Collaborative Web-based Development of an Electronic Meeting Agenda using Secretarius Moderation

G.K. Raikundalia
School of Engineering and Science, Victoria University, P.O. Box 14428, Melbourne, Australia

Abstract: Traditional, formal, face-to-face meetings are heavily reliant on documents for their conduct. One of the most prominent and important documents is the agenda. The agenda is vital for structuring and driving meeting discussion. The development of the agenda relies on contributions of items for discussion from meeting participants before the meeting. The secretary considers these items for their relevance and potential to achieve the meeting goal. A formal, electronic meeting, being a computer-supported equivalent of a traditional meeting, is also dependent on a useful and effective agenda for its success. This research article presents Logan, a Web Electronic Meeting Document Manager (WEMDM), that provides a novel, hypermedia-based technique for supporting the above agenda development process. Logan allows asynchronous, collaborative development of a meeting agenda. High participant involvement is supported through item contribution and secretarius moderation of contributions. Through a contribution rejection system, moderation supports selection of appropriate contributions for the agenda. Participants are helped in contributing relevant agenda items or prevented from contributing one similar to those in the current agenda via rejected contributions. The process allows flexibility in agenda development as the process may involve one or more iterations. The agenda development process is covered by displaying the interworking of participant agenda development pages. The many Web user interfaces used by the secretarius and other participants in agenda development are shown and described.

Keywords: Document management, electronic meetings, meeting agenda

INTRODUCTION

Without doubt, documents have been known to be an essential factor in traditional, formal, face-to-face meetings (Loob and Rathke, 2009). Documents are vital to meeting discussion in supplying relevant information for it and, with regard to the agenda, also in the conduct of the meeting (Chen et al., 2007; Schummer et al., 2009). The content and appearance of documents affects their utility in a meeting and these could influence the effectiveness of the meeting. The importance of documents continues in the case of electronic meetings and so these issues are still highly of relevance for study.

Although Electronic Meeting Systems (EMS) and Group Decision Support Systems (GDSS), of which the latter systems subsume the former, have been plentiful over the last few decades, specialised document support for meetings has not grown as significantly. Hence, meeting document support remains a relatively open area for research and application.

The Web undoubtedly presents a popular and ubiquitous user interface to people around the world. The Web's various mechanisms, such as hyperlinking and forms, are clearly highly familiar to users and so this familiarity (Ma, 2002) is relevant in the application of the Web to group interaction, such as in a formal, electronic meeting. Logan is a Web Electronic Meeting Document Manager (WEMDM) used for formal, synchronous, distributed electronic meetings in tandem with a discussion tool (a system similar to a chat tool). The functionality Logan provides is not found in any other system for meeting document support. An example of unique functionality is Logan's application of dynamically analysed meeting discussion in conjunction with re-used meeting summary points as input into the minutes creation process (Raikundalia, 2001).

Logan contributes to document support through:

- meeting transcript analysis
- dynamic and automatic generation of derived document (derivatives) for application within meetings
- automation of agenda and minutes creation using novel and relevant techniques
- provision of meeting guides to the chairperson and secretarius (a meeting participant assigned administrative duties) to assist in direction of meetings and pre-meeting determination of discussion points enhancing productivity of discussion
- support of the above functionality across a five-phase meeting model
However, this study is concerned with the agenda document and its asynchronous, collaborative development. The Web user interfaces manipulated in such development are displayed and described. These user interfaces were designed and developed iteratively through experiments with end-users. Logan is constructed from a set of Common Gateway Interface scripts written in the Perl language producing a highly dynamic tool.

The basis for Logan’s agenda function is the solicitation of contributions of agenda items from meeting participants. Logan’s agenda development process is highly inclusive in that it is open to participants providing contributions to a meetings agenda’s content and participants can be very active in doing so. Logan’s general stage wise process for agenda development is unique:

Stage 1: Meeting participants contribute potential agenda items for a meeting
Stage 2: Logan allows the secretarius to view participants’ agenda item contributions and accepts or rejects them
Stage 3: For rejected agenda items, participants view these items and the reasons for their rejection and can use this to reformulate agenda items or contribute new agenda items

These stages are carried out in a cyclic manner until a deadline after which participants cannot contribute any more items.

