Chapter XIV

Conclusion

Ann Hodgkinson, University of Wollongong, Australia

Robert MacGregor, University of Wollongong, Australia

This book contains applied studies of clusters across a range of industries, operating in a number of countries and written by analysts from a variety of disciplines – economics, marketing, management and information systems. The first aspect that strikes the reader is the commonality of approach across these disciplines, drawing on a standard knowledge base of concepts, analytical frameworks and methodologies. Cluster analysis at both the theoretical and applied levels is truly inter-disciplinary and lacks the ideological barriers often found in other areas of business studies, which prevent analysts from different disciplines working together on common problems. This finding is positive for the future development of this area of study and indicates that our understanding of clusters will continue to develop rapidly in both conceptual and applied terms.

In applied studies, there is a particular interest in the questions of what type of intervention can / should be used to promote clusters and how it can be most effectively implemented. The argument that clusters contribute to industrial and regional development is well established at the conceptual level and has been demonstrated in a number of well known cases,
such as Silicon Valley in the U.S.A., Toyota City in Japan, and the industrial districts in north-eastern Italy. Efendioglu provides another example of the biotechnology sector in California in this book. The current question, addressed by several chapters in this book, is whether these success stories can be duplicated elsewhere, and is so, how.

Our authors look at interventions in terms of government programs, government – business partnerships, private sector association programs, and big-business initiatives. Overall, they conclude that clusters appear to arise in response to special economic environments, and have developed spontaneously through natural, organic economic forces. The authors in this volume conclude that is extremely difficult to artificially recreate such conditions to induce the formation of clusters as a tool for regional development. This is demonstrated by the case studies presented by Efendioglu for Taiwan, McRae-Williams for Australia, Perry for New Zealand, and Rosson and McLarney for Canada.

Conceptually, it is argued that clusters provide a useful development tool for smaller economies. However, the case studies presented in this book question their relevance for small, open economies such as Australia, New Zealand and Canada. The concept of clusters developed in large, industrialised countries with specific cultural pre-conditions which facilitated cooperation (Italian industrial districts) and in industries where rapid technological change necessitated cooperation (biotechnology, information technologies). Such countries also had the advantage of a large domestic market in which new products could be developed in conjunction with customers and quick sales achieved before commencing international exports. Smaller economies do not have these preconditions and there are only a limited number of partners available for joint production or specialist supply. They suffer from the problem of ‘organisational thinness’ as demonstrated by Rosson and McLarney and Perry, which makes it difficult to establish the client-supplier linkages identified as essential to achieving the business relationship model of clusters. They also need to export to gain economies of scale, which immediately exposes them to the full strength of international competition before having the time to develop their product, customer relationships, joint production and trust within a domestic market first. In smaller, open economies competition tends to dominate cooperation, limiting the natural development of clusters.

A number of authors discussed the appropriate nature of intervention to assist cluster formation. Effective intervention is not about reducing business costs via ‘cheap’ loans or provision of subsidized buildings and land, even though businesses often initially expected this. It is not even essentially about the provision of technological or export support programs. Effective intervention is more about encouraging a supportive environment and building trust among local firms to overcome their natural tendency towards local competition. The role of government or other support agencies is to act as an ‘honest broker’ where competitors can meet, communicate and demonstrate their capacities safely. Then opportunities for joint activities - production, marketing, sharing of labour, etc. – can be recognised and acted upon. Trust takes time to develop and cluster promotion programs do not show quick results. The importance of trust as a component in cluster development programs is clearly demonstrated in the project developed for the Sultanahmet region of Istanbul in Turkey. It was also highlighted in the paper by Merrilees, Miller and Herington. As trust developed, inter-firm cooperation increased, resulting in strong improvements in revenue and employment.

The importance of regional innovation networks was another common theme in these studies, particularly those in high technology sectors. These are represented by three studies.
of the biotechnology sector included in this book. Cluster relationships were generally considered less relevant to the function of generating new products, but more concerned with the process of encouraging entrepreneurship and commercialisation of that research. The paper by Tiegland, Hallencreutz and Lundquist provides an example of establishing a new institution to encourage closer links between business and researchers in an attempt to encourage more commercialisation of innovations developed in that region within its own boundaries. This demonstrates that the innovation issue can still be a problem even in well established regions such as Uppsala in Sweden. That study illustrates the problem of rigidities that can arise in mature regions as discussed in Falcone (chapter three), and provides one means of rejuvenating such districts.

