, Andorra, Austria, Cyprus, Germany Bstag, New Zealand, Philippines SE, United Kingdom HC & HL, Zambia, Guinea, Namibia, Ecuador, Canada HC & SE, Netherlands, Pakistan SE, Cape Verde, Japan HR, Ivory Coast, Central African Republic. a) 33% of those that responded NO report that provision has been made in their Parliament for the possible installation of an electronic voting system. b) 19% of those that responded NO report that they plan to move toward electronic voting in the near future. c) those Houses of Parliament that responded NO report that if electronic voting has not been implemented it is because of the layout of the Chamber (in 30% of the cases) or because of the belief that the costs of installation and maintenance of such systems are not warranted (60%)

SYSTEM PARAMETERS AND DEVELOPMENT		
2. Who designed and installed the system and in what year?	Systems currently in operation are generally less than 10 years old (in 97% of the cases). The majority of the electronic systems are made locally.	
3. Was the electronic system delivered within expected cost and time?	YES 88% of responses	NO 6% of responses Those Houses of Parliament that responded NO indicate that time was the major factor.
4. What are the approximate annual running costs of the system (in local currency)?	The average running costs of the systems at January 2003 were SFr 97 568 with a minimum of SFr 1 589 and a maximum of SFr 362 700.	

TECHNICAL EFFECTIVENESS		
5. Does electronic voting take place from the following? a) Each Member's seat in the Chamber? b) A voting station in the Chamber? c) Outside the Chamber in a room dedicated to this purpose?	In nearly all the cases (97%) electronic voting takes place from each Member's seat in the Chamber. In 6% of the cases, Members vote or may vote from a station in the Chamber or outside the Chamber in a room dedicated to this purpose.	
6. Do Members vote by: a) Inserting their voting cards? b) Swiping their voting cards? c) Entering a personal identification number (PIN) on a keyboard?	Members vote by inserting their voting cards (47%), by swiping their cards (3%), or by entering a personal identification number (9%). Only one House of Parliament reports that Members are entering a personal identification code and are using a fingerprints technology as a mode of identification.	
7. Do parliamentary officers in the Chamber or specialist staff operate the equipment?	The parliamentary staff generally operates the equipment whilst the system is maintained by specialist staff and experts from the company which designed and installed it.	

8. Does the electronic voting system display large panels in full view of the Chamber? If so: a) Do the display panels reflect the seating plan of the Assembly? b) Are individual votes (including party affiliation) shown? c) What are the sizes of the display panels and where are they located? d) Do Members have a personal display on their desk?	YES 78% of responses 22% of those Houses of Parliament that have electronic voting report that the existing panels reflect the seating plan of the Assembly; 22% also report that individual votes are shown. The format and size of the display panels range from basic rectangle modules located on the left and right side of the meeting hall to large advanced performance screens equipped with LCD video projector situated behind the President / Speaker's chair. 41% of the Houses of Parliament report that Members have a personal display on their desk.	NO 13% of responses
9 Do the display panels give indications other than the traditional tallies of the votes (ayes/noes/abstainers; presence/absence), for instance: a) The immediate question being voted on? b) The principal subject before the Chamber? c) Summaries of divisions outcomes?	34% of those that use e-voting report that the panels display the immediate question being voted on. 38% of those that use e-voting report that the panels display the principal subject before the Chamber. 38% of those that use e-voting report that the panels display summaries of divisions outcomes.	
10 Is the electronic voting system linked to a general computing or broadcast network that extends beyond the Parliament?	YES 44% of responses positives. 28% report that the electronic voting system is directly linked to the internet whilst only 16% report that the system is directly linked to a database.	

PROCEDURAL ISSUES		
11 How many Members are in your Parliament /House of Parliament?	The average number of Members for each House of Parliament /Parliament carrying out formal format vote electronically is 250, with a minimum of 49 and a maximum of 630. There are between 49 and 100 Members (in 25% of the cases), 101 to 250 (34%), 251 to 500 (28%), and 500 to 630 (13%).	
12 How often do electronic votes occur?	Responses vary considerably depending on the type of procedure available. They also depend on the nature of the texts under consideration	
13 Has the electronic system improved the overall running of the business in the Chamber? a) If so, do you think the benefit of electronic voting outweigh the upfront cost? b) If not, do you think the electronic system has suppressed or significantly altered the 'cooling-off' effect or other features of a non-electronic procedure?	YES 88% of responses 47% of those that responded YES indicate that the benefit of electronic voting outweigh the upfront cost. Many have not responded, specifically, to this supplementary question. However, none of those that provided an answer responded negatively.	NO 3% of responses None of those that responded NO has indicated, however, that the electronic system has suppressed or significantly altered the 'cooling-off' effect or other features of a non-electronic procedure.

