

“Biotechnology Entrepreneurship: Leading, Managing and Commercializing Innovative Technologies”

Edited by Craig Shimasaki (BioSource Consulting Group, USA), 2nd Edition, Elsevier Inc, San Diego, USA, 2020, 682 pp, ISBN: 9780128155851, £65.79, €77.54, US\$84.00

Reviewed by Darren Phillips

University of York, Heslington, YO10 5DD, UK

Email: darren.phillips@york.ac.uk

NON-PEER REVIEWED FEATURE

Received 5th April 2023; Online 13th September 2023

Introduction

“Biotechnology Entrepreneurship: Leading, Managing and Commercializing Innovative Technologies” (Second Edition) is a comprehensive guidebook for entrepreneurs, investors and educators in the biotechnology industry. Edited by Craig Shimasaki, a seasoned biotech executive and entrepreneur, the book contains 42 chapters (split over nine sections) contributed to by experienced biotech entrepreneurs, venture capitalists, legal experts and other industry insiders. The book covers every aspect of biotechnology entrepreneurship from forming a company, raising capital and developing a product to gaining regulatory approval, marketing and partnering with other companies.

Understanding Biotechnology Entrepreneurship

The first section of the book, ‘Understanding Biotechnology Entrepreneurship’, provides an

excellent overview of the biotechnology industry and its history. The section starts with an introductory chapter titled ‘What is Biotechnology Entrepreneurship?’. It offers an interesting insight from Craig Shimasaki which highlights the importance of leadership in biotech companies and the need for leaders to continuously learn and adapt to the ever-changing industry.

In a wider context, this section discusses the various categories of biotech businesses, the motivators behind the industry and the difficulties that founders may face when launching and overseeing a biotech venture. It provides a useful guide for biotech entrepreneurs, providing guidelines for navigating the challenges of building a successful biotech company and highlights the importance of understanding both business and technical aspects, seeking help from mentors and making informed, balanced decisions.

Chapter 4 titled ‘Seven Characteristics of Successful Biotechnology Leaders’ authored by Lynn Johnson Langer stresses that a leader’s ability to learn and adapt is the most critical factor in leading a biotech company to success. Additionally, the section discusses the importance of creating a ‘learning organisation’, where all employees are encouraged and expected to continuously learn. This perspective has the potential to foster an inspiring work environment and generate excitement within the team. The chapter also highlights the importance for leaders to be authentic, strategic, flexible and effective communicators who recognise and respect cultural differences.

Overview of the Biotechnology Industry

Section Two, 'Overview of the Biotechnology Industry', explores the potential of biotechnology to change the world, including an insightful opening chapter 'Unleashing the Promise of Biotechnology to Help Heal, Fuel, and Feed the World'. It covers a range of topics, including health and biotechnology's role in extending and improving lives through vaccines, cancer treatments, personalised medicine and gene editing. The chapter beautifully delves into the ways in which biotechnology can contribute to feeding the world, specifically through the bioeconomy and biotechnology and how this can create a more sustainable future.

The Human Capital Component

Section Three, 'The Human Capital Component', reviews the importance of building and managing teams in biotechnology entrepreneurship. The chapter outlines the fundamentals of the entrepreneurial process related to teams and highlights the significance of maintaining an entrepreneurial culture. It offers crucial insights from experienced leaders, as well as the academic perspective on areas including finding and hiring good people and understanding the factors that motivate teams.

This section underscores the vital importance of building and maintaining an entrepreneurial culture and that leaders must recognise and incentivise team contributions and encourage employee ownership. This section also highlights the importance of mentorship and provides practical advice on how to find the right mentors for different types of assistance. The mentor-mentee relationship is built on trust and common interests, and it is important to identify specific issues for which guidance is needed. It is also crucial to follow up with mentors and show appreciation for their support. Overall, the message is clear: mentorship can be key to success in the biotech industry.

The Emerging Biotechnology Enterprise

Section Five, 'The Emerging Biotechnology Enterprise', is crucial for anyone considering starting a biotech company. The authors explain the importance of entity selection and how this can impact aspects including tax and securities considerations. Also included in Section Five

is 'Licensing the Technology: Biotechnology Commercialization Strategies Using University and Federal Labs'. This chapter examines the route from academic research to marketable products, looking at technical aspects such as the significance of collaborative agreements between academia and industry, and the essential components of biotech licensing agreements.

