
PREFACE

Entrepreneurship is a vital source of change in all facets of society, empowering individuals to seek opportunity where others see insurmountable problems. For the past century, entrepreneurs have created many great enterprises that subsequently led to job creation, improved productivity, increased prosperity, and a higher quality of life. With one-third of the world's population lacking access to basic energy needs and two-thirds with annual incomes of less than \$2,000, entrepreneurship can play an important role in finding solutions to these challenges facing civilization.

Many books have been written to help educate others about entrepreneurship. Our textbook is the first to thoroughly examine a global phenomenon known as "technology entrepreneurship." Technology entrepreneurship is a style of business leadership that involves identifying high-potential, technology-intensive commercial opportunities, gathering resources such as talent and capital, and managing rapid growth and significant risks using principled decision-making skills. Technology ventures exploit breakthrough advancements in science and engineering to develop better products and services for customers. The leaders of technology ventures demonstrate focus, passion, and an unrelenting will to succeed.

Why is technology so important? The technology sector represents a significant portion of the economy of every industrialized nation. In the United States, more than one-third of the gross national product and about half of private-sector spending on capital goods are related to technology. Although making up only 15 percent of the S&P 500, the technology sector generates 45 percent of the daily trading volume on the New York stock markets. It is clear that national and global economic growth depends on the health and contributions of technology businesses.

Technology has also become ubiquitous in modern society. Note the proliferation of cell phones, personal computers, and the Internet in the past decade and their subsequent integration into everyday commerce and our personal lives. When we refer to "high technology," we include information technology and electronics companies, life science and biotechnology businesses, and those service firms where technology is critical to their missions. At the beginning of the 21st century, many technologies show tremendous promise, including photonics and Internet advancements, medical devices and drug discovery, nanotechnology, and materials technologies related to energy and the environment. The intersection of these technologies may indeed enable the most promising opportunities.

The drive to understand technology venturing has frequently been associated with boom times. Certainly, the often-dramatic fluctuations of economic cycles can foster periods of extreme optimism as well as fear with respect to entrepreneurship. However, some of the most important technology companies

have been founded during recessions (e.g., Intel, Cisco, and Amgen). This book's principles endure regardless of the current state of the economy.

APPROACH

Just as entrepreneurs combine things to create innovations, we integrate the most valuable entrepreneurship and technology management theories from some of the world's leading scholars, educators, and authors. We also provide an action-oriented approach to the subject through the use of examples, exercises, and lists. By striking a balance between theory and practice, we hope our readers will benefit from both perspectives.

Our comprehensive collection of concepts and applications provides the tools necessary for success in starting and growing a technology enterprise. We show the critical differences between scientific ideas and true business opportunities. Readers will benefit from the book's integrated set of cases, examples, business plans, and recommended sources for more information.

We illustrate the book's concepts with examples from the early stages of both traditional high-technology firms (e.g., Microsoft, Google, and Genentech) and those that use technology strategically (e.g., Starbucks and Wal-Mart). How did they develop enterprises that have had such positive impact, sustainable performance, and longevity? In fact, the book's major principles are applicable to any high-growth, high-potential venture. This includes nonprofit enterprises such as Conservation International and the Kauffman Foundation.

AUDIENCE

This book is designed for students in colleges and universities, as well as others in industry and public service, who seek to learn the essentials of technology entrepreneurship. No prerequisite knowledge is necessary, although an understanding of basic accounting principles will prove useful.

Entrepreneurship was traditionally taught only to business majors. Because entrepreneurship education opportunities now span the entire campus, we wrote this book to be approachable for students of all majors and levels including undergraduate, graduate, and executive education. Our primary focus is on science and engineering majors enrolled in entrepreneurship and innovation courses, but the book is also valuable to business and other students with a particular interest in technology ventures.

