

Foreword

Economic growth in the developed world is driven in large measure by the ability of nations to innovate both technologically and organizationally. As any study of startups or patenting will make clear, some locations are hotbeds of innovation and entrepreneurship while most others are innovation deserts. Accordingly, both private and public actors the world over with an interest in economic development and investment seek a better understanding of the local determinants of the innovation process.

Jerry Engel, my long-time colleague at UC Berkeley's Haas School of Business, is eminently qualified to lead this ambitious effort of shedding light on the commonalities and differences between far-flung centers of innovation and the global linkages that connect them. After years working directly providing financial services to entrepreneurs, Jerry came to Berkeley in 1991 to create and lead one of the top programs in entrepreneurial education. In this volume, he has assembled and summarized the observations of a distinguished global team of experts.

The geographic distribution of innovation and entrepreneurship is very irregular even in advanced countries like the US. But what are the origins of clusters? What keeps Silicon Valley successful even though the industries in which it specializes have changed over time? Policy makers, entrepreneurs, and venture capitalists seek answers to these questions. Academics have long endeavored to provide explanations for industrial agglomeration, beginning with Alfred Marshall's work on industrial districts in the late 19th century. Notable contributions include Porter (1990), Krugman (1991), Saxenian (1994), Fujita et al. (1999), and Bresnahan and Gambardella (2004).

However most such studies have not really focused on the innovation and entrepreneurship that are central to the self-renewing character of Silicon Valley. Nineteen practitioners and scholars now come together under Jerry Engel's direction to provide a concise and prescient assessment of highly successful –and less successful – clusters around the world. By appealing deductively to theory and inferentially to case studies, the editor and the authors craft a theory of innovation clusters, and of economic development more generally.

Clusters of Innovation are concentrations of interconnected companies that both compete and collaborate. It is clear that what's essential is proximity to human talent (scientific, engineering and entrepreneurial) as well as venture capital. While Porter proposed focusing on major research universities and on the role of 'demand', AnnaLee Saxenian (1994) emphasized people, connections and labor mobility, both domestically and internationally.

Global Clusters of Innovation offers a new and, in my view, more compelling framework that is distilled from the case studies and that stresses a very important set of factors ignored by others: the advantages new ventures had in getting started. This is the reason biotech firms emerged in Northern California in the early 1980s (why not New Jersey or Pennsylvania?). Other 'unrelated' clusters of startups have emerged in Silicon Valley such as biofuels (why not Illinois?) and solar (why not Arizona?) primarily because the minds, money, and mojo (startup culture) are all (now) present in Northern California.

The book outlines a theory of cluster development that highlights the need for (a) the mobility of resources (especially people and information), (b) the thirst for starting new businesses, (c) an affinity for collaboration, and (d) shared values. They expand this to a global perspective by characterizing collaborations across space, from 'weak ties' to 'covalent bonds', a deep relationship in which resources, especially key personnel, are shared between organizations in different locales.

Global Clusters of Innovation, unlike some work on industrial clusters, emphasizes the key role of entrepreneurs, while acknowledging the catalytic role that can be played by mature corporations in search of the next big thing. Unlike other frameworks, this one recognizes the importance of having a professional class of entrepreneurial managers who have diverse experiences and are motivated by existing patterns of financial incentives to pursue large potential payoffs. Many cluster efforts fall short on this point because such a group takes time to emerge.

The book actually highlights, implicitly, the importance of dynamic capabilities, the strategic and economic framework I've helped to develop (Teece et al., 1997; Teece, 2007; Al-Aali and Teece, 2014). Strong dynamic capabilities, which reside in entrepreneurial management and in certain organizational routines, are essential for firms to be able to adapt to change and renew their resources. Strong dynamic capabilities require the firm and its leaders to be able to sense new opportunities, craft innovative business models to seize them, and align the resources of the organization to suit the needs of the model. The studies in this book help outline elements of the ecosystem needed to enable strong dynamic capabilities.

A critical point usually ignored by others is that truly successful Global Clusters of Innovation are geared towards globally scalable companies that are inclined to radical, not incremental innovation. Large pools of capital aren't interested in anything less than global opportunities. This is certainly the case with Silicon Valley. The question, of course, is how to create that environment. There can be no single answer for every location. Policy makers, investors, managers, and academics around the world will find valuable pointers and insights throughout the case studies in this volume.

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