While there is agreement on the importance of the Australian manufacturing industry becoming internationally competitive by developing export markets or competing more effectively against imports, there is still significant disagreement on how it is to be achieved.

Tariffs are being reduced, thus exposing firms to greater competition but whether positive assistance measures (such as those proposed by the Australian Manufacturing Council in its report *The Global Challenge*) should be provided is still hotly contested. There are differences too over the meaning and implementation of competitiveness.

Our understanding of competitiveness and the role of firms' external relations has emerged from a number of sources. The economic success of certain regions, such as Emilia Romagna in Italy, based on concentrations of like firms into 'industrial districts', co-operative or collaborative strategies being adopted by leading firms, and the work of Michael Porter whose book *The Competitive Advantage of Nations* has offered new explanations for success in manufacturing. These lessons are being applied by governments in Europe and the United States in programs to build more collaborative relations between firms and to improve their competitiveness.

These 'networking' programs aim to assist firms become more competitive by building collaborative relations in production through specialisation, or in the provision of common services. Australian firms and a few industry associations are also applying these lessons. The networking approach perhaps also increases the scope for more successful local and regional intervention in industry policy.

One of the more remarkable developments of the last 20 years has been the re-emergence of interest in the industrial districts as significant economic and political units across a wide range of advanced industrial countries. The key examples are Emilia Romagna, Baden-Wurttemberg, Sakaki, Jutland and Smaland (Scandinavia), Rhone-Alpes (France) and Silicon Valley and Route 128 (USA).

They were not only economically successful, but also characterised by a system of production centred on interdependent networks of flexible and innovative small firms operating in a complex environment of co-operation and competition. The re-emergence of the industrial district has been the product of wider trends in markets and technologies.

Since the early 70s, there has been a discernible shift in demand away from standardised products. At the same time, advances in process technology now favour smaller production unit manufacture. Small firms are better placed to serve specialised markets and fragmented demand (through niche marketing strategies) or perform specialised manufacturing services for larger firms who lack the required flexibility to respond and innovate to meet quick shifts in demand.

Large firms have responded to the changes in markets and technologies by devolving more of their functions to suppliers and subcontractors, and developing closer relationships with selected partners. They are spreading product development costs among their subcontractors and seeking to capture the benefits associated with the flexibility of smaller organisations. Some large firms are beginning to resemble 'systems integrators' - a network hub that concentrates resources on co-ordinating and stimulating the supplier network, developing proprietary technologies, concept design, marketing and distribution. For example, the German motor giant, BMW, currently contracts out 75% of its components, and over 80% of parts purchased involve important collaborative work with a specialist subcontractor. BMW provides overall know-how and design services to the production network.

Changes in markets and technologies are producing a double convergence of small and large firms structures. Small firms are becoming more like large firms in that they are building wider forms of common services. The large firms are becoming more like the small as they seek to establish with their subsidiaries and subcontractors the collaborative relations that characterise the relationships of small firms in industrial districts.

All firms develop external relationships of some sort and some firms undoubtedly do it better than others - networks develop naturally. Network relationships can be distinguished from many other forms of inter-firm association in that network relationships assist in developing and augmenting a firm's core competencies and are usually the product of deliberate strategy.

There appear to be two major forms of network relationships: production networks and service networks. Production networks are based on the vertical buyer/seller
relationships. If an industry requires a large number of activities such as research and development, design, production and marketing of goods, different organisations will specialise in subsets of these activities accumulating idiosyncratic knowledge, experience and skills. The co-ordination of these activities can bind partners, through mutually-agreed plans and long-term obligations. For example, the role of a car assembler like Ford is to design and co-ordinate a complete production process. Most elaborately transformed manufactures of this kind are produced through some form of collaborative production arrangement involving diverse and specialised firms.

Production networks can comprise relatively small numbers of firms, independent of lead firm relationships. Wherever firms can co-operate and contribute a specialisation or expertise in the manufacture, design or marketing of an end product, production networks can form.

Information/service networks tend to be based on horizontal relationships, involving groups of firms that have certain technologies, related products, markets or customers in common. They typically attract groups of small firms, relatively independent of one another, seeking to achieve the sort of critical mass usually the domain of larger firms. They target areas where size is important - e.g. scale in export promotion, the provision of specialised training, research and product development, and strategic information gathering.

Companies such as Black and Decker, Country Road, AMECON, in addition to the automotive assemblers, are local examples of production networks. Black and Decker, for example, provided quality, product engineering, factor flow and layout and design expertise to Chief Kitchenware who are contract manufacturers of kitchen products.

The automotive assemblers now work closely with their suppliers on quality programs and the introduction of new production techniques. These relationships go beyond traditional sub-contracting relations as they involve the transfer of expertise. There are also established service networks in Australia. The Plywood Association of Australia, which draws together 17 plywood mills, has evolved since 1965 to deliver specialised business functions and services to companies in activities which they could not effectively provide or access themselves.

The Australian Furniture Research and Development Institute provides specialised engineering and scientific services to the furniture industry. Over 50 furniture manufacturers are now members of the institute. The Australian Electronics Development Centre provides training for the electronics industry, and all major companies in the industry participate.

However, there is considerable scope to develop networks further in Australia to improve the competitiveness of manufacturing industry. Development tends to be ad hoc and is not supported in a systematic way by public policy.

Networking offers a range of benefits for firms if successfully implemented. These include: reduced costs through scale in production and in the provision of services and functions; scope for increased specialisation and flexibility in production; opportunities for risk sharing in export marketing and research and development; and speedier access to information, new ideas, production capabilities and technologies.

Network programs recognise that firms can learn best from other firms through the transfer of expertise or competitive peer emulation. Networks reinforce these relationships, accelerate the learning capacity of firms and foster innovative behaviour. At the same time, network initiatives influence groups of firms and provide the means to impact more firms more quickly.

A sceptic may ask: if the benefits are so apparent and substantial, why does networking not occur to a greater extent or why, indeed, is it necessary for government to intervene?

Networks certainly occur 'naturally' (i.e. in the absence of public policy intervention), but in many instances firms will be reluctant to enter network relations. There is a range of reasons for this. Many firms will have negative attitudes towards co-operative relations with other firms. They may also lack the ability to network even if the benefits are clear. The central obstacle is that firms will often lack credible information on which to assess whether networking is in their interests. Certain factors also assist the formation of network relations, including a strong regional industrial identity.

However the 'brokerage' role is critical in creating and developing network relations. Brokers will sometimes identify opportunities for co-operation or assist the firms to do it themselves. They will encourage or cajole the firms to participate. The brokerage role requires a high level of communication and negotiation skills but the most important requirement is credibility with the firms concerned.

The approach taken by governments overseas in their networking programs has emphasised this brokerage role and provided the information that firms require to make the decision. The networks, to be successful, must meet the real needs of the firms involved. As a consequence, government network programs should require matching commitments for firms or fee for services to demonstrate industry commitment. Networking is a relatively low cost policy option. These agencies may already be playing a 'brokerage' role which can be built on or extended. Another and related consideration is that embryonic clusters at regional concentrations of industry are probably the most fertile grounds for initiating networking activity.

There are signs that these ideas are already prompting active responses from government, industry and unions. While by no means a quick fix for deep-seated and complex problems for manufacturing, networking initiatives could make a practical contribution to building the strength of manufacturing in Australia.

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