

Chapter 8

Social Use of Information in Organizational Groups

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ABSTRACT

Although group discussion is a vital part of organizational decision making, it is fraught with difficulties. Groups tend to focus their discussion on information that is common to most members at the expense of unique information known to few members. Groups often emphasize their initial point of view during discussion, leading the group to make more extreme decisions than what individual members would do on their own. Groups that are cohesive may strive for consensus to such a degree that they neglect information which threatens group unity. This chapter discusses information behaviors that affect a group's decision-making capacity, highlighting implications for information management.

Social Use of Information in Organizational Groups

We start from the premise that the goal of information management is to improve the use of information in organizations. We note that group discussions — whether in management teams or project groups — are an important means to clarify objectives, combine information and expertise, and select and commit to a course of action. Important as they are, group deliberations are fraught with difficulties. Groups tend to concentrate their discussion on information that is common to the group at the expense of unique but relevant information known to a single member. In the process of deliberation, groups often accentuate their initially dominant point of view, leading the group to make more extreme decisions than what individual members would do on their own. Highly cohesive groups may strive for unanimity and agreement to such an extent that they dismiss information that threatens group unity. This paper discusses these and other tendencies that can compromise a group's capacity to share and process information. We also highlight some suggestions, drawn from research, on how these difficulties might be mitigated.

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Information Sharing and Use in Small Groups

Studies in social psychology and small group research over the past 40 years have uncovered how information is made to serve many social functions during group discussion and decision making. While this *social* use of information is a natural aspect of group interaction, there are a number of resultant tendencies that can impede the effective use of information. In this section, we look at how information is channeled and construed by group members for social ends:

- Information as hidden profile
- Information as cognitive influence
- Information as social credit
- Information as social comparison
- Information as concurrence seeking

Information as Hidden Profile

Organizations assume that task-oriented groups would perform better than individuals working alone because group members can share and combine their information and knowledge to arrive at more optimal decisions. Unfortunately research has determined otherwise. In a study that has influenced small group research for many years, Stasser and Titus (1985) found that groups tend to discuss and incorporate into their decisions information that is known to all members (shared) at the expense of information that is known to a single member (unshared). Thus, although we might expect group discussion to surface and use the relevant information possessed by all group members so as to arrive at a well-informed decision, this may not in fact happen (Stasser & Titus, 2003).

Research on group information sampling analyzed the performance of groups engaged in *hidden profile* tasks. A hidden profile exists when group members individually possess only part of the information required to reach an optimal decision or solve a problem confronting the group, so that the group needs to pool this information to make the optimal decision or to solve the problem. The profile, or complete problem representation, is initially hidden and emerges only after all decision-relevant information is incorporated into the group's information set.

In their study, Stasser and Titus (1985) simulated a political caucus by having group members read and discuss candidate descriptions that contained partial information biased against the most favorable candidate. Even though groups could have produced unbiased profiles of the candidates through discussion, they decided on the candidate initially preferred by many members rather than the most favorable candidate. By comparing members' recall of candidate attributes before and after discussion, the authors saw that discussion tended to perpetuate, not to correct, members' biased views of the candidates. Stasser and Titus (1985) proposed two explanations. First, group members' recall would be imperfect, especially when there is much information that can be sampled and when the meeting is lively. Second, members may feel that their main responsibility is to defend the alternative that seems best so they assume the role of advocates who introduce information selectively for discussion.

This research has implications for organizations that form groups to make important decisions based on the expectation that *'many heads are better than one'*. If information that is critical for making the optimal group decision is unshared (i.e., uniquely held by single members), then groups' inability to recall and discuss unshared information may result in suboptimal decisions. When group members cannot effectively pool their unique information, the quality of their decision making may be no better than that of individuals.

A related phenomenon is the *common knowledge effect* observed by Gigone and Hastie (1993) in their study of groups: "The influence of a particular item of information is directly and positively related to the number of group members who have knowledge of that item before the group discussion and judgment" (p. 960). They found that groups did not adjust their judgments to reflect unshared information that was pooled during group discussion. Instead, information during discussion served mainly as justification by members for their judgments, rather than as input into the judgment of the groups. Thus, "placing individuals in groups did not result in better judgments than would have been obtained by simply averaging together the judgments of the same individuals" (p. 973).

