
Enterprise for Life Scientists: Developing Innovation and Entrepreneurship in the Biosciences

David Adams and John Sparrow (eds.)

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Bioentrepreneurship is the process of creating value from life science innovation. It is referred to by several names including bioscience entrepreneurship, life science entrepreneurship or bioscience enterprise. Whatever the descriptor, the fundamental notion is about moving a life science discovery or invention from the research phase through development to a commercial market.

There are three elements to the definition of bioentrepreneurship. The first is that it is a process, characterised by long and expensive research and development times, a difficult regulatory and reimbursement environment and is fraught with clinical and financial risk. The second element of the definition is that the process is designed to create value in the marketplace. Value is primarily the tangible and intangible benefits of a product or service minus the costs. Finally, bioentrepreneurs seek to exploit life science innovation for commercial purposes. Innovation is different from an idea or an invention. An idea is something that pops into your mind while you are in the shower. An invention is a drawing, design, model or prototype you make based on the idea. An innovation is a

product or service that creates value in the marketplace. Unfortunately, a technology is not a product and a product is not a business.

Several drivers have created the need for student bioentrepreneurship educational materials and programmes including more aggressive university and industry technology transfer efforts, the growing demand for life scientists with business development skills, a tight labour market for academic scientists and teachers and the recognition that the academic culture is uncomfortable or outright hostile to the notion of life science discovery commercialisation.

Thus, it is encouraging to see the arrival of the bioentrepreneurial text produced by Profs. Adams (University of Leeds) and Sparrow (University of York). While the book is targeted primarily to undergraduate science students in the United Kingdom, the editor's claim that it would be useful for practitioners, postgraduates, post-docs and academics as well. I only partially agree.

The book is divided into ten chapters including Knowledge and Technology Transfer, Creativity and Innovation in the Biosciences, Protecting Ideas, Researching Ideas, Communicating Ideas, Starting Up a

Business, The Role of the Business Plan, Funding your Ideas, Regulation in the Biosciences and Ethical Issues. Each chapter includes one or several sidebar anecdotes or quotes described as 'case studies' and ends with a brief synopsis of learning outcomes. There are no teaching notes, supplementary media or other useful pedagogical devices, such as assignments or test questions in the book. References at the end include websites and other online resources, mostly based in the UK.

This book is written for a UK audience and thus understandably uses jargon, technical terms and references unique to the UK. Readers outside the UK will thus find some of the terms unfamiliar or not relevant. In addition, since bioscience commercialisation is a global industry, bioentrepreneurs need to understand how to access critical resources and markets in key bioclusters such as the United States and continental Europe. This book provides little in the way of help in that regard.

The authors of each of the chapters represent academic and industry technology transfer offices, service providers, industry members and academics. The tone of each chapter seems to reflect the backgrounds of the authors resulting in some chapters that are more theoretical and peripheral to the process compared to those which were clearly written

by those who have 'been there, done that'. In addition, while the information presented is basic, I disagree with some of the premises mentioned by some of the authors. For example, the chapter on business plan writing is a clear explanation of the process, but fails to emphasise the importance of feasibility planning, risk analysis and market validation prior to writing the plan. The reader is given the impression that writing a business plan is the next logical step in selling your idea without first validating critical marketing, regulatory, reimbursement and financial assumptions.

Finally, the book would have been better had it included chapters on international biobusiness, new product development, doing business in the US and issues concerning clinical trials. A future US edition might fill these gaps.

The emergence of bioentrepreneurship training programmes around the world will be an inevitable result of the need to train a professional cadre of leaders in the industry. This book is a welcomed addition despite the fact that it is written for a limited audience in a specific geographic region and will appeal to those mostly at the undergraduate level.

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