Organizing event-based, meeting-oriented project group communication holistically: a preliminary study

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Abstract - Communication, often conducted in the form of meeting, is critical to the success of collaboration in project-based and human-intensive business activities. This paper presents a meetings-flow approach (MFA) for organizing project-based group communications. Through integrating codified group communications into meetings and modeling meeting flows into temporal and contextual views, MFA provides a long-term vision and wide scope planning insight on project’s group communications. It also facilitates a way for planning stakeholders’ participation in the continuous communications channel enabled by this approach. A software project case study has been conducted and is presented in this paper as an initial result of using MFA.

Keywords – Communication event, project management

I. INTRODUCTION

In human-intensive and project-oriented business activities, information is one major component that contributes project’s deliverables (Mantel, et al., 2005; Kernzer, 2003). Communications inside a project correspondingly play an important role in conveying, transmitting and discovering project’s ad-hoc information products. Managing communications under a collaborative project environment can result in effectiveness of configuring and controlling project information, thus it has been regarded as one major domain and a required work skill in project management (PMI, 2008; Simon, et al., 2007).

Yet managing communications is not an easy job, particularly in software projects that are associated with heavy teamwork and complicated product development. Management on information and group communication in projects often faces challenges such as, communication delays, communication breakdowns, information distortion, and information asymmetry (Ceschi et al., 2005; Verner and Evanco, 2005; Messmer, 2004; Tan, 2003; Teasley et al., 2002; Heller, 2000). Galpin et al. (1998) pointed out that under-communicating throughout the process is one of the major deadly sins in project-based strategy implementation.

The above partial and unilateral situations of group communication are ironic when we see that project members are often busy in meetings. Meeting has been widely used in conducting ad-hoc teamwork and group communications (Bruegge and Dutoit, 2004; Enberg et al., 2006). Yet seeing the problems and the restricted use, meeting could contribute more. The often-ignored yet effort-consuming meetings could be, in contrast, a concrete thing and a central way to preserve and organize group communications for a software project. Thus this paper focuses on project meetings, studying their contexts, and further proposing the Meeting-Flow Approach (MFA) to organize and manage project’s group communication events.

A. Project’s group communication event

In some researches, events are used to characterize and manage ad-hoc processes. For example, Cook and Wolf (1998) used event data to characterize the dynamic behavioral of software process in terms of identifiable and instantaneous actions. In fact, the use of event data to characterize process and behavior has been in areas of project management and software engineering. Examples are program visualization (LeBlanc and Robbins 1985), concurrent-system analysis (Avrunin et al. 1991), and distributed debugging (Bates 1989; Cuny et al. 1993). Many industrial project management methods or CASE tools have similar functions to schedule and maintain individual events.

For a software project that heavily depends on communications, group communication events are the way to preserve and encapsulate critical information of the project (Caldwell et al., 2008). Examples of project group communication events are feasibility discussion, monitoring, review or approval on critical changes, presentation rehearsal, requirements exploration, critical artifact review, formal testing reporting, project conflict resolution, etc. These communication events, by their sheer number and sequences, may depict how the project would proceed. And managing project information can be done by modeling the contexts of these events. However, currently there is no method to model and organize these communication events and further integrate them into project process.

B. A need of holistic planning

An additional problem is that, even if the focus has been put on a to-do-list and follow-up check for the current and the previous meetings, there is a lack of long-term and wide-scope planning insight, i.e. (1) the relationships of the previous, the current, and the future meetings; and (2) the linkages of the effort in local meetings to the global
accomplishment of the project. Planning meetings into a continuous and holistic way with proper people attendance assignment is also critical in the need for continuously communicating the “shared vision” and the valuation of a project (SEI, 2006; DeLuca, D. and Valacich, 2006). In other word, current meeting practice does not have a global view of meetings that happens during project lifecycle; nor has there been a way to define and manage project meetings and further integrate them into project process to yield a more effective planning result.

