The Structure and Workings of US Corporate Networks

Daliah Mani and David Knoke examine shareholding ties, joint ventures, and alliances in the United States, shedding light on their structure and evolution over time.

“NEIGHBORHOODS”
Mintz and Schwarz’s 1985 study of the ties between 500 public companies in the United States concluded that this network followed a “core-periphery” structure: a handful of densely connected companies constituted the core of this network. They proposed that this network structure indicated that a handful of companies held disproportionate influence in the U.S. economy, and controlled the flow of information among companies in the economy. In 2003, Davis, Yoo, and Baker, used a different methodology, and found that the largest corporations in the United States displayed a “small world” structure: companies formed clusters with dense ties connecting companies within a cluster, and relatively few ties across these clusters. Davis, Yoo, and Baker proposed that this network structure indicated that information flowed easily within the network, jumping from cluster to cluster, and spreading easily within clusters. Daliah Mani and David Knoke point out that these earlier studies (a) focused only on the largest firms in the economy, and (b) used methodology that aggregated across different parts of the network, and hence did not take into account differences between different parts of the network. They propose the concept of “neighborhoods,” to study the variation within the network, and focus on the structure of different parts of the network. Using newer methodology and economy-wide data, they find that the structure of the U.S. corporate network in 2008 varies widely, with the largest percentage of companies having only one alliance or joint venture with another company. Other parts of the network follow a small world structure, and yet other parts follow a core-periphery structure. This finding indicates that different companies experience power and information flow differently depending on whether their network neighborhood is a small world, core-periphery, or isolated with few ties.

NEIGHBORHOOD STRUCTURES
The “neighborhood” perspective means looking at a company and its ties to other companies, (and the ties that those companies have to others) to determine the structure of the company’s network neighborhood. A network neighborhood might have one of several structures.
• An unconnected series of companies, with little direct information from other companies.
• A core-periphery structure where a few densely connected firms form the core of the cluster, and control the flow of information to the other companies.
• A “small world” structure, where companies form multiple clusters and information flows easily from cluster to cluster, and then within each cluster.
• A more complex nested structure where clusters split into sub-groups, which further split into smaller sub-groups.

CORPORATE NEIGHBORHOODS IN THE UNITED STATES AND INDIA

Mani came up with the idea of neighborhoods when she was attempting to clarify the structure of Indian corporate networks. Up until then, corporate networks were generally considered to be organized as shown in the “small worlds” model. However, Mani found that the Indian business universe did not fully conform to this theory, and the idea of neighborhoods enabled her to reveal a richer and more complex network structure. Mani found that a substantial portion of the Indian network was composed of a nested cluster of firms that split into groups, and further split into sub-groups. Further, companies within these nested clusters had superior performance. The research that Mani conducted with Knoke makes it possible to compare American and Indian organizational networks. Their analysis indicates that the Indian corporate network is less fragmented than in the US, and ties between companies are more numerous and more complex, with significant parts of the Indian network following a nested structure.

NETWORK EVOLUTION ACCORDING TO TYPE AND CIRCUMSTANCES

Mani and Knoke also study whether different types of ties such as acquisitions, alliances, and joint ventures, have different structures, and how they change over time. Mani and Knoke find that the ties between U.S. companies are remarkably fluid, and change dramatically in conjunction with economic boom and bust cycles. Also, different types of ties respond differently to economic cycles. From 1990 to the economic boom in 2000, the alliance and joint venture networks increased in size and complexity, with the appearance of groups dividing into sub-groups (and so on). However, the economic recession in 2008 changed the business network landscape. The joint venture network became much more fragmented. The alliance network also became more fragmented and less complex, but the change was far less pronounced.

The research on network neighborhoods and the evolution of different types of corporate networks over time, suggests that organizations have access to different types of influence and information based on their neighborhood network structure and the types of ties companies have at particular points in time. Mani’s future research is aimed at uncovering how these differences translate into performance for companies in the United States.

APPLICATIONS IN THE WORKPLACE

Mani found that, in the specific context of India, companies residing within a neighborhood of nested companies had superior performance. Mani and Knoke’s research provides insight on the workings of business networks in the United States, the differences between the Indian and U.S. corporate networks, and suggests how networks evolve over time and according to type.

RESEARCH METHOD

The Reuters SCD Platinum system enabled the researchers to gather data on 40,501 acquisitions, alliances, and joint-ventures reported during the years 1982 to 2008 between companies in the United States. Mani and Knoke used cohesive blocking technique (proposed by Moody and White in 2003) to analyze the network.