The difficulties of hidden profiles and the common knowledge effect may be exacerbated in, for example, IT project teams that are tasked with implementing interdepartmental or interorganizational information systems. Insofar as these teams are composed of members from disparate functional areas with knowledge unique to their domains, the sharing and integration of hidden but relevant information becomes a major challenge.

Information as Cognitive Influence

Kameda, Ohtsubo, and Takezawa (1997) analyzed decision-making groups as socio-cognitive networks, in which group members share not only social links, but also cognitive links in terms of shared information and arguments. A group member is then described as *cognitively central* when that person's knowledge is predominantly shared with other members (i.e., has many information links to others). On the other hand, a *cognitively peripheral* member knows mostly unique items (i.e., has few information links to others). Kameda et al. (1997) showed that cognitively central members were more influential and participated more during group discussions. They reasoned that cognitively central members can provide social validation for other members' knowledge most frequently in the group, and that, concurrently, their knowledge is confirmed by other members, leading to the perception of the cognitively central members' well-balanced knowledge or expertise in the focal task domain. In this way, social validation becomes a key to information use in a group; unshared information that cannot be validated socially is then underutilized in groups (p. 298).

Kameda et al. (1997) calculated a centrality score for each member based on the number of arguments that the member shared with others. More than 110 students at Hokkaido University were given a group decision task — to make a parole decision for two juvenile prisoners. Information about positive and negative traits of each prisoner was distributed and controlled. Participants then met in groups, each consisting of two majority members who endorsed one prisoner and one minority

member who endorsed the other. The results showed that “members exerted stronger, more definite social influence on the final consensus when they were cognitively central than when they were peripheral in a group. ... cognitively central members acquire pivotal power in a group and can exert not-negligible influences on group consensus ... central members took a more active part in group discussion and were more resistant to other members’ persuasion that were cognitively peripheral members” (pp. 304–306).

Cognitive centrality may be related to the idea that sharing unique information can carry some social risk. Conversely, communicating common information may be a method for a member to gain status in the group. By building a reputation as someone who is knowledgeable, a group member creates a socially secure place in the group. Indeed, Kameda et al. (1997) suggested that cognitively central people acquire a reputation as credible sources and, once this reputation is established, they risk less when they do communicate unique information.

Many decision-making committees are characterized by an uneven distribution of cognitive influence among members. For example, in a management committee that is deciding about IT deployment, we might see a majority of cognitively central business managers who share much common knowledge, and a minority of IT managers who are cognitively peripheral with their specialized knowledge. In such situations, group decisions may be subject to the effects of the imbalance of influence and information noted above.

Information as Social Credit

When groups discuss much information that is common to the group, members evaluate each other as more competent, knowledgeable, and credible than when they discuss much unshared information. Wittenbaum, Hubbell, and Zuckerman (1999) referred to this as a *mutual enhancement* effect: “Shared information validates members’ knowledge and eases the interaction by helping members relate to one another. Those who communicate shared information receive positive evaluations from other members for doing so. Moreover, recipients of shared information feel better about their own task knowledge when another member mentions their information. Members who are positively reinforced (verbally or nonverbally) for communicating shared information may continue to do so because they enjoy the validation and encouragement from others. It may be this interactive validation process that fuels a group’s tendency to repeat previously mentioned shared information. That is, members may prefer to mention and repeat the kind of information that other members encourage and view as important” (p. 977).

Wittenbaum et al. (1999) asked participants to review resumés of two job candidates and then list ten pieces of information about them that they would share with a partner. In return, each participant received a list containing mostly shared information or mostly unshared information from an imaginary partner. Participants who communicated much shared information were perceived (by their partners and by themselves) as being more knowledgeable, task competent, and credible. Wittenbaum et al. (1999) suggested that “when group members communicate much shared information, all members may experience a collective high — judging

themselves and other members as quite capable” (p. 974). Focusing on common information leads to mutual enhancement: introducing and receiving common information establishes one’s competency and credibility. Significantly, this mutual enhancement was not due to the perceived opinion similarity or liking between participants and partners: it was due to “the validating role of the information rather than validation of opinions or liking” (p. 974). The effect may be more pronounced in new groups when unacquainted members discuss common information in order to put each other at ease, and to establish credibility and expertise.