II. METHODOLOGY

Seeing the problems of current meeting practice and since project communication needs people involvement, for project communications that take the form of meeting, this paper proposes a meetings-flow approach to organize project major communication events, as well as to characterize the communication content of meetings.

The framework of the proposed MFA is illustrated as below. The following sections briefly describe the work of each step in the framework.

A. Characterize project’s group communication events

In communication theory and action research, 5W1H is a structurational way to describe a communication event (Yoshika et al., 2001; Orlikowski and Yates, 1994). In software project management, the 5W1H is used in analyzing project communications (Jang and Woo, 2003). Based on these studies, a group communication event involves what to communicate, who are involved in the communication event, how to communicate, why the event is needed (with a given purpose), and when and where the event is to take place.

For example, the communication event “eliciting and exploring requirements (REQ)” is characterized as follows: in order to understand customer requirements (why), the users and the systems analyst (who) meet to explore and discuss possible requirements (what). An online operating environment is scheduled for this meeting (where and how). Note that the composition of a group in a communication event does not limit to the development team only.

B. Plan and organize project meetings and their flow

Based on the communicative structures proposed by Yoshika et al. (2001), a meeting is defined in this study by using 5W1H that incorporate and encapsulate a codified group communication event. With the behavior types of communications being clearly planned, meeting participants are aware of that and thus help keep the meeting on the right track.

C. Two representations of meetings flow: temporal and contextual

Therefore, two representations of meeting flows are suggested. Temporal meeting flows present the sequential relationships of project meetings, and logical/contextual meetings flows visualize the contextual relationships in terms of information evolving among these meetings.

Planning meeting flows into temporal relationships enables stakeholders to understand and watch the efforts in the past, the current, and the future meetings, as well as to visualize the project’s progress in terms of such continuous group communication channel. Planning meeting flows into contextual relationships enables a wider vision of the functions that a meeting acts for critical information products. The “functional role” refers to: (1) what (e.g. teamwork and communications) needs to be done in a meeting, (2) what project information needs to be concluded in the meeting, (3) what the meeting needs from other meetings, and (4) why the meeting is needed for other meetings. Thus the contexts, in terms of information flows, of project communication events are organized. Refer to Section III for the illustrations regarding the flows of meetings in these two representations.

D. Plan stakeholder participation in meetings

To enable people involvement and participation for meetings, it is needed to assign project roles and relevant stakeholders (i.e. the actual person who takes the role) that are supposed to participate in a meeting. Particular stakeholders who should receive the results or approve the results after the completion of the meeting can also be assigned.

The purpose of having such assignment is to notify relevant stakeholders (particularly the higher level management) in the early stage and to gain their commitment of participation. Such planning acts as a starting point to effective communication and meeting management, i.e., having the right people to get the right information and communications at the right venue (meeting). Table 1 illustrates such a planning.

<table>
<thead>
<tr>
<th>Meeting Class</th>
<th>Stakeholder Participation Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Customer</td>
</tr>
<tr>
<td>OPP-DS</td>
<td>●</td>
</tr>
<tr>
<td>WBSJ-DE</td>
<td>○</td>
</tr>
<tr>
<td>FEA-DS</td>
<td>●</td>
</tr>
<tr>
<td>RES-DS</td>
<td>○</td>
</tr>
</tbody>
</table>

Note: in this example, degrees of involvement in a middle-size software organization are illustrated as: ○: low involvement(1) ●: medium involvement(2) ●: high involvement(3)
III. RESULTS

A. Using MFA: a software project example

This paper uses a software project as the example to demonstrate how the meetings flow approach is used in organizing and planning project’s group communication events. Environment Science and Engineering Corporation (ESNE) is a systems development company located in Taipei, Taiwan. ESNE delivers information systems and services to its customers for ad-hoc environmental studies on weather, earthquake, environmental quality, etc. ESNE’s customers mainly include Taiwan’s government, state-owned enterprise, and military organizations such as Central Weather Bureau (CWB), Weather Wing of Taiwan Air Force, Forestry Bureau, Taiwan Power Company, China Steel Corporation, etc. The company’s research and project development partners include National Central University, Chinese Culture University, and Nanya Institute of Technology (NIT).