	YES	NO
14 Does the chosen method of electronic voting represent a significant saving in the time of the Parliament through the smoother flow of business? a) How long does it generally take to process a vote? b) Is this significantly less than before the electronic voting system was introduced?	84% of responses To process a vote it takes generally between 15 to 20 seconds, exceptionally between 2 to 3 minutes. Voting by traditional means took several minutes to more than one hour.	3% of responses
15 Is there a fall-back procedure (sitting and standing votes, roll-call votes, voting papers and cards, voting by show of hands, voice vote) in case the electronic equipment fails, or the announced result is significantly in dispute?	81% of responses	3% of responses
16 Has the Parliament retained any other non-electronic methods for sensitive or controversial matters such as secret ballots, amendments to the Constitution, certain nominations and appointments, statements of general policy and motions of confidence?	78 % of responses	6% of responses
17 Has electronic voting resulted in the calling of additional divisions?	6% of responses	67% of responses

18	Are Members able to check that a correct vote has been recorded or to change their vote before the result is announced?	YES 81% of responses	NO 6% of responses
19	Does the electronic system authorise voting by proxy and are there prescribed penalties for using another Member's key or card control with or without his or her consent?	YES 3% report that the electronic system authorises voting by proxy 13% of those that have electronic voting report that there are prescribed penalties for using another Member's key or card control with or without his or her consent.	NO 84% of responses 41% of responses

NOTES:

1.   Not all respondents answered all questions.
2.   The percentage calculations have been rounded, so they may not tally accurately.

METHODS OF VOTING
SUMMARY

It is now twenty-one years since Kenneth Bradshaw, then Clerk Assistant of the House of Commons of the United Kingdom, presented his report on methods of voting to the 1982 meeting of the ASGP in Rome. His report is a comprehensive account of different aspects of voting as well as an excellent comparative study of the way different legislatures record their decisions.

The current paper is an account of just one aspect of the topic – the use of automated or electronic voting. It is based on the results of an informal questionnaire. Within the overall topic of electronic voting the paper addresses the technology, costs, security arrangements and procedural or institutional issues raised by electronic voting. The paper includes a narrative summary of the results of the questionnaire as well as a statistical overview of 53 responses.

This summary includes a brief overview of issues raised in the paper and concludes with an examination of reasons cited for *not* using electronic voting.

Technology
The most striking difference between the account of electronic voting in the 1982 report and the responses to the 2003 informal questionnaire is the rapidity of technological change. In 1982 automated voting systems were often more mechanical than electronic. A typical technology was a card which distinguished between Members by means of a pattern of small punched holes. Today, technology, which might be considered "state of the art", supports integrated, computerised systems with sophisticated display devices. These provide Members and those observing in the chamber with a range of information which is also available to the world at large via the Internet. While some legislatures continue to use systems that are twenty (or more) years old, others have upgraded their systems two or three times over that period.

Two comments could be made to summarise the technological issues associated with electronic voting. First, most legislatures regard the technology as successfully meeting their requirements. They value the positive impact electronic voting has had on the process of decision-making.

Second, the technological improvements to the display devices which are often associated with electronic voting mean that these devices have a reach beyond just recording and displaying the results of the vote. In an information age, display devices have a value separate from their function as an adjunct to electronic voting. Indeed one legislature recently received a report which advised against the immediate introduction of electronic voting but recommended the installation of a large display device in the chamber as soon as possible. Display screens can provide a range of information to Members and the public, in a format which is increasingly acceptable as a means of accessing information. Even in traditionally paper-bound legislative chambers, electronic information may be regarded as more efficient than hard copy.