The chapter emphasises the advantages of working with universities and federal laboratories and describes the need for research collaboration programmes and funding opportunities for startups. It also covers newer models of technology transfer, such as the Translational Research Centre (TRC): a facility that aims to bridge the gap between scientific research and clinical application. TRCs typically bring together multidisciplinary teams of researchers, clinicians and industry experts to collaborate on projects that have potential clinical applications. The chapter concludes by examining how technology transfer affects the growth of the biotech industry and explores how universities and federal laboratories can best leverage their technologies for maximal benefit.

The Latter-Stage Biotechnology Company

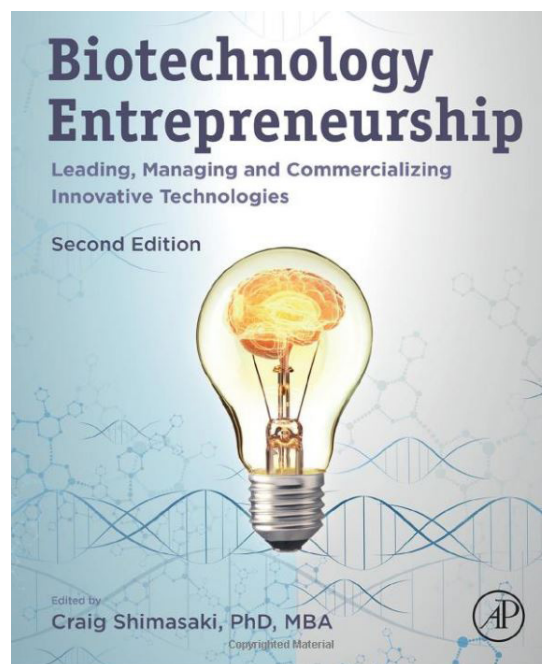
The final section, 'The Latter-stage Biotechnology Company', is an insightful guide to the many aspects of navigating a company through different stages from inception to maturity and includes a wealth of advice on overcoming fundamental challenges all biotech businesses will face. A chapter I found particularly interesting was Chapter 35, 'Company Growth Stages and the Value of Corporate Culture' (authored by Craig Shimasaki), which explores the impact of a company's culture and core values, and how this will determine its chances to succeed.

The chapter highlights the importance for a leader to recognise the different stages of development that their company goes through. For example, during the startup stage, a leader must manage their team with an entrepreneurial management style, characterised by centralised decision-making and strong controls. The author notes that as the company grows, the leader needs to transition to a professional management style, characterised by delegation of decision-making responsibilities and formal control mechanisms. This revalidates the author's point of hiring the right people with related experience. Their ability to execute and share core values is crucial for success. The author emphasises the importance of addressing

employee and personnel issues quickly to avoid negatively impacting motivation and progress. Identifying and helping the best team members become better employees, managers and leaders is critical for long-term success.

Concluding Remarks

As someone who works as an industrial chemist PhD researcher and has founded a startup, I highly recommend this book. It is a valuable resource, with a wealth of information that I have already found useful and will continue to refer to in the future. The book provides essential guidance for anyone looking to start or grow their biotech business, with clear and concise language making it accessible to both new and experienced entrepreneurs in the industry. It covers important topics such as entity selection, biotechnology commercialisation and intellectual property protection strategies for biotech innovations, which are crucial for any biotech startup. Overall, I believe this book is a must-read for anyone in the biotech industry looking to establish and grow a successful business.



“Biotechnology Entrepreneurship”

The Reviewer



Darren Phillips is a Chartered Chemist and Senior Process Technologist at the Biorenewables Development Centre (BDC), University of York, UK. He contributes over a decade of experience in downstream processing and R&D, developing sustainable solutions in process development and scale-up. He is also pursuing a Biology PhD at the Centre for Novel Agricultural Products (CNAP), studying the variation of ice binding proteins in commercial carrot cultivars. As the founder of IBP Ventures, Darren spearheads the innovative application of ice binding proteins to tackle real-world challenges in food, medicine and agriculture.