Rosson and McLarney, on the other hand, address the problems of trying to establish a new cluster in the biotechnology industry in a peripheral region. They also identified a poor commercialisation culture as a barrier in Halifax, Canada and suggested developing an industry – research Centre as a solution. The Uppsala BIO Institute provides an example they could consider. Efendioglu provides a study of the successful biotechnology cluster in San Francisco, California. This study emphasises the role of the University of San Francisco’s international business planning competition, which attracts innovators into the region to help sustain that region, as well as a natural entrepreneurial culture, which also generates start-up firms. This has ensured that that cluster, despite being in existence since 1979, has remained in its growth phase. All these studies emphasise the importance of research institutions and of establishing effective business – research relationships to cluster development in high technology sectors.

Some insights into methodological issues can also be obtained from a review of the chapters in this book. The widespread use of case studies is clearly demonstrated. As clusters are now a well established area of research, it might be expected that analytical studies would move into more rigorous statistical investigations based on broad databases. Yet only one chapter, that by MacGregor and Vrazalic based on a sample of over 300 Swedish SMEs, ventures into this methodology in a sustained manner. The other chapters provide an explanation of why case studies are still dominant.

Firstly, it can be explained by definitional issues as discussed by McRae-Williams. Clusters do not normally contain one simple industry sector as defined by statistical authorities. Their very nature involves synergies and interactions between firms from a variety of different sectors through joint production and in supply relationships, as well as complementarities in research between organisations in different sectors, which is the keystone of innovation. Further many clustered sectors, such as tourism, biotechnology, information technologies, are not readily classified into standard industry codes. Thus large secondary databases, which provide the resource for most econometric analyses cannot readily be utilized in cluster analyses.

MacGregor and Vrazalic demonstrate that important issues in cluster research can be analysed using common statistical techniques, in this case whether firms in clusters / alliances behave differently to those that are not. However, it also demonstrates that to undertake this type of analysis, the researchers have to undertake original data collection involving surveys of relevant firms. This is time consuming and expensive. Thus statistical analyses are often restricted to instances when such databases, generated for other purposes, fall into the hands of cluster analysts. In such cases, the data may not be collected on the definitions or coded in the way most appropriate to apply to cluster analysis questions.
Thirdly, of course, many of the questions asked by cluster analysts are inherently qualitative, particularly those around the important issue of ‘trust’, and are not readily analysed in quantitative terms. Nevertheless, it may be time for cluster analysts to venture beyond specific case studies and attempt to establish some of their elemental propositions on a more rigorous basis. One way in which this is occurring is by using a panel approach, where baseline data is collected at the beginning of the cluster process and then repeated after a period of time, often five years. If these data collections are undertaken rigorously, the observed changes can be traced to elements in that cluster.

As argued earlier, there is common acceptance across disciplines of the definition of clusters as being a group of firms that are both located in close geographical proximity to each other, and which have some forms of interaction with each other, either as customer – suppliers, undertaking joint activities (production, marketing, research), exchange information either formally in established institutions or tacitly through informal personal relationships, and / or share a common resource pool, including labour. However, not all studies examined relationships purely within this definition of clusters. Some used the more nebulous term of ‘groups’, which simply required firms in a sector to be co-located. Groups of firms in one or similar sectors are frequently found located in the same region, but may not have any active inter-relationships. They do, however, form the basis on which it is believed clusters can be developed, using government sponsored intervention programs to facilitate relationships among these firms or by providing encouragement through financial incentives as discussed by Perry for New Zealand. Industrial districts are an earlier term derived from the work of Alfred Marshall in England and Piore and Sabel in Italy. They are a forerunner of clusters but are more limited in that they emphasise mainly business relationships among constituent firms. The cluster concept places more explicit focus on psychological and cultural factors, always inherent in the Italian industrial district concept, and on applications to higher technology rather than traditional manufacturing industries. Thus research, innovation and technology transfer become more important in cluster analysis, evolving into the latter concept of an innovative or creative milieu. The final terms used in these studies are networks and strategic alliances, which are most common in the information systems studies. This is not coincidence. These terms are well established in the business literature on collaboration. However, unlike groups, industrial districts, clusters and innovative milieu, they are not innately spatial. Networks and strategic alliances involve productive relationships between firms but do not require these firms to be co-located. Often these relationships are international in scope. The development of long distance inter-firm collaborations was facilitated by developments in information and communication technologies. Thus the range of terms used in cluster analysis reflects an evolution of the concept over time.

