

## Social Network Roles in Organizations: Influencers, Bridges, and Soloists

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**Abstract :** Organizational hierarchy, traditionally composed of individual contributors, middle management, and executives, is enhanced by the understanding of informal social roles. These roles, identified with organizational network analysis (ONA), might have an important effect on organizational functioning. In this paper, we identify three social roles - influencers, bridges, and soloists, and provide empirical analysis based on real-world organizational networks. Influencers are employees with broad networks and whose contacts also have rich networks. Influence is calculated using PageRank, initially proposed for measuring website importance, but now applied in various network settings, including social networks. Influencers, having high PageRank, become key players in shaping opinions and behaviors within an organization. Bridges serve as links between loosely connected groups within the organization. Bridges are identified using betweenness and Burt's constraint. Betweenness quantifies a node's control over information flows by evaluating its role in the control over the shortest paths within the network. Burt's constraint measures the extent of interconnection among an individual's contacts. A high constraint value suggests fewer structural holes and lesser control over information flows, whereas a low value suggests the contrary. Soloists are individuals with fewer than 5 stable social contacts, potentially facing challenges due to reduced social interaction and hypothetical lack of feedback and communication. We considered social roles in the analysis of real-world organizations (N=1,060). Based on data from digital traces (Slack, corporate email and calendar) we reconstructed an organizational communication network and identified influencers, bridges and soloists. We also collected employee engagement data through an online survey. Among the top-5% of influencers, 10% are members of the Executive Team. 56% of the Executive Team members are part of the top influencers group. The same proportion of top influencers (10%) is individual contributors, accounting for just 0.6% of all individual contributors in the company. The majority of influencers (80%) are at the middle management level. Out of all middle managers, 19% hold the role of influencers. However, individual contributors represent a small proportion of influencers, and having information about these individuals who hold influential roles can be crucial for management in identifying high-potential talents. Among the bridges, 4% are members of the Executive Team, 16% are individual contributors, and 80% are middle management. Predominantly middle management acts as a bridge. Bridge positions of some members of the executive team might indicate potential micromanagement on the leader's part. Recognizing the individuals serving as bridges in an organization uncovers potential communication problems. The majority of soloists are individual contributors (96%), and 4% of soloists are from middle management. These managers might face communication difficulties. We found an association between being an influencer and attitude toward a company's direction. There is a statistically significant 20% higher perception that the company is headed in the right direction among influencers compared to non-influencers ( $p < 0.05$ , Mann-Whitney test). Taken together, we demonstrate that considering social roles in the company might indicate both positive and negative aspects of organizational functioning that should be considered in data-driven decision-making.

**Keywords :** organizational network analysis, social roles, influencer, bridge, soloist

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