An entire meeting process supported by Logan is composed of the three phases: pre-meeting, in-meeting and post-meeting phases. The pre-meeting phase is where documents are developed or supplied in preparation for the in-meeting phase. The in-meeting phase involves meeting discussion and use of documents for this discussion. The post-meeting phase involves activities such as the creation, distribution and review of the minutes of the meeting. In addition, Logan provides all functionality for a meeting chain: a sequence of meetings where the documents output from one meeting may act as input into one or more other meetings. Therefore, given a meeting in the chain (the current meeting), the meeting from which the current meeting derives input documents will be the last meeting. Similarly, the meeting following the current meeting in the chain is the next meeting.

The objective of this study is the development of a unique, collaborative agenda creation technique where all participants can contribute to the contents of the agenda. The approach for development of the user interfaces and technique was based on iterative experimentation with end-users. Although the study was carried out more than a decade ago, the system and its underlying technique are still unique and no other system until now has provided this functionality.

LITERATURE REVIEW

A number of systems have been produced that support differing ideas of agendas. However, these systems have not provided for highly inclusive contribution to the agenda by meeting participants according to the particular agenda development process that Logan follows. Logan has been designed to execute the agenda formation process by providing a set of relevant Web user interfaces. The inter-working of these user interfaces carries out agenda item contribution and rejection, and re-contribution to the agenda via secretarius moderation. A survey of similar systems reveals different agenda development processes that do not support these aspects or lack of support for inclusive involvement by participants.

Before the last decade, various systems were developed from research for supporting agenda creation in different ways. Examples of such work include:

- The technique of Koegel et al. (1992) for analysis of group video meetings where the analysis can be used to suggest agendas for subsequent meetings
- The support of summons (which is the agenda) in a hypertext system for formal, face-to-face meetings (Masiero et al., 1994)
- The generation of formal hyperminutes from utterances and gestures for application as an agenda, in the work of Kaiya et al. (1995)

In recent years, a small number of systems like Logan have been developed. Some of the systems of course have been Web-based, like Logan. Representative systems are described here.

An agenda planning mechanism applying the Vickrey-Clarke-Groves method for encouraging incentive in providing true valuation of public goods is covered by Garcia et al. (2004). Their agenda mechanism was devised to assist project managers develop more effective agendas for meetings in the engineering industry. The mechanism relies on agenda creation, use of voting and the reputation of participants to encourage incentive. Garcia et al. (2004) found from preliminary experimental results that there was an improvement in effectiveness and efficiency, and value was added for participation in meetings.

Chen et al. (2007) developed a Web-based GDSS allowing the situation where in-person facilitation is not able to occur. Their agenda, like Logan’s, is constructed from agenda items, but the items reflect group activities. In their case, the agenda is executable so that group support tools are run when the activities are carried out. The traditional meeting style of discussing agenda items and making decisions for them is not intended to be
supported as the system is a typical GDSS providing for activities like brainstorming and rating alternatives.

LivingAgendas is a “web-based meeting support system that supports groups in the collaborative creation of an agenda and in implementing the agenda during a real meeting” (Schummer et al., 2009). These researchers have first developed a meeting pattern language to document good practices. The pattern, “IT’S MY AGENDA - IT’S MY MEETING” contains both a “Social Solution” and a “Standard Technology Solution”. These two aspects of the pattern describe collaborative development of the agenda, provide an agenda skeleton and allow extension and modification of the agenda. However, there is no support for the secretarius moderation features of Logan with regard to rejection of items with explanations and the use of rejected items by participants. The process for creation of the agenda suggested by Schummer et al. (2009) is different from the one employed by Logan.

In conclusion, such a range of systems together provide a variety of techniques and mechanisms for agenda creation. Analysis of meeting content for generation of an agenda occurs in some cases. Traditional, formal meetings, however, require contribution of items for discussion by participants to endeavour equitable and complete coverage of issues for a particular meeting. The systems above reflect different agenda development processes from Logan’s. Support of such contribution is explained in this study.

MATERIALS AND METHODS

The development of Logan was carried out at Bond University, Australia. Experimentation used to develop Logan involved experimental subjects located at Bond University, The University of Queensland and Queensland University of Technology.

A Logan agenda provides widespread access to documents of the current, last and next meetings. The collection of documents to which the agenda provides access (that is, providing hyperlinks to these documents), was determined through a set of experiments with Logan, and was found to be effectively complete.