Information technology strategies—e-commerce, e-business, e-commerce as discussed in this book—challenge the specific geographical component essential to the economic and managerial analyses of clusters. Co-location is no longer necessary to establish relationships between firms, although trust is still essential for successful collaborations, virtual or personal. Whereas other disciplines make clear distinctions between clusters and other forms of collaboration such as groups or strategic alliances, arguing that clusters provide the most substantial and enduring economic development potential, IT studies return to the earlier concepts of networks and alliances. They argue that electronic communication systems allow the development of relationships with suppliers, customers and partners that provide the same business and efficiency benefits as geographically-constrained clusters.
but allow these to occur in an unconstrained a-spatial or international context. It is argued here that IT strategies have not to date been heavily adopted by small businesses. As they become more common, it raises the question of whether they may cause the end to clusters as an economic development tool.

The second factor that is contributing to the decline of clusters is the growing significance of international competition as product and service markets inextricably become global. With markets throughout the world rapidly opening to foreign imports due to reduced tariffs and other forms of trade protection and the movement into market economics by previously centrally controlled countries, few firms no matter how small, are now not exposed to some level of external competition, if only through the internet. Conversely, this process is opening up new export market opportunities to firms throughout the world. International competition is having a profound effect on the industrial districts of Italy as discussed in Falcone (chapter 3). Previously stable, dense supply-chain relationships are breaking down in the face of cheaper imports and as leading firms relocate many of their activities to low wage foreign regions. High technology clusters have been better able to survive under this pressure. Cluster analysts have to confront the impact of this realignment of world production systems with the technology-intensive, design intensive and corporate activities remaining in the industrialized world while production moves into cheaper labour regions. Cluster-like relationships may still continue to exist among firms, but at an international level facilitated by information technology. Further, the imperative of needing to be internationally competitive in terms of cost, quality, design and customer service may be making it extremely difficult to establish new clusters outside the industrialised countries. Firms may no longer have the time to establish local inter-firm and personal relationships, the essence of cluster advantages, before confronting the pressures of international competition. These items form the next agenda for cluster analysts both in theoretical and applied studies.

The question of how clusters establish, grow and survive in competitive environments has particularly been the focus of marketing analysts. They universally look to the concept of ‘branding’ as a means of differentiating clusters in different regions and those operating in particular sectors. Branding is not just image projection. It requires firms in a cluster to analyse their strengths and identify what particular unique attributes that they can offer members. Further, it requires members to accept a common framework of values, which forms the basis of developing trust among themselves, leading to the density of relationships that generate the advantages which being a member of a cluster generates. Once this branding process is established, the cluster organisation can then undertake the activities needed to position its member firms in the global market and to ensure its continuing growth and regeneration within this new global market environment.

Finally, the pre-eminence of the work of Michael Porter in applied cluster analysis must be acknowledged. Reading these chapters, his name appears repeatedly in the literature reviews, regardless of the discipline of the author. His contribution occurs at the conceptual level, with the Porter ‘diamond’ and supply-chain analysis taking over from input-output analysis as the essence of the industrial complex approach to analysing regional industrial development. The economic antecedents of this model have now been almost completely overshadowed outside that discipline itself. Secondly, his contribution has been paramount at the applied level. It has been the inspiration for numerous government and other programs aimed at encouraging clusters as the major means of regional development. The prevalence of this ideology is now so great that it is very difficult to argue, as several authors in this book do,
that outside the established industrial regions, existence of groupings of firms in a sector in a region will not necessarily mean a cluster can be developed as the basis of regional development. Perhaps this book will help in encouraging a more critical evaluation of the value of clusters as a regional development policy. It highlights both the practical difficulties of this approach and the need to rethink the position of clusters as they are increasingly exposed to international competition.