MULTI-CLUSTER ADVANTAGE: THE LOCUS OF INNOVATION IN CITY-REGIONS

Rajan Kamath, Ratee Apana
Management Department, Lindner College of Business, University of Cincinnati, 2925 Campus Green Drive, Cincinnati OH 45221-0165 USA

Abstract
The emergence of city-regions – urban agglomerations with more than 1 million inhabitants – is an emerging trend observed by scholars in geography, urban planning and strategy. City-regions are often home to multiple industry clusters which provide unique manufacturing eco-systems of overlapping supply chains and interdependent production capabilities that interact, resonate and offer unique opportunities for innovation, cross fertilization and breakthroughs in value creation. This paper uses the case example of Cincinnati’s tri-state city-region to develop a framework for identifying multi-cluster opportunities for innovation that transcend individual companies and individual industries to become the locus of innovation and global competitive advantage.

Keywords: Innovation, multi-cluster advantage, city-region.

1 INTRODUCTION

1.1 Emergence of Multi-Cluster, City-Regions
Researchers have noted the competitive importance of industry clusters – clusters of geographically co-located related and supplier companies - for at least 3 decades. Recent research has demonstrated that progressive and accelerated urbanization has resulted in the emergence of a large number of city-regions that are home to multiple industry clusters.

1.2 Innovation in Multi-Clusters
The presence of multiple industry clusters in close geographical proximity creates unique opportunities for innovation that benefits by serving aggregate demand of common value adding activities across the multi-cluster as well as innovation that benefits from cross-fertilization at the intersection disparate value adding activities. Both benefits create a new locus of innovation that individual companies can use to build global competitive advantage.

2 CLUSTERS AND COMPETITION

2.1 What is a cluster?
Clusters are geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (like universities) in particular fields that compete but also cooperate [1]. Clusters are a common feature of almost every nation, region, state and even some cities.

2.2 Natural clusters and purposeful clusters
Some industry clusters have emerged organically over a long period of time and tend to be seen as natural clusters. The Dutch Flower Cluster in Holland [2] evolved over centuries beginning with the pioneering cultivation of Turkish tulips in Holland in the 1500s. In contrast, some industry clusters are the result of the strategic selection, design and intentional build-up of all components of an industry’s value chain by a public authority. The Electronics and Information Technology Cluster in Costa Rica [3] is an example of an industry cluster that was carefully designed, engineered and launched as part of a deliberate strategy to position Costa Rica as a player on the competitive landscape of electronics design and manufacturing.

2.3 Multi-clusters are emerging
Accelerated urbanization has become a force to reckon with – McKinsey [4] asserts that in 2016 an approximate 65 million people migrated from rural areas of the world to cities and the projection of 50% of the world’s population living in city-regions seems like a foregone conclusion. As urbanization progresses we see the emergence of city-regions with multi-clusters. For example the US Bureau of Labor Statistics lists multi-industry clusters in five Midwestern US cities [5]. A multi-industry cluster is characterized by members of related, supporting and supplier firms from multiple industry verticals all co-existing within a densely populated geographical area commonly known as a city-region [6] [7]. Indeed geographers view the entire East Coast of USA as a series of multi-industry clusters and measure the density of this agglomeration of industries with maps showing industrial heat maps (Figure 1).

2.4 Case Example: Cincinnati City-Region
The city of Cincinnati in the United States is an example of a city that has naturally evolved into a city-region anchored by 5 distinct industry verticals each with its own network of related, supplier and complementary services companies. This highlights the fact that it is not so much the size of the city as the simultaneous presence of distinct industry eco-systems that presents unique opportunities for collaborating, competing and generating synergies that are out of all proportion to the sheer numbers and density of businesses. In terms of sheer size Cincinnati ranks 65th in the nation with at least 64 cities that can boast a population in excess of the 1.3 million people that live in the Greater Cincinnati Metropolitan region. However the presence of multiple industry verticals has propelled Cincinnati to number 6 in the nation for concentration of Fortune 500 companies.

This translates into a number of unique features of the economic landscape that are critically important for understanding the role and the significance of multi-cluster advantage. First, each of these industry clusters is drawn into focus by a corporate entity renowned for competitive excellence and industry leadership. Procter and Gamble heads the consumer products cluster, GE Aviation heads the aviation industry cluster, Kroger heads the food processing and grocery retailing cluster, Macy’s heads the
fashion and design cluster while Cincinnati Children’s Hospital and Medical Center (CCHMC) heads the healthcare delivery cluster.