Figure 1 shows an example of the Logan agenda user interface. The top frame of the page shows the administrative details of the meeting. The top frame is always available within every agenda page. In this example, “DSTC research” is the particular chain of meetings to which this meeting (meeting number 3) belongs. In other words, there is a set of meetings to discuss DSTC research, and these meetings can be viewed as a chain. “Logan User Interface” is the name given to this particular (3rd) meeting in the chain. The date and the time of the meeting are found on the next line. The third and final line in the frame contains a navigation bar that provides access to:

- Minutes of the last meeting
- Verbatim minutes of the last meeting
- Agenda of the last meeting
- Agenda of the next meeting (if available)
- Participant Agenda Contributions page (PAC) for contributing items to this agenda. This is used principally in the pre-meeting phase to suggest agenda items (covered in depth later), however access is provided during the meeting in case a group wants to still request items within the meeting.
- Logan help

The main frame of the agenda page shows the information related to the meeting. The top, left-corner contains the “Participant list”, which shows who are the members of the group, and who are the chairperson and secretarius for this meeting. Next to this are:

- The purpose of the meeting (i.e., the goal of the meeting) and,
- The set of tools to be used in this electronic meeting; in this case, Yarn (Rees et al., 1993) and Logan are the two tools being used

The remainder of the page is the very important set of agenda items that will be discussed by participants during the meeting. They are stored always in a table underneath an “Agenda items” heading. The format of a row of the agenda items table consists of the following contents (some being traditional contents of an agenda) in the following exact order:

1. **Item number**: Uniquely identifies an agenda item and indicates its position in the agenda
2. **Item**: The actual issue or matter that participant will discuss during the meeting
3. **Time (in min)**: An approximate reflection of the amount of time that needs to be devoted to participants’ discussion of the item
4. **Initiator**: The participant who will begin the discussion of the item
5. **Documents**: Any documents, if required, that will be used by the group during the discussion of a given item. In some cases, these could be references to documents that will be accessed using some other tool(s) in the meeting or in other cases they could be hyperlinks to documents accessed via web browsers.

Using the example in Figure 1, the first item that will be discussed is Item 1, “Apologies” (the usual item found somewhere at the beginning of a traditional agenda for
Fig. 1: Logan agenda

Participants are actively involved for the formulation of a Logan agenda. The agenda is generated collaboratively using contributions from meeting participants during the pre-meeting phase. The collection of details suggested by a participant for discussion as an item is a contribution. These details are those just covered in the agenda items table in Figure 1. The participant suggests an issue for discussion along with details of time allocated for the item, the initiator and documents relevant to discussion (if any).

Asynchronous collaboration is the basis for agenda development. Within the pre-meeting phase, and whenever participants may use Logan, participants can make contributions to the agenda. Participants are making contributions at different times from one another, so contributions are being collected and provided to the secretarius for future moderation. Since a final date and time will specified by the secretarius by when all participant contributions must made, moderation will occur sometime after that time. An explanation of the agenda development process will provide a general view discussing which participants are unavailable for the meeting). It is expected that only a minute would be required to discuss who will not meet with the rest of the group and that the chairperson of the meeting will initiate this very brief discussion. No documents are required to discuss who is absent from the meeting.

Secretarius moderation is the process of filtering participant contributions to determine which contributions are pertinent for inclusion in the agenda. The contributions the secretarius will include in the agenda are accepted items. The other items are deemed rejected, and are presented on a page, Rejected participant agenda contributions page, to participants. However, consistent with traditional meetings, the chairperson has the overriding decision of the final content of the agenda. The chairperson is also capable of omitting from discussion any items that were found in the final agenda.
before specific user interfaces for participants and the secretarius are shown.

Figure 3 encapsulates the contribution of potential agenda items by participants and moderation of these items by the secretarius. For the creation of the agenda, this graphical view depicts:

- How multiple participants assist in the creation of the agenda
- That actions performed by the secretarius (those of reading and updating the agenda) must follow on from those of participants

The Figure reflects an iteration that the agenda goes through in order for it to be extended to the latest version. Thus, the final agenda may result from numerous such cycles (the agenda goes through different versions) involving collaboration amongst participants and the secretarius.