The project used in this example is a systems development project for CWB. In addition to the ESNE project team, the customer and the user group from CWB, the project stakeholders also include an external development partner, NIT, for supporting part of the coding work in this project. The process framework of using MFA in the company is illustrated in Figure 1, and each of process components in the framework is explained in the following sections.

B. Plan communication events into meetings

Tremendous, complex ad-hoc information and communication are the typical characteristics of software projects. To outline the critical information and group communication, the project focuses on information deliverables for the project client (CWB) and the management of ESNE. Based on this focus, the company first identifies information deliverables. Table 1 denotes the operations of the functional meetings that represent group communication events of a project in the preparation phase.

<table>
<thead>
<tr>
<th>Meeting Class</th>
<th>Information Preservation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project opportunity discussion (OPP-DS)</td>
<td>The management and relevant stakeholders discuss the opportunity of a potential project according to RFP or necessary customer profile and related information. SWOT analysis is required for the meeting.</td>
</tr>
<tr>
<td>Functional WBS exploration (WBS1-DE)</td>
<td>The members collect necessary info regarding the customer and propose to the team in this meeting. The meeting discusses possible functional architecture, which will be the basis of the proposed technical scope. This meeting will determine an initial product-oriented WBS for the project proposal or plan.</td>
</tr>
<tr>
<td>Project feasibility discussion (FEA-DS)</td>
<td>A comprehensive aspect of feasibility, including risk items, and related technical solutions are analyzed here. Risks are identified effectively, and they will be in the risk management sub-plan later on in PROW-A.</td>
</tr>
<tr>
<td>Resources scheduling and writing (RES-DS)</td>
<td>Initial resource allocations for the new project are negotiated and scheduled. An initial resource plan, negotiation (RES-DS) is determined.</td>
</tr>
</tbody>
</table>

| Proposal writing assigning (PROW-A) | In this team meeting the writing of project proposal is designated to relevant stakeholders. |
| Presentation rehearsal and drill (REH-R) | The management and relevant committee walkthrough the presentation slides and rehearsal and give feedback and provide possible mock QA. |
| Requirement exploration (REQ-DE) | Systems analyst(s) perform an onsite visit for trying to catch any critical customer needs. The meeting proposed agreed requirements on the customer requirement sheet. |
| RFP writing assigning (RFPW-DA) | In this team meeting the writing of RFP is designated to relevant stakeholders. |
| Peer Review on Proposal (PROJ-R) | This meeting performs a panel review on project proposal prior to submission to the client. This belongs to the QA for Proposal meeting module. Peer review form will be used for and issuing and controlling any document defects. |
| Debriefing & lesson learned (OVER-DS) | Whether a project ends successfully, the company meets to collect and consolidate the experiences and lessons learned. |
| Project monitor and control review (PMC-R) | The project manager calls the team in weekly to check progress. Internal escalations are made when necessary. The team also reviews issues from QA audit and takes corrective actions. |
| Performance review, division (DIV-R) | This meeting reviews project performance at the division level. Internal escalations are made when necessary. Some issues are resolved in this meeting. Meet bi-weekly. |
| Performance review, organization (ORG-R) | In this meeting, top management, division leaders, and all project representatives review project status and to resolve cross-functional issues. When necessary, company-level escalations are made to resolve the issues. Meet monthly. |

C. Identify stakeholder participation in meetings

Stakeholders who should participate in these meetings are identified and planned. Table 4 shows the assignment matrix by listing all planned meetings and project roles. Note that stakeholder roles and the degrees of involvement would vary depending on organizations and different situations. In this case, although the NIT group is a downstream supplier, due to a long-term strategic partner to ESNE, it is invited and is involved in earlier stage. Through this assignment in MFA, meetings are planned in properly distributing information to the right people at the right venue, and, with group effort, in reviewing the quality of the information products.