In summary, mutual enhancement may be an important reason why groups focus discussion on shared information. If a member mentions shared information, others will positively value the communicator and themselves. Members who communicate shared information are positively reinforced for doing so, and members who communicate unshared information are negatively reinforced. The warm reception to communicated shared information may encourage members to repeat or communicate more shared information of a similar nature. Wittenbaum and Park (2001) observed that “not only are groups inefficient in accessing their unshared information, but if members do communicate unshared information, they may be undervalued for doing so” (p. 71). The net result is that group members may bias their discussions toward information that all members know.

If we return to the management committee that is deciding about the use of IT, we might imagine a scenario where managers share, repeat, and embellish the idea that *IT doesn’t matter*, based perhaps on a reading of the popular article and book with that title. Influenced by this mutual enhancement of their common knowledge, the committee might be predisposed to underestimate the strategic significance of IT. Avison, Gregor, and Wilson (2006) analyzed three major IT failures in Australia (in a utility company, university, and telecommunications startup) and concluded that it was shared managerial indifference about IT that contributed to the complacency and poor governance which scuttled the IT projects.

Research Study at the Center for Creative Leadership

The effects of common knowledge, cognitive influence, and mutual enhancement were discovered in laboratory experiments. Recently, a study of senior executives at the Center for Creative Leadership (CCL) in Colorado found evidence of the group tendencies we have discussed so far (Abele, Stasser, & Vaughan-Parsons, 2005). CCL offers top-level executives a course on leadership and decision-making styles. As part of the course, executives participated in a group decision exercise where they evaluated candidates for the presidency of a company’s product division. Participants in 25 small groups were given information about the company and the candidates. They then met with their groups in a small room with video recording and observation facilities. They discussed the candidates, ranked them, and recorded strengths and weaknesses for each candidate as a group.

Results showed that individuals were more likely to mention an item when more group members knew it prior to discussion. Thus, the executive teams were more likely to refer to information that was widely shared and unlikely to refer to information that was sparsely sampled before discussion. Moreover, common information was

more likely to be repeated once it was mentioned than was unique and partially shared information. Whether information was repeated during group discussion depended most directly on how many members had accessed the information before discussion. The study also found that members' cognitive centrality enhanced influence, so that members who shared more information links with others were more likely to get the group to adopt a solution that was close to their initial individual solution.

The researchers concluded that group discussions amplify common information and do not effectively pool unique information: whatever is commonly known before group discussion is intensified in the content of discussion, and the choice supported by what is commonly known will likely be the group's choice.

Abele et al. (2005) also noted that executives seemed to have selected information in a way that created common information that was socially valued. Executives subscribed implicitly to the belief that a certain set of information was important for making a hiring decision. There was a socially shared perspective that some types of information were more important or relevant for that decision. These *information norms* not only predicted whether an item was mentioned but also how many group members were likely to look it up. The normative use of information defined the socially accepted way of solving the task.

Information as Social Comparison

In addition to studies on how groups use their shared and unshared information, another body of research discovered that group discussion tends to enhance the initially dominant point of view — there is an accentuation of the initial average response of the group. A number of studies have observed that the average post-discussion response will tend to be more extreme in the same direction as the average of the pregroup responses (Myers & Lamm, 1976; Myers, 1982). Myers and others suggest that a fundamental social process combining informational influence and social comparison can explain this *group polarization*.

Informational influence happens when persuasive discussion arguments predominantly favor the initially preferred alternative, thereby enhancing it. Using *persuasive arguments theory*, Hinsz and Davis (1984) reasoned that group-induced shifts occur because certain persuasive arguments are not known initially by all members. During discussion these unshared arguments are introduced to those who have been unaware of them, and these novel arguments then persuade them to change their opinions on the issue. The persuasiveness of an argument depends on its validity (do members feel it is correct and accurate) and novelty (do members feel it is new and interesting). Myers (1982) also noted that spoken arguments tend to favor the socially preferred choice more predominantly than do privately processed arguments. Responding to other people in conversation elicits a more one-sided line of thought than does private contemplation of an issue (p. 143).

Social comparison arises because people are motivated to perceive and present themselves favorably, so that exposure to others' positions may stimulate them to adjust their responses in order to maintain a desirable image. During discussion, group members continually compare their opinions with others and adjust their opinions in the direction valued by others. An important mechanism that induces

polarization is one-upmanship (Isenberg, 1986), where group members become aware of shared positions during discussion, and try to surpass each other by moving their positions in the socially desirable direction.