Figure 3 displays the different subprocesses of the agenda development process. These subprocesses are:

1. Participant agenda contribution: the participants separately contribute items to the agenda using their PACs.
2. Secretarius' agenda moderation: the secretarius views items contributed by participants during the participant agenda contribution subprocess, accepting any items and rejecting other items. Segment 2 in the Fig. 3 reflects the secretarius' use of the Secretarius' Agenda Development page (SAD) to view contributions and moderate them. Segment 3 shows the automatic update of the agenda and Rejected Participant Agenda Contributions page (RPAC, the page displaying rejected contributed items) from moderation, which is then reflected in the PACs.

Segment 4 merely shows a repeat of the first subprocess where participants are given a further opportunity to contribute to the agenda. Further similar iterations of subprocesses shown in Figure 3 may continue until the final date by which all contributions...
Fig. 3: Iteration of agenda development involving participant contributions and secretarius moderation

may be made. However, Logan is flexible to allow only one iteration if necessary to a particular group.

Using Logan within a meeting: The manner in which the agenda development process is applied in a meeting occurs as follows.

The secretarius uses Logan to generate an email automatically which invites participants to contribute agenda items to this particular meeting’s agenda. Participants can contribute items if they wish to do so. Participants will need to view both the current state of the agenda and the items that have been rejected, as shown on the RPAC of the PAC, to help them in determining contributions.

The secretarius will view whatever contributions they have received from participants until now. Either the secretarius will accept the contribution, in which case it will be added by Logan to the current state of the agenda, or the secretarius will reject the contribution, in which case it will be added by Logan to the RPAC (in addition to this, Logan will email the participant to indicate to them that the item will not be included in the agenda, giving the reason why it has not been included as shown in Fig. 8).

Once the secretarius finalises the agenda, participants will not be able to contribute any more items. Of course, traditional meetings allow new contributions at the beginning of the meeting, and Logan supports this.

Logan provides user interfaces and mechanisms for:
- Participant contribution submission
- Displaying participant contributions and moderating them
- Agenda generation
Logan automatically forms the agenda by placing data in appropriate places, constructing the relevant HTML, and sorting out other related issues in building the agenda.

When the secretarius marks a contribution as rejected, the contribution is added to the RPAC specifically used for that meeting. The RPAC is hyperlinked to the participant's own page for contribution formulation. This means that participants view rejected contributions whenever they wish by selection of the link. The RPAC displays which contributions were formulated and rejected at the time the page is viewed. For each item, the RPAC indicates the attributes of the item (i.e., description, initiator, etc.) as well as a reason stating why it was rejected. The rejections are kept anonymous; the emphasis is on the reason behind contribution’s rejection, and not on the contributor.

**Participant agenda contributions:** The PAC was shown above in Fig. 2. The page consists of two components (divided by frames). The components are:

1. **Agenda:** In its latest version (top frame)
2. **Participant Agenda Contributions Form (PACF):** The form a participant uses to enter information about a contribution (bottom frame)

The agenda in this case (the AC agenda) contains a subset of the information in the original Logan agenda. The AC agenda contains only details that would be relevant to the participant's formulation of a contribution. Thus, the AC agenda contains the meeting purpose, tool selection and discussion items. A link to the RPAC is also provided, so that the RPAC will be shown in the browser window when the link is taken.

Concerning the use of the PAC by the participants, the following occurs. Participants view the agenda, and the RPAC when necessary. Participants think of contributions, deciding on the details of contributions and fill in the details in the PACF. Knowing which contributions were rejected, participants avoid submitting the same contributions or formulate more appropriate ones given the reasons for rejection of less appropriate contributions from the secretarius. The top frame provides information that participants consider in filling out the PACF. When participants are satisfied with the details of contributions, the contributions are submitted. A fresh PACF is loaded, which participants can fill in to make another contribution. Again, participants view the pages in the top row as necessary to submit another contribution.

The RPAC is shown in Fig. 4. The RPAC is composed of multiple sections where each section contains two tables: one table is for item details, the other for reason(s) for item contribution rejection. Therefore, the first table in a section contains details regarding an item. Beneath this row is another table of two columns providing the reason for rejection.

To illustrate the use of the RPAC, refer to the first section in Fig. 4. The table contains details of an item concerned with Logan agenda development, discussing the mechanism for this. The reason for the rejection below this states that an item which has already been included in the agenda will cover this item. The participant contributing the item was unaware that Logan agenda development would be part of another item’s discussion. The same procedure applies to all items in the remainder of the RPAC.

