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Managing New Industry Creation: Global Knowledge Formation and Entrepreneurship in High Technology. Thomas P. Murtha, Stephanie Ann Lenway, and Jeffrey A. Hart. Stanford, CA: Stanford University Press, 2001. 269 pp. \$34.95.

This book tells the story of the global high-volume flat-panel-display industry and, with it, a frame-breaking analysis of high-tech innovation, collaboration among global competitors, and the evolution of a technology, a product, and an industry. Although the study was conceived as an investigation of national competitiveness in an emerging industry, in particular about the importance of national ownership of knowledge and production for reaping the benefits of wealth and innovation from a new technology, this book is decidedly about organizations and the strategies they pursued to create a new industry. The title of the book is thus apt. According to the story told here, the global flat-panel-display industry was indeed managed—by people seeking strategic advantage, competitively and collaboratively, for their companies. In so doing, they transcended the strictures of both national policy and corporate-centered strategies and produced economic and technological advantages for their countries as well.

The frame-breaking insights of this book are three. First, in keeping with its focus on national competitiveness, the authors argue that conventional assumptions about the importance of national innovation systems, path-dependent historical development, and deep preexisting knowledge networks would lead to a gross misinterpretation of the evolution of the flat-panel-display industry. To be sure, a large and dominant cluster of flat-panel-display research and production facilities emerged in Japan, and its early growth was stimulated by Sharp and Seiko. The cluster's membership, however, soon included organizations from around the world, and these organizations, rather than others that chose to pursue flat-panel-display research in their home countries, reaped primary economic benefits; majority shares of global flat-panel-display sales, which grew from \$8.4 billion in 1993 to \$29.4 billion in 2000, were achieved by Japanese, Korean, European, and U.S. organizations that located activities in Japan. Thus, though the industry developed primarily in Japan, the wealth of this industry and, perhaps even more important, its knowledge have been globally dispersed.

Second, the authors emphasize the critical role of organizational co-location in the development of both technology and

industry. The extremely rapid pace of technological innovation in flat-panel displays, the high costs of production, and an intense competition that was driving prices down even as costs soared meant that the profits and survival of any company in this industry depended on companies' joint and collaborative efforts to develop and stay abreast of the technology. Organizations moved people and resources to Japan because only face-to-face interaction could gain them critical access to mainly tacit information about technological developments fast enough.

Though the authors inveigh against cluster-based thinking, in particular its reliance on preexisting stores of economic, institutional, and industrial resources as determining the location of clusters, this is nonetheless a study of a cluster. Perhaps regions (or nations) are differentially advantaged in their possession, a priori, of resources that are likely to give rise to a cluster. Perhaps also, though, many regions possess a sufficient store of industry- or technology-relevant resources to support cluster development as a new technology or industry begins to emerge. Where clusters actually develop may depend more on the deliberate investments of organizations. History, though it may constrain the set of regions likely to give rise to a particular cluster, may be less important than management in determining a cluster's specific location. Moreover, as this study suggests, the critical resources of the cluster derive principally from the routine exchanges of knowledge among members of the cluster rather than from preexisting technical knowledge or productive capacity in the location. As the authors state in reference to the flat-panel-display cluster in Japan, "You had to be there . . . but it could have happened anywhere" (p. 38).

Finally, this book provides some fascinating insights into the corporate management of geographically far-flung operations. I said above that this book is as much about organizations and strategy as it is about national competitiveness. Some of the most interesting anecdotes describe the challenges that Japan-based managers of U.S.-owned divisions and subsidiaries faced in convincing their parent organizations of the strategic wisdom of collaborating with competitors. It was not always an easy argument, as the decisions by many U.S. corporations to forego Japanese partnerships attest. (Most of these organizations, it appears, no longer sell flat-panel displays.) Perhaps most difficult for organizations that did pursue both formal alliances and informal collaborations was the need to relinquish centralized control of strategic investments. The knowledge-driven strategy that the authors describe in chapter 7 is distinguished from cost and differentiation strategies not only by an attitude or philosophical commitment toward knowledge seeking but also by an active pursuit of knowledge acquisition in any location where knowledge can be found and in any alliance that can promote learning by the organization.

To some extent, the authors' ideas about the knowledge-driven company may seem less novel than they might have just a few years ago. We have learned much in recent years about the importance of cluster-generated knowledge externalities and about co-location and collaboration as organiza-

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tional strategies for taking advantage of knowledge externalities. Nonetheless, the book's rich description of active alliance making for knowledge acquisition and investments in distant locations to form and take advantage of informal information exchanges presents a fascinating set of examples.

