

# Communications Management in Partially Distributed Teams

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**Abstract:** This paper discusses the management of communications within Partially Distributed Teams (PDTs). One of the key issues for a PDT is the avoidance of negative effects on team performance caused by in-group dynamics. This paper reviews a selection of literature on virtual teams, in-group dynamics and project communications management. A discussion on two main points, the project communications management plan and in-group dynamics leads to some recommendations for communications management in PDTs, and some examples of communication tools that could be adopted for use.

*Keywords:* Partially Distributed Teams, Subgroup Dynamics, Communications Management

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## 1. INTRODUCTION

Virtual teams, global virtual teams and distributed teams are all common terms within today's business environment. All generally refer to project teams where the use of Information and Communications Technology (ICT) constitutes all or a significant portion of the interaction between the team members of a team, who are dispersed over various locations. The advantages of such teams include flexibility, drawing on knowledge, skills and perspectives that would not be available at one site and enabling organisations to pool talents (Zhan and Xiong, 2008). Examples of such teams and the majority of research to date come from the software engineering field.

In some situations, not all the project team members are distributed or dispersed, and collocated subgroups can be found within the project team. Examples include when employees from different offices within a company form a team, an external company or consultant is added to form a team, or when the project site is located remote to the design office. This structure uses a mix of ICT and face to face contact, and is referred to as a Partially Distributed Team (PDT).

PMI (2008) describe nine key knowledge areas of project management. Of these, Project Communications Management is the area considered to be the most affected by a PDT structure, as the communication must now overcome geographical and possibly temporal distance.

This paper examines the management of communications within a PDT through a review of literature on PDTs and Project Communications Management. As a result of this literature review some recommendations for communications management within PDTs are made. This paper focuses on two issues in particular, the Communication Management Plan, and managing in-group dynamics.

## 2. STATE OF THE ART

In this chapter an overview of selected literature is presented.

### 2.1 *Distributed and Partially Distributed Teams*

Geographically dispersed project teams using ICT as the primary means of interaction have been variously described as virtual teams, Global Virtual Teams (GVTs), dispersed teams and distributed teams, often with small variations in definition. Bradner et al (2005) prefer the term distributed teams, as it reflects the geographically dispersed nature of the team rather than the method of working.

Ocker et al (2010) define a PDT as having two or more geographically dispersed subgroups. Each subgroup is collocated with the opportunity to communicate face to face, while the communication between subgroups is primarily based on information and communications technology.

In this paper the terms distributed teams and PDT will be used, following the logic of Bradner et al and Ocker et al. However where a cited paper makes reference to virtual teams, dispersed teams or GVTs these terms will be used, to acknowledge the slightly different definitions that may have been intended by the authors.

While the majority of research into distributed teams comes from the field of software engineering, a majority of the research into PDTs comes from the area of disaster management (Plotnick et al, 2008 a&b; 2010).

### 2.2 *Effectiveness of Partially Distributed Teams*

There is much debate over the effectiveness of distributed teams. Strauss and McGrath (1994, Cited in Guo et al, 2009, p.2) state that computer mediated communication restricts the transmission of important non-verbal and paraverbal cues, which enable team members to regulate interaction, express information, monitor feedback and create common ground

and a sense of understanding. Thus for project aspects that require collaborative problem solving and decision making, the communication efficiency will be decreased as will team outcomes (Daft et al, 1987 and Short et al, 1976, Cited in Guo et al, 2009, p.2).

Baskerville and Nandhakumar (2007) note the performance of virtual teams compared to collocated teams appears to be situational. Martins et al, (2004, Cited in Baskerville and Nandhakumar, 2007) showed that virtual teams can perform better than collocated teams when a diversity of concepts and perspectives is required, or when the task is able to be completed adequately using electronic documents and tools.

### 2.3 Trust

There are numerous different definitions of trust, and classifications of the dimensions or elements of trust (Zhan and Xiong, 2008). With respect to virtual teams, several terms appear to be commonly adopted.

For temporary or short term situations typical of that found in a distributed team, Myerson, Weick and Kramer (1996) describe a form of trust called swift trust. This form of trust is unique to temporary systems where the time is not available for the more usual forms of trust to develop. Iacono and Wesiband (1997) expand on Myersons et als work, by describing swift trust as dependant on interactions composed of initiations and responses. Teams that continuously interacted over the duration of the project maintained higher levels of swift trust and performed better.