The industry leadership and excellence of each of these entities brings a trailing set of excellence in related and supporting industry. The market research icon dunnhumby began as a small entrepreneurial service provider to Kroger before it grew into a multi-million dollar world-class icon in data analytics and spun off the market analytics company 84.51. By the same token Procter and Gamble is the anchor for world leaders in packaging, specialty chemicals, advertising and consumer research – all with a strong presence in the Cincinnati city-region, ostensibly to co-locate with Procter but coincidentally available as a supplier to all the other industry clusters that are in the city-region.

3 INNOVATION & CLUSTERS

3.1 Innovation and upgrading within a cluster
Clusters play an enormous role in creating competitive advantage for companies by enhancing and supporting the firm’s ability to engage in innovation and productivity growth. Often members of a cluster are able to identify and respond to new customer needs because members of a cluster have no dearth of companies with buyer knowledge and relationships in close proximity. There are also benefits in seeing new technological opportunities, face-to-face contacts with buyers, suppliers and competitors and ease of obtaining information.

3.2 Innovation in Multi-Clusters
Multi-clusters present opportunities to multiply the innovation advantage of clusters along a couple of dimensions. First, the presence of multiple clusters in close proximity makes the city-region very attractive for innovations that serve multiple industries. For example, when you examine three of Cincinnati’s 5 Industry clusters in Table 1 it is easy to see why the Cincinnati city-region is a world leader in solid substrate innovation. With University of Cincinnati as a Carnegie Class I research institution in the city-region there are tremendous economies of scale for research and innovation in substrates for food processing and solid state fermentation to serve the needs of Kroger and the food processing cluster. However the consumer products cluster headed by Procter and Gamble has a keen interest in substrate analysis of skin, fabrics, hair and solid surfaces too. Additionally, GE Aviation leverages composite substrates for hypersonic applications in its aerospace business. It should be no surprise that Cincinnati as a city-region is a global magnet for design and manufacturing innovation in substrates (Table 1).

Besides the benefit of the aggregate effect that a multi-cluster presents there are distinct benefits that accrue when the opportunity to innovate and upgrade lies at the intersection of two different ways to add value. Procter and Gamble uses high speed printing to enhance messaging on packaging as well as on food products where safety and process control are very important components of the value-added process. GE Aviation has keen interest in the materials and printing processes used in high speed printing for their avionics activities leading to a cross-fertilization of the innovation and upgrading activity

3.3 Locus of Innovation in Multi-Clusters
Hitherto innovation for competitive advantage has largely been a company specific activity – with the exceptions of industry partnerships and consortia there has been relatively low emphasis on multi-organization cooperation for innovation. The emerging importance of multi-cluster advantage has created opportunities and challenges that did not exist before. Companies are learning to manage the locus of innovation in order to sense the opportunities to exploit common needs across multiple industry settings. This requires sharing important features of the overall direction of the need without divulging proprietary design features. In contrast, the cross fertilization opportunities have such distinct end uses that companies can share information freely without concern for exposure of proprietary information.

4 CONCLUSIONS

4.1 Locus of innovation
As multi-clusters in city-regions become prominent features of the competitive landscape leaders must learn to collaborate and compete across traditional organizational boundaries. This requires a concerted effort to step back from firm strategy and corporate strategy to ask, “Does the locus of innovation in multi-clusters demand that we think in terms of maximizing the innovation potential of the entire region rather than the company?”

Table 1. Multi-Cluster Innovation in Cincinnati City-Region.

<table>
<thead>
<tr>
<th>Corporate Entity</th>
<th>Kroger</th>
<th>Procter &amp; Gamble</th>
<th>General Electric - Aviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cluster</td>
<td>Food Processing And Grocery Retailing</td>
<td>Consumer Products And Brand Management</td>
<td>Jet Engines and Advanced Manufacturing</td>
</tr>
<tr>
<td>Innovation (Aggregate Benefits)</td>
<td>Solid substrates in food processing and solid state fermentation</td>
<td>Substrate analysis of skin, fabrics, hair and hard surfaces</td>
<td>Composite substrates for hypersonic applications in aviation</td>
</tr>
<tr>
<td>Innovation (Cross-Fertilization Benefits)</td>
<td>None</td>
<td>High-Speed Printing for Packaging</td>
<td>High-Speed Printing for Special-Purpose Coatings</td>
</tr>
</tbody>
</table>
Figure 1. The East Coast of USA is a set of multi-clusters of Fortune 100 companies.

5 REFERENCES


