
Preparing Decision Meetings at a Large Organization

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ABSTRACT: Decision meetings may be considered inserted in a cycle of pre-meetings, meetings and post-meetings. The pre-meeting stage is useful for preparing the meeting and can be computer-supported. Aspects of the design of PRIME, a system intended for this purpose, are presented. The preparation of a meeting mainly consists of discussing the agenda beforehand. The discussion is organized in an IBIS-like manner. Using PRIME, people can prepare meetings in an asynchronous distributed way. The system was tested with actual executives and professionals. Results from their evaluation are discussed. These results are encouraging, since according to participants, the system use lets them improve the outcomes of the succeeding meetings.

KEY WORDS: Pre-meetings, structured discussions, SISCO, PRIME.

1. Introduction

Alpha Corporation is a large natural resources Chilean company with operations distributed over several sites¹. As many organizations, Alpha wanted to improve the quality of its executive decision meetings. We offered our help to develop a computer-based system to support the preparation of such meetings by allowing participants to discuss the agenda items beforehand. This paper presents the highlights of the system design and the initial experiments we did with it within Alpha.

Our basic offer was SISCO (Borges et al., 1999), a meeting preparation system. Five different prototypes had been previously developed as student graduation projects at our university and Universidade do Brasil (Cavalcanti et al., 1997; Espinosa et al., 1997; Muñoz, 2000; Parra and Pino, 1995; Romero et al., 2000). However, all of them were experimental and none was appropriate for professional usage. Furthermore, Alpha wanted to introduce some company-specific requirements.

A new meeting preparation system was developed. Using SISCO ideas, PRIME was supposed to support Alpha executives and professionals to carry out discussions from any network-connected computer at any time. Thus, any person could contribute to the discussion from his office, his home, a hotel room or from a plane.

A SISCO implementation developed by a student was used to familiarize a few Alpha employees with the corresponding concepts. The comments we obtained were useful to develop the initial PRIME design. Experience with the test system allowed us to make the final design. The system has yet to be tuned and deployed as a standard tool within Alpha, but we have some initial feedback from the users.

The remaining of this paper is organized as follows. Section 2 presents the SISCO model. The basic PRIME design is developed in Section 3. Section 4 includes initial feedback from Alpha employees and the improved design obtained. Evaluation from users is described in Section 5. Section 6 presents the Conclusions.

2. SISCO

Bostrom et al. (1993) have characterized decision meetings as belonging to a lifecycle. This cycle begins with the preparation of the meeting (pre-meeting), then the meeting itself and then several activities after the meeting, such as dissemination of the decisions, follow-up, clarification of doubts, etc. (post-meeting). One of the outcomes of post-meeting activities may be material for the next cycle of pre-meeting, meeting, post-meeting. Thus, meetings rarely die.

The pre-meeting activities include a series of simple tasks such as setting up an agenda, inviting participants, distribute background information, and the like. These tasks may or may not be computer-supported. However, a very important preparation is often missed. It concerns how knowledgeable the participants may be with respect to the agenda items. Unless the items have already been discussed, the

¹ The names of the organization, its departments, employees and products have all been disguised. Alpha has over 12,000 employees and annual sales over US\$ 2.85 billion.

participants may be very confused about them. Many doubts may exist on the exact meaning of the items, what is to be decided, which options have been already suggested, which are the consequences of each, etc.

Daft and Lengel (1986) distinguish two types of confusion people may have concerning a discussion item. The first concerns ambiguity or *equivocality*. Examples of it are questions such as, why are we concerned with this matter?, is this the right time to decide on this issue? The second type of confusion is called *uncertainty* and refers to lack of answers to questions and issues which need further elucidation, although there is already an understanding about their importance.

Both equivocality and uncertainty can be reduced if participants can discuss the agenda items before the meeting. This discussion can be done in the pre-meeting phase. It is not necessary the participants be physically present; i.e., the discussion can be *distributed*. Moreover, the discussion can be made so that each member participates in it whenever he has time or opportunity to do so, i.e., the discussion may be *asynchronous*. Duration of a few days for the discussion is also desirable, because people have the necessary time to get new ideas and ponder arguments.

The quality of the discussion can be high if it is *structured*. One option for such discussion organization can be made using the IBIS argumentation model (Kunz and Rittel, 1970). The SISCO model (Bellassai et al., 1996) extends the basic IBIS *issues, positions* and *arguments* by including new data types appropriate for a pre-meeting discussion: *agenda items, objectives, tasks, proposals, constraints*, etc. It may be noticed no decisions are to be made with SISCO during the pre-meeting; they are reserved for the meeting itself. Pre-meeting member contributions are saved in a Group Memory, for persistent storage and later retrieval.