Baskerville and Nandhakumar (2007) define two types of trust operating within a virtual team: Personal trust and Abstract trust. Personal trust is based on a relationship with the people in the team, and is formed and reinforced through face to face contact. Abstract trust is based on the structures of an organisation, for example hierarchical authority.

Baskerville and Nandhakumar (2007) state personal trust and abstract trust are interrelated, and each one develops into the other. Personal trust formed with people within the organisation that follow the company structure develops abstract trust for all the structures of the organisation. For first time or one time interactions within the organisation, abstract trust is relied upon. Over time this enables the forming of personal trust.

Within virtual teams, abstract trust is relied upon to facilitate the working relationship, but as the face to face contact is not there, personal trust is not developed. Baskerville and Nandhakumar (2007) note that abstract trust alone appears unable to sustain virtual team working over long periods (defined as greater than 1 year).

Baskerville and Nandhakumar (2007) believe that personal trust will diminish over time and cite evidence that in long term teams regular face to face meetings are still a feature, allowing for the re-establishing of the personal trust. They report that most people feel ICT is unable to support personal trust.

Zhan and Xiong (2008) summarise the available literature concerning trust in virtual teams by noting the ability to use swift trust in short term or temporary teams, but that longer term teams *require* face to face contact and that face to face contact should be undertaken at the formation stage of the team if possible.

### 2.4 Faultlines and Subgroup Dynamics

Faultlines are the configuration of characteristics over which team members can perceive subgroups to exist, and reflect the potential of a team to break into subgroups (Cramton and Hinds, 2005). Examples include along professional divides (engineers vs designers) or by gender (men vs women), or location. Faultlines require activation through an event, after which awareness of the subgroup results (Cramton and Hinds, 2005). When location is combined with other attributes eg all designers in one location, all engineers in another, then this subgroup awareness is intensified.

Faultlines between subgroups within a PDT should be expected, as the collocated subgroups are likely to share resources, and organisational and work culture (Plotnick et al, 2008). In addition the shared face to face contact of the collocated subgroups are likely to create a shared identity (Hinds and Mortensen 2005, cited in Plotnick et al 2008 p.2), while geographical, power and information faultlines can run parallel and amplify each other (Huang and Ocker, 2006). Cramton and Hinds (2005) note that subgroup dynamics are likely to be more exaggerated when the team has a low number of locations; and the subgroups are of roughly equal size.

Faultlines are a structural element of PDTs, and affect the in-group dynamics effects of a PDT (Huang and Ocker, 2006), while Plotnick et al describe PDTs as particularly susceptible to in-group dynamics. In-group dynamics are the forming of an 'us' and 'them' mentality, with the 'us' becoming the in-group, and the 'them' becoming the out-group (Cramton and Hinds, 2005; Plotnick et al, 2008). This gives rise to positive and emotional attachment to the in-group and a negative even hostile reaction to the out-group (Cramton and Hinds, 2005). As a result of this the relationship between subgroups can become competitive and marred in conflict, for example the withholding of information or co-operation, or the disregarding of the work or contribution from the out-group (Cramton and Hinds, 2005).

In their study on PDTs, Plotnick et al (2008) note the relationship between subgroups was frequently strained. The biggest issue was a lack of awareness of what the other subgroup was doing. Also highlighted were not giving full consideration to out-group(s) work contributions and that the leaders of each subgroup were motivated by distrust when assigning tasks i.e. giving lower importance tasks to the other subgroup and keeping the more important tasks within their own subgroup.

However Panteli and Davison (2005) noted in their study of subgroups within virtual teams "For the task type that we studied (a cooperative one involving brainstorming and group

authoring), all teams (irrespective of subgroup impact) performed more or less equally well.” p198. Although they did note team cohesion can be affected by subgroups, and that for tasks that require a high degree of coordination subgroups based working may hinder team effectiveness.

After the activation of faultlines along geographical boundaries, there is a point of subgroup salience, when the team members become aware of the existence of the subgroups (Cramton and Hinds, 2005). From this point, the team will generally move towards ethnocentrism, with an in/out group dynamic and the associated negative effect on team performance. However under certain conditions the team can move to ethnorelativism, an alternative to ethnocentrism (Cramton and Hinds, 2005). Ethnorelativism is also referred to as cross-national learning, which they consider will lead to positive effects on team effectiveness.