Within the PACF, the participant is presented with the following sections for providing item-related details (going from the top of the page to the bottom):

- **Submitted by:** Used by participants to indicate their identity so the secretarius knows the contributor of the item. The identity is remembered by Logan and set automatically when a fresh PACF is loaded
- **Description of item:** The name of the item

![Rejected participant agenda contributions](image)

Fig. 4: Rejected participant agenda contributions page (RPAC) (Raikundalia, 1998)
Fig. 5: Secretarius Agenda Development page (SAD) (Raikundalia, 1998)

- **Time**: Estimated number of minutes to allocate to discussion of the item
- **Initiator**: The participant responsible for commencing discussion of the item
- **Documents**: The documents used for discussion of the item. For each document, a participant enters the name of the document and its associated URL (if it exists)

**Secretarius agenda development**: The secretarius puts together the agenda and finalises it. The secretarius examines all contributions made by participants and determines which contributions to include in the agenda (secretarius moderation). Participants contribute what they reason to be the topics most relevant for accomplishing the meeting purpose. The secretarius' skill and expertise are required to determine the plan of discussion to achieve the purpose. To automate this process, the secretarius uses the tool, the Secretarius Agenda Development page (SAD), to assist in the automation of agenda creation during the pre-meeting phase.

Figure 5 displays the SAD, which contains three components organised similarly to the contributions page. The components are:

- **Agenda**: In its latest version (top, left-hand side)
- **Agenda Contributions Moderation form (ACM)**: Displays contributions participants have submitted until this point in time (top, right-hand side)
- **Secretarius Agenda Development Form (SADF)**: Utilised by the secretarius for addition of acceptable items to the agenda

The form is similar in functionality to the PACF except that items formulated using the SADF are accepted automatically into the agenda.

The agenda of the SAD is also the AC agenda. The technique for using the SAD is similar to that of using the PAC. The similarity is that the pages accessible in the top row are referred to during item formulation (the AC agenda is referred to similarly) and the bottom form is used to formulate agenda contributions. However, the SAD is more powerful than the PAC because:

- The ACM is a dynamic form which is filled in and automatically updates the agenda
- The SADF extends beyond the PACF as more meeting details can be specified, further assistance to specification of details is provided and the secretarius can send out all pre-meeting email messages

The secretarius uses the ACM (Fig. 6) to accept and reject items. Participant contributions are collected...
Fig. 6: Agenda contributions moderation form (ACM)

together over time in the ACM. The secretarius manipulates the ACM as a tool to know what contributions have been made, determine which contributions will be accepted for the agenda, reject those contributions that are not relevant providing reasons for rejection and submit the outcome of moderation. The meeting agenda, the AC agenda and the RAC are all updated automatically with outcome of moderation. As well as the collection of contributions currently in the ACM, the ACM is further adjusted automatically with any recent contributions made.

The ACM provides the contributor and item details in the standard item table format. The other elements inserted automatically into the ACM by Logan are form elements for:

- Moderation of contributions
- Submission of results of moderation

Contribution acceptance: If the secretarius intends to include the item in the agenda, the "Accept" radio button for that item is checked. The secretarius may assign an item number to the agenda item if they wish to do so; in this case, the secretarius fills in the text field to the right of the "New item number" label with the number. By leaving this text field blank it is inferred that the item is to be positioned at the next logical place in the order of discussion items. The next whole number item number identifies this next place is in the order. For instance, if the last item in the agenda is numbered 4.3.6, then by default the next contribution is positioned as item 5 in the order.

Contribution rejection: The secretarius may determine that a contribution is not acceptable for addition to the
In this case, the secretarius checks the Reject radio button and enters the reason for rejection into the field next to the "Reason" label.

The SADF is the similar to the PACF except for some of the major additions required by a secretarius:

- **Meeting purpose and comments on tool selection:** A text field where the meeting purpose is entered as well as the names of tools with their help pages (if they exist)
- **Date and time of meeting:** Popup menus and a text field for supply of date and time for the meeting
- **Finalise agenda:** Check box selection converts the status of the agenda from draft to final
- **Buttons for sending a number of email that request contributions to the agenda, request a new time when participants will be available for the meeting, postpone the meeting or present the final agenda as a meeting reminder to all participants.