The SISCO approach encourages all types of communication among group members, including conventional communication means. However, the emphasis is on using the discussion database as a communication channel. In fact, one way of viewing a collaboration process in which various users are contributing is they are having a conversation. This is because participants are incorporating elements which reflect their way of analyzing facts, opinions, data, comments, etc. These elements are read by the other group members and thus a communication path is completed.

Four roles are included in SISCO: Coordinator, Facilitator, Contributor and Observer. The Coordinator is responsible for the pre-meeting success. The Facilitator supervises the pre-meeting discussion of a particular agenda item. The Contributors produce the actual discussion. The Observers are persons authorized to read but not write contributions to the discussion (Borges et al., 1999).

SISCO includes ways to quickly find discussion elements by full-text search, navigation by author, follow a discussion thread, and accessing unread material. An initial implementation of SISCO called U-SISCO had visualization based on simple, hierarchical text-based display of information (Espinosa et al., 1997).

3. The PRIME initial design

PRIME (Pre-meeting Information Management Engine) is a Web-based implementation of SISCO. The main difference with the design of previous implementations is that this tool was not experimental: it was intended for real users.

The basic goal was inherited from SISCO: to be useful for an asynchronous distributed pre-meeting discussion. However, the system should be compatible with Alpha hardware and software systems and use state-of-the-art visual interfaces.

Besides allowing users to read other participants' contributions and incorporate their own, PRIME should let group members attach any type of file to the discussion. These files may include multimedia documents, spreadsheets, etc. enriching the possibilities of carrying out an informed discussion.

The first release of PRIME was developed with the following features. After validating user login identification and password, the system presents the open pre-meetings in which the user is a member (Figure 1). For each pre-meeting, it is possible to see its name, a brief description, the number of contributions received until the current time, the first agenda items being discussed, starting and closing dates, and the user name of the pre-meeting coordinator.

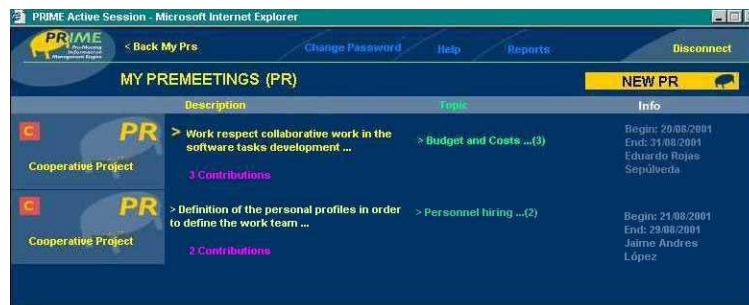


Figure 1. Pre-meetings list for a user

The PRIME discussion structure can be seen as a hierarchy of these components: agenda item, objective, issue, position, argument. In previous SISCO implementations, these components were presented in this way. The problem with this manner of organizing the discussion is that having so many levels, the visualization of the hierarchy takes a significant display space. Even worse, users get confused with so much information. On the other hand, if some information is hidden, users get lost: to which upper discussion component belongs a certain discussion element?

The problem was solved in PRIME by splitting the display window in several parts (Figure 2). The upper sub-window (marked with (1)) shows only agenda items and objectives. The discussion components belonging to the chosen objectives are

“opened” in the second sub-window (marked with (2)). This sub-window then contains issues, positions, arguments in favor or against, and task proposals. The third sub-window shows the detailed text of any selected discussion element in the second sub-window, as well as any remarks added to this element.

There are discussion awareness features incorporated in these sub-windows. In the first one, there are indications of the number of new contributions for each displayed objective. Also, the average number of submissions per contributor and the number of submission from the user himself are shown for each objective. These latter numbers are intended to provide awareness on the participation of users in the discussion.

The PRIME discussion window also has three groups of buttons at the left hand side. The first group (4) concerns actions which can be performed on agenda items and objectives. This menu is visible only to the pre-meeting coordinator. He can add new items, modify them, etc. The second group (5) contains the menu available to all contributors. By using this menu, group members can make new contributions, attach documents and modify part of the contributions. The last menu (6) lets participants see the attached documents and the tasks assigned to each person.