Persuasive arguments and social comparison can work together to induce group polarization in this way: persuasive arguments introduced or generated during group discussion cause members to move toward the collective position; this then gives rise to social comparison that causes people to move beyond the original collective position.

A behavior linked to polarization is *risky shift*, when group discussion leads members to prefer more risky decisions than they would if acting alone (Stoner, 1968). One explanation of this shift, again based on social comparison, is that during discussion we compare our decision with the decision of others. At the outset we may think of ourselves as being fairly risk taking, perhaps because this is considered a valued trait in Western societies. If, during group discussion, we realize that we are not particularly risk seeking compared to others, we then increase the level of risk of our decision when asked to remake the decision. The reverse cautious shift can occur in situations where caution rather than risk is the socially valued trait. When management teams are evaluating innovative but risky IT projects, it is possible to see how an unwarranted shift toward excessive risk avoidance or risk taking can bias the decision making.

Information as Consensus Seeking

Groupthink occurs when people working in highly cohesive groups strive for concurrence to such an extent that it undermines their ability to seek and use information, and to consider alternative explanations (Janis, 1982). This can result in complacency, shared misperceptions about self and others, and a failure to consider alternative interpretations of the available information. Groupthink was discovered by Irving Janis, who analyzed a number of major failures in US foreign policy decision making (Bay of Pigs invasion; escalation of Vietnam War; Watergate cover-up). In each case, decisions were made by a cohesive group of people who were smart, experienced, motivated, and respected for their expertise. Despite these qualities, the decisions they made led to disastrous outcomes. Janis (1982) attributed the errors to a tendency of members of cohesive groups to neglect, censor, or rationalize information in order to maintain group solidarity. He used the term *groupthink* to refer to “a mode of thinking that people engage in when they are deeply involved in a cohesive in-group, when the members’ strivings for unanimity override their motivation to realistically appraise alternative courses of action” (p. 9).

There are three symptoms of groupthink. First, group members share a feeling of invulnerability, which leads to optimism and a willingness to take risks. Second, group members are close-minded, collectively rationalizing or discounting aberrant information, and maintaining stereotyped views of threats or rivals. Third, group members press toward uniformity, sustaining a shared impression of unanimity through self-censorship as well as direct pressure against dissenting views. As a result of these perceptions of invulnerability and solidarity, the group’s seeking and use of information is compromised, and decision making becomes defective.

Specifically, members fail to survey alternatives and objectives adequately; do not examine risks of preferred choice or reappraise alternatives that were initially rejected; search for information poorly; process information in a biased, selective way; and do not make contingency plans (Janis, 1982). Groupthink is more likely when decision makers are members of a cohesive group, when organization structure insulates the group or lacks norms to require methodical procedures, and when the decision situation is highly stressful due to external and internal threats. Threats can cause the group to close ranks and rely on each other for social and emotional support, thereby heightening the desire to seek concurrence and consensus.

Recently, groupthink was identified as a major cause of the faulty intelligence assessment on *weapons of mass destruction* in Iraq. The US Senate Select Committee on Intelligence Report concluded that intelligence community personnel “demonstrated several aspects of groupthink: examining few alternatives, selective gathering of information, pressure to conform with the group or withhold criticism, and collective rationalization” (US Senate Select Committee on Intelligence, 2004, p. 18). Groupthink can be prevented. The same team of President Kennedy and his advisors that launched the disastrous Bay of Pigs invasion (a textbook example of groupthink) subsequently handled the 1962 Cuban Missile Crisis effectively, creating a model of crisis management.

Summary

In the Table 8.1 below, we summarize the various social roles that information can play during group deliberation, and how they can impede the pooling and collective use of information.

Table 8.1: The social roles of information.

Social roles of information	Research concepts	Group tendencies
Information as hidden profile	Hidden profiles, common knowledge effect	Groups discuss shared more than unshared information
Information as cognitive influence	Cognitively central and peripheral members	Cognitively central members are more influential
Information as social credit	Mutual enhancement, social validation	Group members socially validate each other's knowledge
Information as social comparison	Group polarization, shifts in decision choices	Groups accentuate their initially dominant point of view
Information as concurrence seeking	Groupthink, close-minded decision making	Groups discount information that threatens group cohesion

Under certain decision-making conditions, such as when discussion time is short, when deliberation is dominated by a few individuals, and when members engage in one-upmanship, these group information tendencies could reinforce each other, eroding the quality of the decision process even further.