To consider contributions for acceptance in the agenda, the secretarius will consider aspects such as (but not limited to):

- Is this contribution pertinent to and aiding in achieving the meeting purpose?
- Will this contribution require more time to discuss than that specified by the contributor?
- Are the documents associated with the contribution pertinent to discussion and seen as productively assisting it?

Rejection of a contribution that does not meet all these requirements does not imply complete irrelevance of the item to the agenda. The secretarius may reject a contribution and supply a reason that will provide incentive for the contributing participant to re-submit a contribution with more appropriate to the agenda. On submitting a "better contribution" the secretarius can simply accept the new contribution.

Another option for the secretarius is to copy acceptable details of a contribution to the development form. For the unacceptable details the secretarius merely substitutes these details with details known by the secretarius to be acceptable. The final contribution is submitted by the secretarius as an accepted item. For example, if all details of a contribution except time and initiator are acceptable, the secretarius can copy all details except the time and initiator to the SADF. The secretarius will fill in details for the time and initiator that are appropriate, submit the contribution and reject the participant's version with a reason stating that a more appropriate version has been included in the agenda.

**Email messages:** Various email messages are automatically generated by Logan and sent to participants. The email messages relevant to this study include:

- Request for agenda contributions email message
- Rejected participant agenda contributions email message

The Request for agenda contributions email is sent when the secretarius presses a particular button in Logan to request participants that they may contribute items to the agenda. An example of the first part of such a message is shown in Fig. 7. The Figure indicates the following to participants:

- The name of the meeting
- A deadline determined by the secretarius by when all contributions must be received by the secretarius
The next type of email the secretarius sends through automatic generation by Logan is the Rejected participant agenda contributions email. An example of this email message is displayed in Fig. 9. Such a message is sent only to the participant that made particular item contributions that are rejected by the secretarius. The example shows that two contributions by this participant were rejected.

<table>
<thead>
<tr>
<th>Agenda items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item number</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>6.1</td>
</tr>
<tr>
<td>6.2</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
</tr>
</tbody>
</table>

Fig. 8: Request for agenda contributions email—second part

```plaintext
From: [email]  
Date: Tue, 27 May 1997 18:46:50 +0000 (EST)  
To: Peter Stewart@bond.edu.au  
Subject: Rejection of contributions

Please find the following contributions you submitted for the agenda and the reasons why they were not accepted:

**DEP research (#3) – Logan user interface**

*Friday, 27 June 1997 at 1500*

- **Item:** Logan agenda development
- **Time:** 10
- **Initiator:** Chairperson
- **Reason:**
  - Will be discussed in an accepted item which was contributed before you contributed this item.

- **Item:** Logan derivative generation
- **Time:** 10
- **Initiator:** Chairperson
- **Documents:** Verbatim minutes
- **Reason:**
  - Item has no connection with the purpose of discussion. Also, why is the chairperson the initiator?

Giteesh Ralkundalia,  
Secretarius
```

Fig. 9: Rejected participant agenda contributions email message

- Who are all the participants in the meeting
- Meeting purpose
- Software tools to be used in the meeting

Figure 8 shows the second part of the message which reflects that the remainder of the email consists of agenda items.
have been rejected. The top part of the message indicates the name of the meeting and its date. Details about the items the participant contributed are provided to that participant, and very importantly, the reason why the items have not been acceptable for inclusion in the agenda.

CONCLUSION

The specific electronic meeting agenda development method of the WEMDM, Logan, was covered in this study. All meeting participants may pro-actively contribute to the discussion items of a meeting in this method. The method is based on secretarius moderation and uses various user interfaces, such as the Secretarius agenda development page, Participant agenda contribution page, Secretarius agenda development form, and so forth. Pages for the secretarius and participants are connected and operate dynamically such that usage of one of the pages will change the content of the other page.

The interworking of these pages supports agenda creation in a cyclic manner. The dynamic nature of the user interfaces means that data in the component pages of the Agenda contribution moderation form and Rejected participants agenda contributions page are updated automatically. This allows the secretarius to view and moderate new contributions submitted any time during the pre-meeting phase.

Email messages are generated automatically by Logan and the two types of messages relating to agenda development-Request for agenda contributions and Rejected participant agenda contributions-were shown and described here.

ACKNOWLEDGMENT

The work described here was originally supported by the Distributed Systems Technology Centre. Thanks also go to Michael Rees for his supervision of the original project.

REFERENCES


