

"DIFFUSION, NETWORK STRUCTURE & INFORMATION ADVANTAGE"

Abstract:

We examine relationships between social network structure, information diversity, and individual performance. Specifically, we investigate which network structures influence access to novel information, and whether these relationships explain performance in information intensive work. We trace the word level diffusion using a ten month panel of email communication. Then we build and validate an analytical model of information diversity, develop hypotheses linking size and diversity to the distribution of novel information among information workers. We test our theory using statistical evidence linking message content to project revenue among employees at a medium sized executive recruiting firm.

Our results indicate that:

- (1) The total amount of novel information flowing to actors increases in their network size and network diversity.
- (2) The marginal increase in information diversity decreases in actors' network size.
- (3) Network diversity contributes to performance even when controlling for the positive performance effects of access to novel information. This suggests additional benefits to network diversity beyond those conferred through information advantage.
- (4) Traditional demographic and human capital variables have surprising effects on access to diverse information, highlighting the importance of network structure for information advantage.

The methods and tools developed are replicable and can be readily applied to other settings in which email is widely used and available, opening a new frontier for the analysis of networks and information content.