Information Practices for Group Deliberation

Our discussion of the social dynamics of group information use can help us understand why effective decision making by organizational groups is so hard. What might be done to militate against some of these difficulties? Again we turn to research — from the information systems and social psychology disciplines — that has produced prescriptive implications. These implications fall into six areas: information access, use of group support systems (GSS), group diversity, expert roles, deliberation process and information norms.

Information Access

Studies have found that providing access to information during discussion can enhance group information processing. For example, Hollingshead (1996) observed that members who kept their information sheets during discussion mentioned more information than those who relied on memory. Wittenbaum, Hollingshead, and Botero (2004) reported that access to information during discussion did improve hidden profile solution when group members had information sheets that identified which pieces were shared and which were unshared. Furthermore, it may be helpful to provide group members with access to a database where accuracy of information can be checked, thereby reducing the social risk of introducing new information that other members might find to be inaccurate. Parks and Cowlin (1996) noticed that unique information was more likely to be mentioned in groups when databases of information were available during decision-making and could be used to confirm information. Mentioning and repeating unique information became less risky because there was an objective way of verifying the information.

Group Support Systems

A growing number of studies in the information systems field examine the effects of using computer-based GSS on the hidden profile problem and group polarization. Dennis (1996) studied groups working on a *hidden profile* task in which each participant received different information that they needed to combine to determine the optimal decision. Verbally interacting groups exchanged only a small portion of the available information and made poor decisions as a result. Groups interacting using a GSS exchanged about 50% more information, providing sufficient information to enable these groups to arrive at the optimal decision. Unfortunately, GSS groups did not actually process this information accurately — only one GSS group chose the optimal decision.

Lam and Schaubroeck (2000) compared a GSS with face-to-face group discussion on characteristics of information exchange and decision quality. Participants given conflicting information tended to share more of their unique data and argued more

critically when using the GSS than when meeting face-to-face. However, when information was consistent among members, there were no such differences. The GSS groups also significantly outperformed the face-to-face groups in agreeing on the superior hidden profile option, especially when there was no prediscussion consensus.

El-Shinnawy and Vinze (1998) compared *group polarization* effects in over 30 groups of MBA and other students who met face-to-face and *via* a GSS to make decisions on two business problems (Intel's reaction to the Pentium chip problem, and its overall business strategy). When group members used a GSS, group polarization occurred to a significantly lesser degree than in face-to-face situations. In the GSS setting, members did not feel that they were being pressurized socially or being persuaded by dominant members, resulting in lower group polarization.

Somewhat differently, Sia, Tan, and Wei (2002) found that using a GSS was associated with *stronger* group polarization. They reasoned that in the GSS setting, anonymity or the removal of visual cues lowered social presence, encouraging group members to contribute more novel arguments and to display one-upmanship behavior, thereby increasing group polarization. When the identity of individuals was made known, group polarization was reduced in both settings.

The use of GSS continues to grow and evolve. As the technology becomes more flexible and as people become more sophisticated users, some of the negative effects seen in earlier studies may become less important. For now, we note the capacity of GSS to facilitate information access and retrieval, and to reduce social pressures and the social risk of sharing information.

Group Diversity

The relationship between group diversity and group performance is complex. Jehn, Northcraft, and Neale (1999) conducted a field study of 92 workgroups in one of the top three firms in the household goods moving industry. They analyzed the influence on workgroup performance of three types of diversity: demographic diversity (sex, age), value diversity (goals, beliefs), and *information diversity*, which refers to members' differences in knowledge and perspectives. Information diversity was found to be more likely to lead to improved performance when tasks were nonroutine: "For a team to be effective, members should have high information diversity and low value diversity. For a team to be efficient, members should have low value diversity. For a team to have high morale ..., it should be composed of participants with low value diversity" (Jehn et al., 1999, p. 758). If people in a group do not like each other and spend their time in personal conflict, the group as a whole will perform badly. But when the underlying tasks are complex and call for a degree of creativity, dissenting views and a measure of conflict about how to perform those tasks lead to better outcomes. Among the various types of diversity, information diversity appears to be the most important variable.

