Networks of Small Manufacturers in the USA:  
A Summary of Findings

Flexible Manufacturing Networks

Flexible manufacturing networks have taken their place in American rural and urban economic development policy since the mid-1980s. The formation of networks, interlinked firms patterned after European industrial districts in Denmark and Italy, has occurred across the United States. This brief report summarizes our interviews with firms in several such networks in the United States, in rural and in urban areas, in order to evaluate the performance of network structures and their effects on member firms.

Detailed interviews with firms in such networks indicate that networks provide services that are especially useful for new firms and very small firms (micro-enterprises). As economic and social institutions, the networks promote inter-firm interaction and collective learning in their regions.

Networks are aggregations of relationships among firms, distinct from short-term interactions. Relationships comprise four elements: mutual orientation, dependence upon each other, bonds of various kinds and strengths, and investments (of time as well as money) each firm makes in the relationships. Several advantages flow from bonds among firms. For firms large and small, network relationships (linkages) permit access to resources not found internally. These external resources are especially essential for small firms, and it is for small firms that cooperation is most important.

Networks in the United States

Networks in the United States have attempted to respond to the need for modernization of small and medium-sized firms. Small firms find that the demands of the market and the lack of resources (time as well as money) available to them keep them less than fully informed about potential markets and channels for their output. Most firms also struggle to maintain competitiveness as product and process innovation increases in importance. Networks make the entire process of information-gathering easier and less costly for firms, an issue most significant to the newest and smallest firms.

Do Networks Make a Difference?

Our research was based on the set of 27 “flexible manufacturing networks” identified in late 1992 in a Catalog of U.S. Manufacturing Networks prepared for the National Institute of Standards and Technology. Each of the networks, therefore, had been in existence for at least two years before contact from the research team. Of the 27 networks, 10 are in metal working industries (machining, metal fabrication), 10 in woodworking (secondary wood products such as furniture), four in textiles, one in defense, one in plastics, and two in

1The authors are Professor, Department of Geography, University of Florida, Gainesville, FL, and Assistant Professor, Department of Sociology and Rural Sociology, Louisiana State University, Baton Rouge, LA, respectively.

2This research was supported by the U.S. Department of Agriculture’s Cooperative State Research Education and Extension Service National Research Initiative Competitive Grants Program (NRICGP) Grant #93-37401-8989. Our sincere thanks to the many network coordinators and firm owners and managers who provided the information reported here.
mixed sectors. Twenty-one of the networks listed "marketing" as an objective.

We interviewed 61 firms in networks located in nine states between late 1993 and mid-1995 (24 in rural locations, 18 in urban networks), as well as 19 non-network firms in three states. The networks studied range from a small urban neighborhood in Chicago to statewide efforts in two southern states.

Several of the networks studied are based in community-development organizations which have added manufacturing networks to a wider existing array of services. Some of the networks are fortunate to have community entrepreneurs as coordinators. The links of the well-connected coordinators provide programs, such as joint training, that would be difficult for small firms to arrange on their own.

Network Services

Despite the varying local contexts—industrial sectors, economic development roles, size and number of members, funding sources—some generalizations about the services networks provide can be made. Networks provide some or all of at least seven categories of services:

- business advice,
- finance,
- information clearinghouse functions,
- large-scale marketing efforts,
- meetings,
- technical upgrading, and
- training.

These services generally correspond to those found in European contexts. We found a distinction between networks that serve primarily new, small firms and those that serve established firms. New firms have an incentive to join a network. Starting at a disadvantage in their awareness of opportunities (in terms of customers, suppliers, collaborators), they are more likely to gain from the ties initiated through network membership.

Information about markets and technical standards are examples of things large firms are able to acquire on their own, but which small firms need assistance to acquire. Flexible networks serve just such a function—in rural and urban areas alike. Older, established firms have less need for the full array of business advice, but often need technical upgrading or training services.