D. Form meeting flows

1. Plan the temporal meeting flows

Figure 2 below illustrates the temporal flows of the meetings in the preparation phase. PERT is used in this example to present the flows. By having this sequential view, a continuous institutionalized communication process is presented. From the diagram the information regarding the progress of such processes can also be indicated by the statuses of the meetings.
1. Plan the contextual meeting flows

As Figure 3 shows, this paper uses a simple DFD-like diagramming tool to frame the information context for the planned meetings. This also refers to the logical representation of the meeting flows. While DFD has been conventionally used in modeling the information contexts of product’s functional contents, this paper uses it for modeling project information encapsulated in communication events.

In this case, such representation has two purposes. The first purpose is to show the data/information/documents a meeting (including necessary post-meeting actions) is supposed to produce and acquire to the entire project. With this picture, participants are able to know why they should have a particular project meeting and what they should do inside that meeting from the global viewpoint, as the picture shows the information role the meeting plays in the entire project.

Figure 3: The contextual representation of meeting flow

As for the second purpose, such big picture is presented for relevant stakeholders in various levels (that is, the project, the divisional, and the organizational level of involvement in this case study) to understand the relationship and linkage between their involvement to a project, and that their own efforts in local meetings do contribute to the global accomplishment. On the contrary, such linkages and relationships also show a holistic view about the expected participativeness from the organization that should contribute to the project.

IV DISCUSSION

A. Knowledge management issue in project meetings

Once the framework of MFA regarding the macro-phenomena of project meetings and communication events is established in this paper, one further issue, then, is the knowledge evolving and sharing through the use of the MFA. In this paper, this refers to the study of micro-phenomena of MFA.

Studying the knowledge evolving in meetings involves the work of knowledge creation, conversion, and sharing mechanisms. For example, Nonaka (1994) discussed the four modes of knowledge conversion: socialization (tacit to tacit), combination (explicit to explicit), internalization (explicit to tacit), and externalization (tacit to explicit). The sharing mechanisms brought by Boh (2007) provide a view on personalization versus codification and individualization versus institutionalization during the process. For the micro-phenomena study MFA, this research would continue to survey related literature and to further explore how critical knowledge is preserved in project meetings via the evolving process of knowledge creation.

V. CONCLUSION

In the area of organizational communication, researchers have criticized that current research concentrating overly on individuals and interaction, while neglecting larger forms of social structure (i.e., macrophenomena) (Jones et al., 2004; Lammers and Barbour, 2006). In this regard, this paper proposes MFA with a holistic aspect and focuses on the social structure...
in planning and organizing project’s group communication events. As for the reason for such planning, as evident in the existence of communications plan, organizations do recognize the need, and they have worked to formalize the group communications planning process. In addition to the attention on project meetings brought by this paper, what MFA adds to the equation is to recognize that meetings can be used as “information centers” and they may play additional roles in the project management.

At the end of this study, this paper outlines several future research works for MFA. The first is to study on the participativeness of stakeholder in MFA. The second is to study the contents of knowledge evolving in project meetings. The third is the application of MFA in other domains. For example, a study of client-side project management using MFA in engineering construction projects is being conducted. The forth is the study on meeting effectiveness to enhance the flexibility on projects is being conducted. The forth is the study on management using MFA in engineering construction domains. For example, a study of client-side project management will be carried out to study the contents of knowledge evolving in project meetings. The second future research works for MFA. The first is to study on participativeness of stakeholder in MFA. The second is to study the contents of knowledge evolving in project meetings. The third is the application of MFA in other domains. For example, a study of client-side project management using MFA in engineering construction projects is being conducted. The forth is the study on meeting effectiveness to enhance the flexibility on projects is being conducted.

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