

The Effects of Geographical and Functional Diversity of Collaborators on Quality of Knowledge Generated

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Abstract : Introduction: There is increasing recognition that diverse streams of knowledge can often be recombined in novel ways to generate new knowledge. However, knowledge recombination theory has not been applied to examine the effects of collaborator diversity on the quality of knowledge such collaborators produce. This is surprising because one would expect that a collaborative team with certain aspects of diversity should be able to recombine process elements related to knowledge development, which are relatively tacit, but also complementary because of the collaborator's varying backgrounds. Theory and Hypotheses: We propose to examine two aspects of diversity in the environments of collaborative teams to try and capture such potential recombinations of relatively tacit, process knowledge. The first aspect of diversity in team members' environments is geographical. Collaborators with more geographical distance between them (perhaps working in different countries) often have more autonomy in the processes they adopt for knowledge development. In the absence of overt monitoring, such collaborators are likely to adopt differing approaches to knowledge development. The sharing of such varying approaches among collaborators is likely to result in greater quality of the common collaborative pursuit. The second aspect is diversity in the work backgrounds of team members. Such diversity can also increase the potential for knowledge recombination. For example, if one or more members are from a manufacturing center (versus all of them being from a purely R&D center), such members will provide unique perspectives on the implementation of innovative ideas. Again, knowledge that has been evaluated from these diverse perspectives is likely to be of a higher quality. In addition to the above aspects of environmental diversity among team members, we also plan to examine the extent to which individual collaborators are in different environments from the primary innovation center of their employing firms. Proposed Methods: We will test our model on a sample of firms in the semiconductor industry. Our level of analysis will be individual patents generated by these firms and the teams involved in the generation of these. Information on manufacturing activities of our sample firms will be obtained from SEMI, a proprietary database of the semiconductor industry, as well as company 10-K reports. Conclusion: We believe that our results will represent a preliminary attempt to understand how various forms of diversity in collaborative teams impact the knowledge development process. Our dependent variable of knowledge quality is important to study since higher values of this variable can not only drive firm performance but the broader development of regions and societies through spillover impacts on future innovation. The results of this study will, therefore, inform future research and practice in innovation, geographical location, and vertical integration.

Keywords : innovation, manufacturing strategy, knowledge, diversity

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