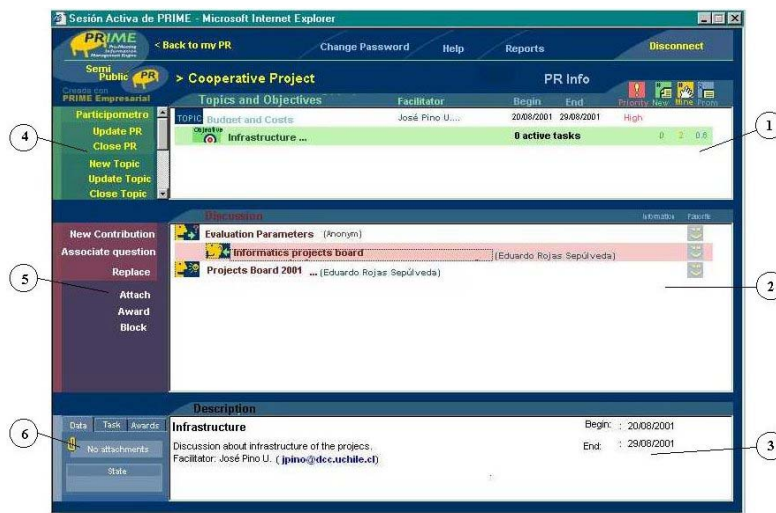


Figure 2. PRIME pre-meeting discussion

4. Feedback from the users

The first PRIME release included a simple window to type a contribution. This was considered not enough by the first users. They argued they were accustomed to prepare text with tools appropriate for this task: an editor with cut and paste facili-

ties, choice of fonts, etc. Then, they had this concern: when preparing a contribution, they initially thought it was of a certain type, but after seeing it written, they realized it actually was of another type. The problem was they had already indicated the contribution was of the initial type and PRIME did not allow to delete contributions.

The first problem had an easy solution: we provided a simple editor including the most popular word processing features (Figure 3). The second problem touched a fundamental issue: the tool was supposed to help organize the discussion, not make it difficult for the users. Moreover, it is natural that a person creating ideas has not completely clear if according to the IBIS model, that contribution is going to be an issue, a position or an argument. In fact, what is finally written may well be a combination of two or more of these contribution types.

One tentative solution to the previous problem is to allow contributors to delete contributions. It is not a good solution because the discussion can not have components suddenly disappearing (some other discussion elements may depend on them). Also, if only authors could have rights to delete their own contributions (otherwise, it would not be acceptable), what can be done about anonymous submissions?



Figure 3. Adding new contributions

A better solution was the following one: a user can edit his new contribution and after he is ready, he decides the submission type. Alternatively, once written, the submission may be split in two or more contributions using the editor. The icons in the lower part of the screen in Figure 3 allow to choose the submission type.

Another problem stated by the users was about the features offered by the system. Alpha Vice-President of Planning found the system too complex for simple use by executives. Our approach to solve this problem was to provide three versions

of the system. The simplest one would include only the essential tools to provide a basic functionality. The most comprehensive version included all features.

5. Evaluation from users

We made an initial effectiveness study in Alpha Corp. after some users came into contact with PRIME. Two groups have been using the system with some regularity. The first group includes 15 middle executives and senior professionals related to technology use within the company. The other group concerns high executives from the Finance Division; we interviewed six persons from this group.

All 21 interviewed people used PRIME to have distributed asynchronous pre-meetings. These pre-meetings were followed, a few days later, by the corresponding face-to-face decision making meetings. The study involved questions about three subjects: activities done by participants before face-to-face meetings, activities done when using PRIME, and activities performed during the meeting itself.

5.1. Subject 1

In this area of concern, we are interested in comparing activities done by participants before the actual meeting to which they are invited both when using PRIME and when they did not have it available. Four questions were asked and the results are presented below.

Q.1. *Did you know the meeting agenda before the face-to-face meeting?*

	Always or almost always	Sometimes	Never or almost never
Without PRIME	42.85%	42.86%	14.29%
With PRIME	100%	0%	0%

Q.2. *Did you understand the most important agenda items before the meeting?*

	Always or almost always	Sometimes	Never or almost never
Without PRIME	23.81%	57.14%	19.05%
With PRIME	80.95%	19.05%	0%

Q.3. *Did you read the material sent for the meeting before it took place?*

	Always or almost always	Sometimes	Never or almost never
Without PRIME	33.34%	28.57%	38.09%
With PRIME	66.67%	33.33%	0%

Q.4. *Did you discuss agenda items with other participants before the meeting?*

	Always or almost always	Sometimes	Never or almost never
Without PRIME	9.52%	52.38%	38.10%
With PRIME	66.66%	14.29%	19.05%

A simple analysis of these results shows PRIME is useful to make participants of a meeting aware of the agenda items (100%). Participants also reduced their initial equivocality and uncertainty when using PRIME, both understanding the agenda items and reading attached material. Finally, two thirds of the people say always or almost always discuss agenda items with other participants when using PRIME; this contrasts with only 9.52% who say they do that without PRIME.

