With globalization, a modern ‘new geography’ of manufacturing and related industrial innovation seems to have emerged. Business firms increasingly involved in worldwide competition shape science-based inventions and high-tech innovations. Yet, many of the industrial and other capabilities that influence new technology-based innovations seem localized to particular geographic areas that include a large science park with a research-based university, an urban industrial estate, a metropolitan high-tech zone, a region with a relatively high concentration of focused industrial research, etc.

In short, innovative capabilities seem to be anchored and shaped in particular areas, where the new products are born and nurtured before being launched on the global market. In North America as in Europe, there is a far-reaching, yet relatively small ‘archipelago of innovation islands’ where many of the new products and processes in manufacturing industry and related services are being shaped (Hilpert 1992). According to recent surveys (by OECD and EU) it appears to be a strong geographic concentration of R&D performance and related innovative activity within the most industrialized economies (European Commission, 2002). And, so it seems, there are areas on the two continents where radical, industry-related innovations rarely are being developed, if at all.

The recent book by David McKendrick, Richard Doner, and Stephan Haggard “From Silicon Valley to Singapore: Location and Competitive Advantage in the Hard Disk Drive Industry” addresses the intricate issues of localized innovation and manufacturing in the world economy. It is a detailed study of a dynamic segment of the electronics industry that has ‘gone global’ with regard to manufacturing as well as innovation. Nevertheless, this industry remains very much regionally based, supported by advanced business networks locally and across nations and continents, as the title indicates.

In short, the book is about the spatial concentration of manufacturing and innovative capabilities among business firms and supporting institutions, while considering global manufacturing issues.

As the hard disk drives (or any new device in the electronic industry) are being developed and the manufacturing capabilities grow, the industry tends to get organized into at least two different major activity lines linking firms and supporting institutions:

The authors call the first one Technological Clusters, centered on the activities needed to support new products and other innovation and to sustain innovation as an on-going activity.

The second activity line is labeled Operational Clusters, supporting manufacturing and assembly, transportation and logistics, and similar business operations. Its main logic remains economies of scale (and, to some extent, ‘economies of agglomeration”).
The book provides a well-argued overview of the technology, competition and "geographic reach" of the disk drive industry, using the "disk drive value chain" as a structuring principle and as a story line for the arguments. Starting with component fabrication, followed by sub-assembly activities and reaching final assembly, the principles of these design and manufacturing processes are being depicted and analyzed as integrated parts of globally organized value chains and production networks, anchored in or localized to particular cities and regions.

It is a factual story of recent decades of a global growth industry that has become imbedded in the economic fabric of cities in western United States and in East and Southeast Asia. "The spatial emergence" of this industry during the past 40 years is being explained. The book contains location-specific business assets, similar to many other industry studies, such as factor costs, market access, public policy framework, agglomeration economies (in operations), and international industry networks. But the book also presents alternative explanations for industry advantages such as first-mover advantages and national/regional foundations of competitiveness (cf. also Porter, 1998, 1990, Piore & Sabel, 1984, Sabel and Zeitlin, 1985). While studying California's Silicon Valley and Boston's Route 128, Saxenian (1994: 7) notes that high-tech firms are "embedded in a social and institutional setting" (Cf. also Granovetter, 1985). This, she continues, "illuminates the historically evolved relationship between the internal organization of firms and their connections to one another and to the social structures and institutions of their particular localities."

For the disk drive industry, such localized relationships that drive innovation took about ten years to develop. By the late 1960s, the first such clusters appear in northern California, later in other parts of the US and in Japan (around Tokyo). From then on, there is a specific geography of the disk drive industry both on the North American continent and in East Asia. The local and global shifts in this geography are presented through detailed data on new markets, firms, technologies and specific locations of the recent 25 years of industry evolution.

The book contains an impressive set of empirical material that elaborates the industry's convergence towards a limited number of new places, now mostly in South-East Asia. Globally operating firms from the US, Europe and Japan have made this part of the world their choice for disk drive manufacturing. The book clearly reveals the dynamic and variable nature of global value chains, but can its analytical models predict the direction of current change? How can this book contribute to the more general study of links between local and global economic development?

So far, the disk drive industry is a strong case for global value chains dominated by vertical integration, while, increasingly, there are more relational or modular forms of value chains. In recent comparative studies, Gary Gereffi, John Humphrey and Tim Sturgeon (2003) goes further than the book's authors have done to look into the changing capabilities in the global industrial supply-bases that push the new architecture of global value chains away from hierarchy toward relational, modular, and market types. Increasingly, value chain modularity seems to be a new link as local and regional suppliers offer global firms greater varieties of value chain bundling (e.g. full-package manufacturing and related services).

Yes, based on the facts and findings of the book under review and on the new analytical modeling, a new book on "global industries" may be written.

References


Here, the issue is not simply industrial agglomeration by the presence of multiple industries or sectors (typically in an urban setting), but the agglomeration of firms in the same, similar or complementary industry. In such an economic context, a firm could benefit from the proximity of supporting institutions and the cooperation and competition by other firms.

Tim Sturgeon (2001) and colleagues have provided a systematic comparison of these fundamental concepts, including the notion of ‘modular production networks’.

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