Interaction

The large statewide and rural networks do not attempt to hold general membership meetings, although meetings of subsets of the network take place. Instead, interaction tends to be initiated by the network coordinator and sustained by mutual interest of some firms. To a large extent, the function of these dispersed networks is to initiate contacts among potential collaborators, while at the same time providing a clearinghouse for services from which the firms can benefit.

A goal of most networks is to increase firms' familiarity and interaction with other firms. Our research found that networks clearly facilitate interaction, most notably on substantive matters such as management issues, product development, and new technology. Interaction among network firms on these topics is likely to take place at least weekly (an average of over four interactions per month). By contrast, non-network firms interact far less—slightly more than once monthly.

Collaboration

A major objective of networks is to promote collaboration. Indeed, this has happened in the study networks. In general, across six types of collaborative activities about which we asked, network firms are twice as likely to collaborate with other members as non-network firms are to collaborate with other firms in their local area. This is the case even though non-network firms were asked about their collaboration with any firms in their local area, which would include a much larger potential pool of collaborators than would the more limited number in a network.

Specifically, over half of all network firms engage in some sort of collaboration in marketing, compared to less than a fourth of non-network firms. Over a third of network firms collaborate on new product development. The majority of network firms interviewed are strongly involved in new product development. On average, over 50 percent of their products were new within the last five years. For non-networks firms, this figure was considerably lower—only 35 percent. Consequently, firms in flexible manufacturing networks see advantages in collaborating with their counterparts on new products aimed at new and existing markets (Figure 1).

Positive Impacts

Firms in networks were asked what impact the network had on their business operations. Two areas of impact were cited as positive most often: competitiveness and sales/production. Positive impact on competitiveness involves internal operations and organization of production, suggesting that companies had been able to lower costs of production. Sales and production increases were noted nearly as often, reflecting both contact with new customers and increases in overall output. To a large extent, these positive impacts reflect at least some of the major objectives of the networks, and they also reflect very different dimensions of business operations (Figure 2).

Local Economic Development

Flexible manufacturing networks are also considered to have potential
benefits for the wider community. They can do this by helping to make member firms more competitive and by improving the local economic base through sales outside the local area. In fact, these network goals may be in conflict. To promote collaborative activity and interaction increases dependence on other local firms. This decreases the proportion of a firm's sales that are exported—a typical measure of competitiveness and, overall, an objective of local economic development. Among the firms in our study, network firms were more likely both to purchase supplies locally and to sell to local customers, as opposed to using national and international sources and markets. Non-network firms were much more likely to serve customers outside their own state, including overseas markets. Non-network firms also tend to utilize suppliers at the national level—outside their local area and home state.

This suggests that, although networks are increasing the proportion of local business among their members, non-network firms are more likely to export and may be more competitive at the global level. Both types of market orientation are important: export sales indicate market competitiveness and less dependence on the local market, and sales to firms in the network suggest local integration and joint products, goals of most networks.

**Conclusion**

Overall, based on our interviews with firms in networks and those not in networks, flexible networks clearly appear to increase the interaction of firms. This interaction leads to collaboration in important areas of marketing and new product development. Firms that have joined networks believe that their involvement has led to greater competitiveness and to increased production and sales.

It also appears that networks which become "embedded" in their region tend to provide more for their member firms than do less embedded networks. Embedded networks are involved with and receive financial (and other) support from local institutions and influential residents, especially community entrepreneurs, drawing upon the resources of other organizations, public and private.

Networks do make a difference by providing business services to member firms, facilitating interaction among firms that results in information sharing and collaboration.

**For More Information**


Rosenfeld, Stu, *Firm Connections*, published bi-monthly by Regional Technology Strategies, Inc., PO Box 9005, Chapel Hill, NC 27515.

---

It is the policy of Purdue University that all persons shall have equal opportunity and access to its programs and facilities without regard to race, color, sex, national origin, age or disability. Purdue University is an Affirmative Action employer.