

Chapter 1.1

Social Influence and Human Interaction with Technology

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INTRODUCTION

This chapter discusses how information that supports innovation flows throughout an organization, the construction and effects of team composition, the innovative processes that teams employ, and the development, implementation, and evaluation of systems used to manage the flow and distribution of information. As Allen and Cohen (1969) point out, effective communicators rise in their organizations as a result of their willingness to engage information—by reading and conversing outside of their immediate settings, but as Tushman (1977) explains, that kind of outreach precipitates special boundary roles, which come about to satisfy an organization's communication network's role of bridging an internal information network to external sources of information. Thompson (1965) investigates the conditions necessary to move an organization from a single-minded focus on productivity to one of those that facilitate innovation. At times, that means engaging rival firms, and von

Hippel (1987) demonstrates that information sharing is economically beneficial to the organizations doing the trading. Freeman's (1991) finding that information regarding innovative processes entails the development of effective information networks confirms how important it is for successful innovation that there exist effective external and internal communication networks, and that individuals collaborate to share information. von Hippel (1994) returns later in the chapter to qualify this point by showing that there is a direct correlation between the level of stickiness and the expense related to moving that information to a location where it can be applied to solving a problem.

Bantel and Jackson (1989) begin the section on team composition by suggesting that certain demographic factors affect a team's ability to be innovative, but resource diversity—including communication ability—is ultimately essential to innovation. For Howell and Higgins (1990), identifying a champion among a team's members will facilitate innovation, while Anconia and Caldwell (1992) find that the greater the functional diversity, the more team members communicated outside of

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their teams' boundaries. Scott and Bruce (1994) take a different vantage point, focusing on the individual and his or her influence on and adaptation to an organization's climate for innovation. The section on innovation process begins with Hage and Dewar (1973), who conclude that ultimately, the values held by an organization's elite group are more significant when predicting innovation than the values of any single leader or even the entire staff, but the correlation between a single leader and innovation should not be dismissed as a valid predictor of an organization's ability to innovate. Even so, as Daft (1978) has found, there is evidence to support the theory that there can be opposing innovative processes in an organization: one that begins at the lower levels of its hierarchy, and one that percolates down from upper levels. Even more radical, Quinn (1985) proposes that corporate executives understand and adapt to the fact that the innovation environment is filled with surprise, characterized by chaos, and virtually immune to control. The chapter concludes with Porter and Millar's (1985) article describing how information technologies affect management strategies and how these strategies are disseminated throughout a firm.

FLOW OF INFORMATION

In 1969, Allen and Cohen set out to explain the course that scientific and technological information takes in research centers and laboratories. Are there distinct pathways that information travels as it moves from external sources to people working with research labs? Their study, premised on the idea that research done while excluding outside information into the lab will ultimately fall short, consisted of examining patterns of technical communication in two different research labs, each of which had identifiable technical communication networks that arose from the nature of social interaction and work structure. The most effective communicators, those the authors refer

to as the "sociometric stars," rose to prominence in the lab environment through their willingness to "either make greater use of individuals outside the organization or read the literature more than other members of the laboratory" (p. 12). In other words, either all members of an R&D team proactively seek the latest information regarding recent developments in the field, or managers bring in knowledgeable people to serve as consultants to the staff.

They also found evidence in existing literature that the lesser the rate of internal communication in an organization, the more chance there is that the research team will perform poorly, suggesting to managers that there is a need for external sources of information. Managers and project leaders can stave off the need for external consultants by recognizing that there are different rates of information flow when one considers the different demands spurred by organizational loyalty and structure, and the value of shared experience as opposed to the organizational schema that are inculcated in an academic setting. In other words, the affiliations, loyalties, and social relationships that develop among team members can be thought of as one way to see how the world works; conversely, training and information received in an academic setting and then brought into a research facility can be thought of as a different coding scheme that "introduces the possibility of mismatch and attendant difficulties in communication between organizations" (p. 12). Having team members who understand both schema, and therefore serve as translators, can mitigate the negative effects of such a mismatch.

Allen and Cohen identify previous literature concerning the effect of "prestige or status hierarchies in a social system [on] the flow of information." Essentially, those of high status will be more sociable and therefore more communicative with one another, whereas those of lower status tend not to like one another or communicate effectively with one another, "direct[ing] most of their communication toward the higher-status members,

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