Even more important, I believe, are the insights and emphases that the authors provide about internal changes in structure and strategic decision making that are necessary for a company to become knowledge-driven. For this high-tech and global industry, at least, sustainable competitive positions (and profits) were generated by relinquishing centralized control of research and production. Much has been written over the last 20 or more years about the inability of established organizations to adapt easily or quickly to emerging technological opportunities. From the evidence presented in this book, adaptation may be beside the point; established organizations can develop new knowledge, new technology, and competitive positions in new industries simply by allowing the emergence of entrepreneurial activity within the boundaries, but unfettered by the architecture of prior commitments and competence.

The story of the flat-panel-display industry is not over. Between 1987 and 1998, eight generations of flat-panel-display technology had already developed, and radically new approaches were still emerging. Critics may charge that the benefits to national competitiveness from the location of the cluster are yet to be assessed. The authors' proposals and claims about the relative unimportance of a particular location are far and away the most controversial in the book. Others may question whether there weren't some unique conditions and resources in Japan that more or less guaranteed the development of the flat-panel-display industry in that country. Important empirical questions about the failure of nascent clusters elsewhere and about the mobility of firms' resources, especially when new and uncertain technologies are involved, remain to be explored.

What's important about this book, though, is that the questions are persuasively introduced. The history of the flat-panel-display industry reported in this book has been assiduously researched. The authors interviewed more than 160 company and government officials in Japan, Korea, Taiwan, the U.S., and Europe to develop and test their arguments. The book is engagingly written; though it sometimes bogs down in acronyms and detail about generations of flat-panel-display technology, the detail routinely gives way to thoughtful analysis of theory, and challenges to theory, as revealed by the facts. This is, most of all, an honest book. Though the authors began their research with an idea about revealing the importance of national ownership of technology and production, they ended with the insight that it's not location but collocation that drives the technological development of an industry and the economic success of both companies and their countries. Though the book began as an investigation of yet another Japanese challenge to U.S. competitiveness, it evolved into a study of strategy. People and firms, rather than preexisting conditions, determine the structure of industries. This book is important reading for anyone, from organi-

zational theorists to city planners to national policy makers, with an interest in the evolution of industries.

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The Psychology of Work: Theoretically Based Empirical Research.

Jeanne M. Brett and Fritz Drasgow, eds. Mahwah, NJ: Lawrence Erlbaum Associates, 2002. 338 pp. \$69.95.

I read in the paper that catcher Mike Lieberthal re-signed with the Phillies for a multiyear contract rather than go the free-agent route. Lieberthal said he thought there was something nice about playing your entire career with the same team. Charles Hulin must have felt that way, too, because surely many offers came his way from other prestigious schools, but he opted to play out his 39-year post-doctorate career with the University of Illinois. Hulin's example could become a rarity for leading scholars in our field, as institutions continue to compete for national pecking orders by using lucrative chairs to win over each other's star players. It is a moot point as to whether Hulin's scholarly contributions would have been any different (it is difficult to imagine how they could have been much greater) if his career had followed more of a free-agency path. But I suspect that his long tenure at Illinois made it more likely that colleagues and former students would convene in Champaign a couple of years ago for a conference on the occasion of his retirement. The papers presented at that conference were put together in the volume reviewed here. If a multi-institution career would have militated against the conference and the resulting book, then I for one am glad Hulin stayed in one place.

The thread that gives coherence and continuity to the thirteen contributed chapters is the quest for broad, judiciously articulated theoretical constructs that would offer us the most penetrating insights into workplace behavior. A relentless focus on context-bound, specific workplace behaviors (e.g., turnover) not only will yield little explained variance with even a large number of variables, it will blind us to the underlying commonalities among ostensibly different behaviors (such as absenteeism, tardiness, daydreaming, withholding of citizenship behaviors) and their common origins. A theory about turnover, a different theory about absenteeism, and still another theory about workplace passivity will only lead us to "spin toward more and more idiosyncratic contingency theories wrapped in security blankets of boundary conditions" (Weiss and Ilgen, p. 92).

Most of us think of Hulin in connection with his work on withdrawal. A chapter by Peter Hom traces the development of Hulin's thinking about this construct. It began early in his career with research on turnover. A series of quasi-experimental and qualitative studies by Hulin and colleagues challenged the straightforward notion that people quit their jobs because unemployment is low and many other jobs are avail-