Cramton and Hinds (2005) suggest the creation of a ‘mutual positive distinctiveness’ to facilitate cross-national learning. Mutual positive distinctiveness is the recognising of the positive aspects of both their own group and the other groups. Mutual positive distinctiveness is based on motivation to engage across differences, and on information sharing, for which Cramton and Hinds (2005) identify five factors:

- Each subgroup should have equal status
- Structure of the team results in interdependencies across locations
- Institutional and social support for positive interaction across locations
- The team must work towards inclusive communication, not restricting communication to subgroup
- Teams must pay attention to the sharing of contextual information, i.e. local customs, holidays, work practices etc.

Cramton and Hinds (2005) believe that faultlines could lead to more resilient teams and team members when managed correctly.

Huang and Ocker (2006) note three factors that can modify the effect of in-group dynamics within PDTs. These are the work ethic of the team, the quality of work produced by the subgroups, and the mix of media adopted.

## 2.5 Leadership

Plotnick et al (2008a) describe three different leadership configurations within PDTs. All are considered to be able to form ‘naturally’. These configurations are defined as:

- Decentralised, each subgroup has one leader, no overall leader
- Centralised, one overall leader, no subgroup leaders
- Hierarchical, each subgroup has one leader, one leader overall

When able to choose leadership structure most PDTs are comfortable with the decentralised leadership structure (Plotnick et al, 2008b).

Plotnick et al (2008a) note the location of the leaders can affect team interaction and outcome, as leadership location can exaggerate in-group dynamics. Plotnick et al (2008b) note that PDT leadership must overcome in-group effects or conflict could ensue.

Baskerville and Nandhakumar (2007) note a situation where the team leader was located in one town, and gradually team members migrated to this town in part due to the presence of this leader.

## 2.6 Communication Theory

Ocker et al (2010) describe three main structures of communication occurring within PDTs. These are:

- Hub and spoke, where each subgroup leader is the hub for communication between subgroups
- Moderate network, where fewer than a majority of team members interacted between subgroups
- High network, where a majority of team members interact between subgroups

Based on a study of students, Ocker et al (2010) note that the hub and spoke structure teams experienced problems in communicating between subgroups the most. The subgroup leaders acted as “gate-keepers”, with all information funnelled through them. In contrast, the high network teams experienced communication process inclusiveness.

Panteli and Davison (2005) describe a similar structure within their study on subgroups in virtual teams. Three levels of subgroup impact were identified based on an analysis of the communication within each team: high impact; medium impact; and low impact. High impact subgroups characteristically used words such as ‘we’ and ‘you’, and generally achieved a subgroup consensus before engaging with the other subgroup. This correlates with the hub and spoke structure Ocker et al (2010) describe, although note is made that in Panteli and Davison’s study the teams did not necessarily appoint sub group leaders. At the other end, the low impact teams were more inclusive with communication, and comments were directed to the team as a whole rather than through a subgroup consensus, corresponding to the high network of Ocker et al (2010). Moderate impact teams attempted inclusive communication, but merged to subgroup working as the study progressed.

Huang et al (1998) describe a dialogue framework for use in the creation of a shared team understanding. This framework is based on dialogue theory found in organisational science, and involves the creation of a common team model for communication practices within the team. Studies where the framework was applied at the initial stage of virtual team development reported better relational development, better decision making, group satisfaction and team performance compared to teams without the framework (Tan et al, 2000; Huang and Lai, 2001; Guo et al, 2010).

## 2.7 Communications Management Plan

Project communications is one of the key factors in project success (PMI, 2008; Dow and Taylor, 2008). Information needs to be generated, collected, distributed, stored and retrieved. To ensure this is performed adequately, a communications planning process is required, with the communications management plan the key outcome. PMI (2008) describe the communications management plan as documenting the communications approach the project manager will take to communicate with stakeholders. This communication should be effective and efficient. The communications management plan should be prepared early in the project and reviewed regularly during the project.

Dow and Taylor (2008) use the communications management plan provided by PMI as a basis and expand on it further. They define several key tools to be included within a communications management plan, all of which have as a focus the communication needs of the customer.

