Managing innovation in a global industry

Innovation and Entrepreneurship in Biotechnology: An International Perspective

by **Damian Hine & John Kapeleris**

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Reviewed by Steven Casper

Over the last decade biotech has grown from its predominantly US roots into a truly global industry. But as it has diffused into different countries, has the biotech industry adopted a similar pattern of industrial organization or do country-specific regulatory and public policy regimes take hold? Hine and Kapeleris have written an interesting book discussing innovation management of biotech companies from an international perspective, drawing extensively from the Australian biotech industry, with comparative examples from the UK, continental Europe and well-known US companies such as Genentech. Their evidence indicates that biotech has emerged as a global industry based around a relatively coherent set of practices used by entrepreneurial firms to manage growth. But although biotech companies in Australia or Denmark tend to be managed around similar principles as those in California, important regulatory and public policy differences exist across countries that strongly impact the competitiveness of national industries.

The book is structured as a series of self-contained chapters covering aspects of innovation management within biotech companies, including industry dynamics, the organization of value chains, intellectual property management, industry life cycles and financing challenges facing entrepreneurial biotech companies. Public policy and regulatory and ethical challenges facing the industry are also discussed, often with international comparisons. Finally, the book addresses the important issue of the sustainability of business models associated with biotech, including a discussion of the differences in national industry structures in several Commonwealth and European countries and the United States.

The analysis is primarily academic in nature. Much of the discussion is framed through theories of strategic management, and thus has a scholarly tone. Readers interested in a broad survey of how scholars in the field of management and innovation studies view the biotech industry will find this book a useful resource, whereas those interested in a more practitioner-oriented guide to the industry may be disappointed. For example, readers interested in understanding tactical issues such as the patentability

of different types of life science discoveries will be dissatisfied with the intellectual property chapters in this book. On the other hand, the authors do an excellent job of situating patents within broader knowledge management systems developed within biotech companies. They stress the importance of understanding different types of knowledge found within typical biotech companies—both codified knowledge usually found in patents as well as more tacit forms of intellectual capital, such as complex laboratory procedures, that often reside within teams of scientists and technicians.

Given the breadth of available topics surrounding innovation and entrepreneurship within the biotech industry, any study of this nature will be forced to emphasize some topics at the expense of others. Hine and Kapeleris are most convincing when discussing the internal management and growth of small biotech companies. However, these companies do inhabit an industry in which managing external relationships with other actors—such as universities, venture capitalists and other financiers, and large pharmaceutical companies—is crucial to success. The authors are far less convincing in discussing the management of these external relationships, often providing at best rudimentary coverage of topics such as alliance management with pharmaceutical companies. Moreover, important differences exist in national systems governing the commercialization of science or the orientation of national financial regulations surrounding venture capital—topics warranting greater discussion, given the international focus of the book.

One of this book's strongest assets is its international scope. It contains interesting examples of Australian biotech companies, some of which appear to have successfully broken out into the international market. For example, Melbourne-based Biota has managed to successfully develop and launch an antiviral product, which in turn helped the company achieve the critical mass needed to launch a business development office in California. One area on which the book could have turned a critical eye, however, is the long-term sustainability of the Australian and other emerging national industries. Given the high failure rates of biotech companies, the fragile state of venture capital systems outside the United States and the dependence of biotechs on experienced scientists, managers and regulatory experts who are in short supply, the sustainability of emerging national clusters is an important topic that should not be taken for granted. Moreover, the gap in critical mass separating the US industry from other countries is large and probably growing¹. Within international industries such as biotech, countries implicitly compete for resources. How has the flow of financial and human capital into the United States impacted the growth of biotech in other countries? Or, perhaps driven by regulatory hurdles in the United States surrounding issues such as stem cells, will emerging biotech marketplaces achieve competitive advantages over the established US industry? Hine and Kapeleris have provided a useful survey of innovation dynamics within the global biotech industry, but the broader theme of country competitiveness should motivate future research.

COMPETING INTERESTS STATEMENT

The author declares that he has no competing financial interests.

1. Henderson, R. et. al. in *Sources of Industrial Leadership—Studies of Seven Industries* (Mowery, D. & Nelson, R.) (Cambridge University Press, Cambridge, UK, 1999).

Steven Casper is at the Keck Graduate Institute of Applied Life Sciences, 535 Watson Drive, Claremont, California 91711, USA.
e-mail: steven_casper@kgi.edu