Chapter X

How Hard Can It Be to Communicate?
Communication Mode and Performance in Collaborative R&D Projects

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ABSTRACT
Survey data and case studies of collaborative R&D projects are used to analyze the relative usage of communication modes [e.g., face-to-face (F2F), categorized as soft modes, versus written, categorized as hard modes]. Incremental (versus radical) innovation projects tended to use more written communication, as did those in which project managers defined the significant problems. Those with high ambiguity or equivocality did not rely more on F2F, but predictably, conflict and goal changes negatively impacted communication and performance. Despite managers’ insistence that F2F communication is critical, only the use of written communication was associated with project success. Soft communication modes (F2F) may be needed to set direction in projects involving radical innovation, or any other project in which goals are unclear and not well agreed upon. However, when the innovation is incremental, and goals are understood and accepted, the use of hard communication modes (written) is no deterrent to success.
INTRODUCTION

Does the fact that virtual, geographically dispersed research and development (R&D) teams have to depend more heavily on computer-mediated and written forms of communication, designated “hard” modes in this chapter, have an effect on project success? Specifically, as might be predicted from intuitive thinking about communication modes, does this put them at a disadvantage?

Described in this chapter is research that examines these general questions. It begins with a succinct discussion of past research on communication, colocation, and project performance, which focuses on the relative effect of communication modes, described along a continuum ranging from hard to soft modes, on project communication and performance characteristics.

Hard modes are tangible channels of communication, such as documents and computer-mediated communication (CMC), that rely on “hard” technologies. Soft modes utilize social interaction, or “soft” technologies, archetypically through face-to-face (F2F) contact. Virtual teams and geographically dispersed collaborative projects, by definition, must rely to a greater extent on hard modes of communication than do nonvirtual, colocated teams. Does that put such projects at a disadvantage in terms of achieving success, as extant research and theory on communication modes suggests it might? The conclusion of the literature review is mixed, and it is suggested that this is due to significant variables of the function of communication within project management that were neglected in past research.

Several hypotheses were developed and tested using a survey of collaborative R&D projects sponsored by a private consortium engaged in funding research on intelligent systems and robotics technologies, called PRECARN. The sample \( (n = 25\) projects) constituted 80% of all the projects sponsored by PRECARN. While most of the hypotheses were confirmed, there was one interesting finding. While managers insist that soft communication modes were the most important for project success, the data did not provide strong support for that claim.

The fact that hard modes were significantly and positively associated with project success suggests that virtual teams may not be at a disadvantage after all, due to their more heavy use of harder modes of communication, provided that certain criteria are met. The chief criterion appears to be the lack of conflict or equivocality and a solid agreement among project participants as to the goals of the project. The chapter concludes with a discussion of the situations in which soft modes may be necessary, based on normative theory and case analyses from the larger research project. From the analysis, several suggestions for management are made regarding the situations in which virtual teams may effectively rely to a large extent on hard modes only.
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