Expert Roles

Stasser and Birchmeier (2003) suggested that one way to enhance the consideration of uncommon or unique information is to assign *expert roles* to group members. Research has generally found that groups are more likely to discuss unshared

information and correctly solve a hidden profile when members are known experts. In laboratory groups, assigned expertise has increased the mentioning and repetition of unique information. Also, unshared information was better remembered by members after discussion in groups composed of experts rather than nonexperts. Assigning expert roles to group members can thus enhance the consideration of uncommon or unique information (Stasser & Birchmeier, 2003). Moreover, based on their study at the CCL, Abele et al. (2005) suggested that expert roles, and especially differentiated expert roles, may reduce the undesirable effects of cognitive centrality. If expert roles are emphasized during a discussion, and if experts are expected to contribute information that others do not have, then in terms of cognitive influence, experts are necessarily cognitively peripheral (because of their unique information). In such a setting cognitive centrality may not be an asset for promoting an individual's own position.

Deliberation Process

The quality of a group's deliberation is a function of the procedures that the group adopts to seek, evaluate, and process information. Davis (1992) argued that procedural routines shape how a group defines its task, how discussion is scheduled, how preferences are made known, and how a rule for arriving at a decision is selected and used. Hollingshead (1996) discovered that when face-to-face groups were asked to *rank order* the decision alternatives (three companies as potential investments), group members mentioned more information and solved a hidden profile problem better than groups who were asked to simply select one best alternative. With regard to avoiding groupthink, Janis (1982) and others have identified measures by analyzing the practices of effective decision groups. To reduce conformity tendencies, the group should create an environment that encourages the frank exchange of dissimilar views. The leader should be impartial and avoid stating preferences at the outset. To counter close mindedness, the group should actively seek information from outside experts, including those who can challenge the group's core views. The group could divide into multiple subgroups that work on the same problem with different assumptions. A member could play the role of a devil's advocate who looks out for missing information, doubtful assumptions, and flawed reasoning.

Information Norms

The cultural norms and values of the group can have a powerful effect on members' information behaviors. In one of the few studies to focus directly on group norms in decision making, Postmes, Spears, and Cihangir (2001) found that when groups have a norm of critical evaluation, they are more likely to solve correctly a hidden profile and to value positively unshared information compared to groups with a consensus norm. The content of group norms is an important factor influencing the quality of group decision processes and may also be related to the group's proneness for groupthink. In a series of case studies at a law firm, an engineering company, and a public health agency, Choo et al. (2006) found that strongly held information values related to sharing, proactiveness, integrity, and transparency accounted significantly for the variance in information use outcomes in the study organizations.

Table 8.2: Major impediments and prescriptive possibilities.

Social roles of information	Group tendencies	Prescriptive possibilities
Information as hidden profile	Groups discuss shared more than unshared information	<ul style="list-style-type: none"> • Provide information access before and during discussion
Information as cognitive influence	Cognitively central members are more influential	<ul style="list-style-type: none"> • Assign or recognize expert roles
Information as social credit	Group members socially validate each other's knowledge	<ul style="list-style-type: none"> • Increase group information diversity
Information as social comparison	Groups accentuate their initially dominant point of view	<ul style="list-style-type: none"> • Raise cognitive vigilance during deliberation
Information as concurrence seeking	Groups discount information that threatens group cohesion	<ul style="list-style-type: none"> • Establish norms of critical evaluation, open sharing • Introduce the use of group support systems

Implications for Information Management

Groups and group discussion remain an important means for organizations to identify goals, consult with interested parties, and gain commitment to a course of action. Group deliberation can also combine the information and expertise of members, but as this paper has tried to show, this information sharing is not automatic and is often problematic. We summarize the major impediments as well as prescriptive suggestions that research has identified in the Table 8.2 above.

The practical implications for information management might include the following:

- increase information and knowledge sharing before the start of group decision process, thus enlarging the pool of common information;
- make information more accessible (*easier to retrieve*) and more assessable (*easier to evaluate*) during group deliberation;
- differentiate expert roles based on group members' specialization and experience, so as to encourage the introduction and use of unique information;
- consider the distribution of information and influence among group members, identifying members who are cognitively central and peripheral;
- engender a safe and open information culture that promotes information sharing and use.

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