5.2. Subject 2

This part of the study is concerned with the participants' opinion about PRIME. In particular, the *value* they assign to the tool.

Q.5. *According to my opinion, whatever is to be decided during the meeting and its consequences is clearer when using PRIME than without its support.*

Q.6. *Subjects to be discussed are studied deeper when using PRIME than without it.*

Q.7. *There is additional freedom to express ideas when using PRIME than without it.*

Q.8. *Time used in PRIME supported pre-meetings is good investment.*

Question	Agree	Not sure	Disagree
Q5	71.43%	23.81%	4.76%
Q6	80.95%	14.29%	4.76%
Q7	57.14%	4.76%	38.09%
Q8	90.48%	9.52%	0%

In general, interviewed participants assign a high value to the use of the system. Note that even the 4.76% who disagree with assertions No. 5 and 6 does assign some value to PRIME or at least is not sure about it (Q. 8).

5.3. Subject 3

The goal of this subject is to compare the meetings which have had some preparation using PRIME with those without it, according to the participants.

Q.9. *Discussion during a meeting is more meaningful when there has been preparation using PRIME than without it.*

Q.10. *Meetings are shorter when they have had preparation using PRIME than without it.*

Q.11. *Decisions made in a PRIME-prepared meeting are of higher quality than those made in unsupported meetings.*

Q.12. *Participants are more satisfied with the decisions made during a meeting prepared with PRIME than those made in a meeting without preparation.*

Question	Agree	Not sure	Disagree
Q9	76.19%	19.05%	4.76%
Q10	57.14%	38.10%	4.76%
Q11	61.90%	33.33%	4.76%
Q12	47.62%	52.38%	0%

It is certainly difficult to evaluate the quality of the meeting. The previous results show better meetings when using PRIME than without it in the eyes of the participants. However, participants did not have any other (formal) preparation for meetings before using PRIME: it may well be that meeting preparation by other means could also be positively evaluated by participants. Results for Question 10 may be biased by satisfaction with PRIME: the actual meetings might have not been actually shorter than before, but participants had the feeling they did not have to discuss too much when they have done that in the pre-meeting². Results for Q.12 are particularly interesting: none of the participants disagreed with the assertion; one can guess people feel they are more deeply involved in the issues discussed, but that does not guarantee people reach consensus. In fact, answers to Q.12 are cautious: more than 50% does not agree either.

6. Conclusions

The design of the PRIME system benefited from user feedback. In particular, the user interface was different from that of previous SISCO prototypes. Thus, the visualization of discussions and the writing of contributions have been improved.

Concerning the effectiveness of PRIME, an initial approach was to evaluate it according to the opinions of users. They were interviewed by a person who was not a member of the system developing team. The results show they are quite satisfied with the system, finding the time they spent interacting with it a worth investment.

Nevertheless, there were difficulties during initial use of the system. The first one was that for most groups the concept of pre-meeting was unfamiliar. Their typical first reaction was that they did not need to discuss matters beforehand in this case. A second difficulty was with the nature of the pre-meeting: a usual first request was of features to vote and thus to quickly jump to decisions; they had to be explained again that decision making was left for the actual meeting. Finally, users did not initially grasp the advantage of discussing ideas independently of their proponents: they wanted features to state personal preferences; afterwards they liked the concept of discussing ideas on their own merits, because that gave them freedom to express advantages and disadvantages of various choices without stating *their* affections or inclinations.

We found the work of the Coordinator to be very important. The discussions were most meaningful when the Coordinator was involved and he motivated the rest

² Face-to-face meetings in Chilean culture are less strict with time deadlines than in some other cultures: a meeting which lasts 25% longer is typically accepted.

of the group. Were the decisions made in meetings prepared with PRIME better than the ones made without it? The interviewed users say yes, but this is very difficult to prove. One can guess, however, they may be. By using PRIME, participants can generate and evaluate a large number of optional solutions, all group members get knowledgeable about the subject, they have time to ponder arguments and choices, and they have ample opportunities to participate.

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