## 2.8 Communication Management Tools

A Daily Report is focused around a short meeting (approx. 30mins) at the start of each working day (Dow and Taylor, 2008). The project manager asks each team member three questions: What did you achieve yesterday; what will you do today; what is stopping you from doing your work. The aims from this meeting are to provide up to date progress, discuss any problems and provide accountability. Each daily report can then be compiled to form weekly and monthly reports.

Non-virtual teams often create a 'war room' where important pieces of information are stored and/or displayed, and where progress charts are maintained (Pickering et al 2006). The virtual equivalent is a virtual shared project space. Examples of shared project space can be commonly found in studies and case studies on distributed teams and PDTs (e.g. Pickering et al, 2006; Suchan and Hayzak, 2001; Plotnick et al, 2008 a&b). Some advantages of such a system are ease of information distribution, ensuring team members have access to the latest revisions of documents, and the creation of a shared language (technical terms etc) (Suchan and Hayzak, 2001). These virtual spaces can take many different forms such as a database (Suchan and Hayzak, 2001), a bespoke 3D virtual space (Pickering et al, 2006), or a wiki based system (Plotnick et al, 2008 a&b).

## 3. DISCUSSION

Currently intra-team communication largely does not feature in communication management planning. Neither PMI (2008) nor Dow and Taylor (2008) make any specific reference to intra-team communications. PMI (2008) describes the communication management plan as detailing the communication approach between the project manager and the project stakeholders. While it is noted that members of the project team are also considered stakeholders, no specific reference to communication management within the project team is made. Dow and Taylor (2008) describe communication planning as determining the information

needs of the project customers. They place significant focus on this area, noting how often this area is overlooked.

When the project team is partially distributed, geographical and temporal distance adds significant challenges which need to be managed. The propensity for PDTs to form subgroups with the potential for adverse effects on team effectiveness is a significant risk. Therefore it is considered the inclusion of intra-team communication within the communications management plan is essential within a PDT project. Cramton (2002) states "Designers of dispersed teams should aggressively explore in advance potential differences in team members local situations that could affect collaboration" p.364.

Partially distributed teams, by their form, present clear boundaries along which faultlines can form. Cramton and Hinds (2005) describe five factors that can negate the forming of in-group dynamics, and the associated negative effects. These recommendations can be considered and included within the intra-team section of a communications management plan. Communication methods and strategies that promote inclusiveness and interdependencies across subgroups can be developed. Even the very act of developing the communication plan, methods and strategies can be used to build greater team understanding and effectiveness.

The dialogue framework proposed by Huang et al (1998) has been shown to increase virtual team development and performance (Tan et al, 2000; Huang and Lai, 2001; Guo et al, 2010). This framework is based upon a meeting (either face to face or using ICT) at the team development stage. A key outcome of the dialogue-based framework is a model of communication practices to be adopted by the team.

Baskerville and Nandhakumar (2007) describe personal trust as an antecedent to effective working in long term virtual teams. Personal trust is best created or maintained through periods of collocation, or face to face contact. Thus an initial face to face contact is considered beneficial to the effectiveness of a PDT. Other authors describe the use of a face to face initial or 'kickstart' meeting in successful virtual teams (Suchan and Hayzak, 2001; Gluesing et al, 2003 and Hertel et al, 2005, both cited in Baskerville and Nandhakumar, 2007 p.18).

Combining these elements, an initial face to face meeting of PDT members during the planning stage of a project for discussion of the communication management plan should provide significant advantages. When the framework established by Huang et al (1998) is employed, the communication practices developed could then be placed directly into the intra-team section of the communication management plan. Additionally this would enable the sharing of contextual information, one of the factors recommended by Cramton and Hinds (2005).

It is recommended the communications plan be reviewed periodically. Using a face to face meeting to achieve this would then be a means of re-establishing personal trust as described by Bakerville and Nandhunaker (2007). Therefore

depending upon the length of the project, a periodical review through a face to face contact is suggested.

Cramton and Hicks, note the importance of keeping all teammates informed at all times. This is also supported by Plotnick et al, who noted the lack of awareness of the other team's actions was a big issue during their study. Several communication tools can be adapted to achieve this.

