

# Building knowledge bridges: Managing knowledge transfer between projects

## ABSTRACT

This paper focuses on how organizations can manage the transfer of knowledge between projects. Based on Brady and Davies (2004), three interrelated levels of project-based learning are distinguished: (1) learning in projects, (2) project-to-project learning, and (3) project-to-organization learning. We consider all three levels, but with a special focus on project-to-project learning. Based on an in-depth study of knowledge transfer between large infrastructural projects we answer the central question: “What strategies for managing knowledge transfer between projects can be distinguished, and how do these strategies contribute to this transfer?”

Managing project-to-project learning presents a challenging dilemma (Agterberg et al., 2010; Brown and Duguid, 2000), since a balance is required between management control to achieve knowledge integration (across projects) on the one hand, and emergent processes of knowledge creation and sharing that take place in practice (in project teams) on the other. Based on Agterberg et al.’s (2010) work on managing intra-organizational networks of practice, this dilemma is unraveled into four dynamic relationships between knowledge sharing on the one hand, and four forms of “embeddedness” on the other: (1) *organizational embeddedness*: the extent to which the knowledge created and shared in projects is relevant for and integrated in the formal organization; (2) *embeddedness in practice*: the extent to which the knowledge created and shared is relevant for and integrated in the project-specific practices; (3) *structural embeddedness*: the extent to which project team members are connected to one another (Granovetter, 1985) and know who knows what and how to reach them (Contractor and Monge, 2002; Nahapiet and Ghoshal, 1998) – both within and across project teams; and (4) *relational embeddedness*: the extent to which relationships within and across project teams are characterized by strong social ties (Granovetter, 1985) and elements such as trust, mutual expectations, and identification (Nahapiet and Ghoshal, 1998).

Each of these forms of embeddedness is assumed to be dynamically related to knowledge transfer between projects. A higher level of embeddedness in practice, for instance, is positively related to learning in projects, but can be problematic in terms of project-to-project learning since practices may be very project-specific. A higher level of organizational embeddedness, may be positively related to project-to-organization learning, but may frustrate project-to-project learning since the knowledge is insufficiently related to the project-specific practices. The more project team members are structurally and relationally embedded *within* their project team, the higher the level of learning in projects is likely to be – but the lower the level of project-to-organization and project-to-project learning is likely to be, for which embeddedness *across* teams would be more beneficial.

We conducted an interpretative case study to identify strategies for managing project-based learning. This study was conducted within City Engineering, an engineering bureau responsible for large infrastructural projects. City Engineering is a project organization, for

which project-to-project learning is of great importance. Twenty-five interviews were conducted concerning three large projects, each containing subprojects within the larger project.

Our findings show that three different strategies are deployed to cope with the dilemma described above, each focusing on different levels of learning, different forms of embeddedness and using a different approach towards managing knowledge sharing in terms of Van den Hooff and Huysman's (2009) distinction between *emergent* (focusing on the social dynamics between people and their daily tasks) and *engineering* (focusing on management interventions to facilitate knowledge transfer) approaches:

1. *Fostering knowledge flows*: a strategy that has a primary focus on learning in projects, following an emergent approach to facilitate knowledge creation and transfer within project teams. This strategy emphasizes embeddedness in practice over organizational embeddedness, and structural and relational embeddedness *within* project teams over *across* project teams.
2. *Building knowledge bridges*: a strategy that primarily focuses on project-to-project learning, applying instruments from both the emergent and the engineering approach in order to make knowledge "flow" across project boundaries. The main challenge in this strategy is finding a balance in terms of embeddedness: a balance between embeddedness in practice and organizational embeddedness in terms of knowledge, and a balance between 'within project teams' and 'across project teams' in terms of structural and relational embeddedness.
3. *Institutionalizing knowledge infrastructure*: a strategy that primarily focuses on project-to-organization learning, applying an engineering approach to institutionalize the knowledge created and shared in project teams. This strategy focuses on organizational embeddedness over embeddedness in practice, and on structural and relational embeddedness across teams over within teams.

Based on our findings, we conclude that the *building knowledge bridges* strategy seems to be highly appropriate for realizing project-to-project knowledge transfer, since it balances the emergent, practice-related knowledge creation and sharing processes within projects with the engineering processes related to organizational integration of dispersed knowledge. Individual experts are the primary "knowledge bridges" between projects: they are exchanged between project teams, broadening embeddedness in practice and enhancing structural and relational embeddedness across teams. This is supported by some codification of knowledge to increase knowledge use across contexts and enhance organizational embeddedness.

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