As well as recording the result of votes, display screens may show the topic being voted on, the order of speakers, the time available for speakers, party affiliations and a range of other information. Where the display device is also linked to the Internet the information is a means by which citizens can more immediately be informed of the work of their parliaments.

The cost of electronic voting

The cost of electronic voting systems appears to be of more concern to legislatures which do *not* have such systems than to those which do. Cost is an important consideration for 60% of the legislatures which identified reasons for not installing electronic voting.

The main observation on costs is that it is difficult to provide meaningful *comparative* information because of variations in the design of systems and the number of Members they support. For newly installed systems, decreases in the cost of technology tend to be offset by increases in the sophistication of systems. Running costs are also difficult to compare because they may include different items. Where the electronic voting system is integrated into the wider framework of chamber technology it is a problem to isolate specific components.

However, the fact that useful comparative data is difficult to provide does not detract from the value of individual responses on costs. Where running costs are provided in the context of the system size and design, the information is valuable to those considering introducing an electronic voting system or upgrading an existing one.

Security

The reliability and integrity of a formal or recorded vote is central to the rationale of representative democracy. Security issues are very much a concern for legislatures which have an electronic voting system and for those contemplating such a system. One security aspect is the technical integrity of the system. Will the record be guaranteed to faithfully record the intentions of Members? In most cases this did not appear to cause much concern. It is usually obvious if the system is faulty and most legislatures provide for an alternative method of recording a formal vote in the event of technical breakdown.

Another security issue is the possibility of casting a vote for a Member not present to vote for him or herself. Two such incidents have been reported informally – a tiny number considering the history and application of electronic voting. New technology including biometrics is addressing this problem to the extent that it is a problem. The fact that formal voting happens in public and the results are also public is perhaps a better protection from absentee voting than fingerprint scanning or iris recognition.

Procedural or institutional issues

The context in which electronic voting takes place should not be overlooked because ultimately the technology is nothing more than a tool which has been, or may be introduced into existing parliamentary procedures. The report addresses several such issues which are of particular concern to legislatures which are considering the move to electronic voting. The fact that electronic voting systems usually require formal decisions to be made from a designated seat is an issue for some legislatures. This may be seen as detracting from the "drama" associated with traditional procedures for

indicating a vote – such as moving to a particular side of the chamber, showing hands or "standing and sitting". Legislatures which do *not* have electronic voting have observed that the time taken to make and record a formal vote may have the effect of providing a "cooling off" period in the heightened emotional environment of a decision on a hotly contested issue. The potential for electronic voting to encourage more formal votes is regarded as a reason for not introducing the technology by some legislatures. Alternatively, one legislature regards the more frequent opportunity for Members to record their views as a positive value of electronic voting.

Legislatures which do not use electronic voting
The topic of electronic voting is perhaps more interesting to legislatures which do *not* use the technology, than to those which do so. Twenty-one responses to the informal questionnaire were from legislatures which do not have electronic voting. In most cases the possibility of moving to electronic voting has been considered – perhaps several times – but no decision has been taken, or, they have decided not to proceed with electronic voting. Legislatures which occupy heritage buildings have a particular problem with installing electronic voting, especially in relation to display panels if they are to be part of the system. Perceived efficiencies of changing to electronic voting may be offset by the potential damage to the heritage values of the building. Other reasons given for not using electronic voting include small complements of Members (indicating that there is no practical need for electronic voting).

The cost of moving to electronic voting is also cited as a reason for not installing such a system. Concern about the technical effectiveness of electronic systems vis-à-vis the reliability of traditional methods of reaching or recording decisions is another. Further arguments against proceeding with electronic voting could be categorised as procedural or institutional. In addition to those already referred to, a value may be placed on the fact that formal voting provides an opportunity for members to interact or to lobby ministers. If the time taken for the vote were shortened, this benefit would be threatened.

Conclusion
Most legislatures which use electronic voting agree that it has improved the overall conduct of business in the chamber. The two most positive features of electronic voting reported, are directly related to proceedings and the public interest in proceedings - namely, the speed of voting and counting processes and the immediate availability of results, both in the Chamber and to the wider public via the Internet.

Let me conclude by thanking all those who provided information in response to the informal questionnaire. I hope the resulting report proves useful.