The daily project meeting and report, as defined by Dow and Taylor, could be one way of facilitating greater team awareness. The daily meeting would be undertaken within each collocated subgroup and the report distributed to the other subgroups. The report(s) from each subgroup would then be included in the other subgroups daily meetings. Additional advantages of this tool are: informing all team members of the obstacles encountered; greater accountability; and the daily reports can form the basis of the weekly/monthly reports (Dow and Taylor, 2008).

The flow of information can form a faultline (Huang and Ocker, 2006), for example where one subgroup is in regular contact with the customer, and is in control of the flow of this information to the remainder of the team. The creation of a shared virtual space containing all the latest project information, requirements, progress etc, could be used to promote inclusive communication. All team members would have access to the same information at the same time (time differences notwithstanding). Also the use of a shared space would promote a common language for technical terms (Suchan and Hayzak, 2001), avoiding communication misunderstandings and potentially aiding shared team identity.

It is noted that often tasks are assigned based on subgroups (Plotnick et al, 2008; Hunag and Ocker, 2006). This strengthens faultlines, and in-group dynamics. Cramton and Hinds recommends the creation of interdependencies through the team. This could be achieved through assigning tasks across subgroup boundaries. While the ability to do this would be strongly dependant on factors such as project type and team member skills etc, assigning some of the administrative duties across subgroup boundaries could be included in the communications management plan. For example, the responsibility for the administration and maintenance of the shared project space, or the recording and distributing of the daily reports could be assigned to a team member in each subgroup.

Team leadership and communication structure require careful management. The most natural leadership structure of a PDT is a decentralised structure, where each subgroup has a leader, with no overall leader (Plotnick et al, 2008b). This fits well with Cramton and Hinds (2005) recommendation for subgroups to have equal importance. However Plotnick et al's study was based on students who were able to choose a leadership structure. This is considered unlikely in a commercial project team as team members will have predefined organisational roles with levels of real or implied seniority. In fact it is noted studies utilising students ignore the differing levels of power present in a commercial organisation (Panteli and Davison, 2005).

In addition the most common communication structures adopted when the leadership structure is decentralised (hub and spoke and moderate network), were the ones that did not facilitate the most communication inclusiveness (Ocker et al, 2010). The communication structures that facilitated the most communication inclusiveness were the high network (as defined by Ocker et al), or the low impact, (as defined by Panteli and Davison), yet these were the least common in their respective studies.

Adopting a Centralised or Hierarchical leadership structure, appears to fit better with commercial project teams. However the location of the overall leader would then favour one subgroup over the other(s), with the potential for the creation of a power faultline. Also this would be against Cramton and Hinds recommendation, and could lead to a situation described by Baskerville and Nandhakumar (2007) where the team members gradually migrated to where the overall team leader was located.

There appears to be no simple solution to team leadership and communication structure. The desire to assign teams equal status and to promote inclusive communications, although not appearing to be contradictory, in reality may be quite difficult to achieve.

#### 4. CONCLUSIONS

The ability of faultlines to form and strengthen appears to be greater for PDTs than other team forms, and the creation of subgroups appears unavoidable. However previous research has identified factors that can manage subgroups behaviour and prevent the transition to negative in-group dynamics (Cramton and Hinds, 2005).

On the basis of a study of the available literature, some recommendations for the management of communications within PDTs can be made. Key to these are the inclusion of intra-team communications within the communications management plan, and the use of the development of this plan and the strategies contained within to manage the effects of in-group dynamics.

These examples underline the importance for the stabilisation of developing regions as one of the main subjects of SWIIS, through encouraging business opportunities with business partners from established economies. Higher PDT performance can lead to greater use of these structures, with the potential to create PDTs spanning economic divides. For example, to introduce a new product to a developing region the project team can comprise a local subgroup, the members of which are experts on local conditions, and a product design subgroup with design expertise located in a major economy.

A side benefit of greater use of PDTs spanning economic boundaries would be the potential increase in ethnorelativism/cross-national learning as discussed by Cramton and Hinds (2005).

Two examples of communication tools are given based on their use in previous studies or due to attributes that are considered to produce beneficial effects. However no study

on the effectiveness of these tools in improving communication inclusiveness has been attempted. In addition most of the available research is based on student studies, not on PDTs located in the business environment.

Areas for further research include the use of PDTs in a business environment as opposed to student based studies, the success of tools to mitigate the negative effects of in-group dynamics and the benefits of ethnorelativism/cross-national learning.

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