For example, the courses at Stanford University and the University of California, Davis, based on this textbook regularly attract students from majors as diverse as computer science, product design, political science, economics, pre-med, electrical engineering, history, biology, and business. Although the focus is on technology entrepreneurship, these students find this material applicable to the pursuit of a wide variety of endeavors. Entrepreneurship education is a wonderful way to teach universal leadership skills, which include being comfortable with constant change, contributing to an innovative team, and

demonstrating passion in any effort. Anyone can learn entrepreneurial thinking and leadership. We particularly encourage instructors to design courses where the students form study teams early in the term and learn to work together effectively on group assignments.

WHAT'S NEW

Based upon feedback from readers and new developments in the field of high-technology entrepreneurship, numerous enhancements appear in this second edition. Recent compelling academic theories and practitioner insights in entrepreneurship are included in the text. Upgraded examples and exercises place even more emphasis on technology ventures worldwide. A special exercise called the “venture challenge” at the end of each chapter steps the reader through the formation of a venture.

Business plan development materials and tools are expanded and summarized in a single chapter. This includes an annotated table showing how to best organize the contents of a professional business plan. A bundled DVD has numerous video clips that highlight specific sections and cases in the book with inspirational comments by entrepreneurs, investors, and teachers. Two new full-length cases are included in the appendix. Some minor reordering of chapters streamlines the remaining content.

FEATURES

The book is organized in a modular format to allow for both systematic learning and random access of the material to suit the needs of any reader seeking to learn how to grow successful technology ventures. Readers focused on business plan development should consider placing a higher priority on chapters 7, 10, 12, 17, and 18. Regardless of the immediate learning goals, the book is a handy reference and companion tool for future use. We deploy the following wide variety of methods and features to achieve this goal, and we welcome feedback and comments.

Principles and Chapter Previews—A set of 20 fundamental principles are developed and defined throughout the book. They are listed in the inside front cover as well. Each chapter opens with a key question and outlines its content and objectives.

Examples and Exercises—Examples of cutting-edge technologies illustrate concepts in a shaded-box format. Information technology is chosen for many examples because students are familiar with its products and services. Exercises are offered at the end of each chapter to test comprehension of the concepts.

Sequential Exercise and Case—A special exercise called the “venture challenge” guides readers through a chapter-by-chapter formation of a new enterprise. In addition, a case study about an actual biotechnology firm, AgraQuest, runs from one chapter to the next.

TABLE P1 Mapping of cases.

Cases in appendix B	Reference chapters	Issues
World Indigo	3 to 7, 12, 15, 20	Business model and strategy, team, global business, execution
Biodiesel	2, 3, 11, 17	Opportunity, finance, marketing
Yahoo! 1995	3, 4, 7, 17, 18	Business concept, finance, business plans
Barbara Arneson	12, 17	Stock options, finance
Jon Hirschtick	4, 12, 17, 18, 19	Strategy, team, finance, negotiations
Artemis Images	2, 3, 12	Opportunity, value proposition, team
Radco	3, 12, 20	Business model, team, ethics

Business Plans—Methods and tools for the development of a business plan are gathered into one special chapter, which includes a thoroughly annotated table of contents. Two complete business plans are also provided as samples in appendix A.

Cases—Seven comprehensive cases are included in appendix B. A mapping of how these cases relate to specific chapters in the book is provided in Table P1. Additional cases from Harvard and ECCH are recommended on the textbook's websites.

References—References are indicated in brackets [Smith, 2001] and are listed as a complete set in the back of the book. This is followed by a list of entrepreneurship-related websites in appendix C and a comprehensive glossary.

Chapter Sequence—The chapter sequence represents our best effort to organize the material in a format that can be used in various types of entrepreneurship courses. The chapters follow the four-part layout shown in figure P1. Courses focused on creating business plans can reorder the chapters with emphasis on chapter 7 among others.

DVD Media Package—A DVD of video segments is bundled with the book. Special icons throughout the book denote when to view these comments from world-class entrepreneurs, investors, and teachers. More free videos clips and podcasts are available at Stanford's Educators Corner website (see <http://edcorner.stanford.edu>).

Websites and Blog—Please visit websites for this book at both McGraw-Hill Higher Education (<http://www.mhhe.com/dorfbyers2e>) and Stanford University (<http://techventures.stanford.edu>) for supplemental information applicable to educators, students, and professionals. For example, a

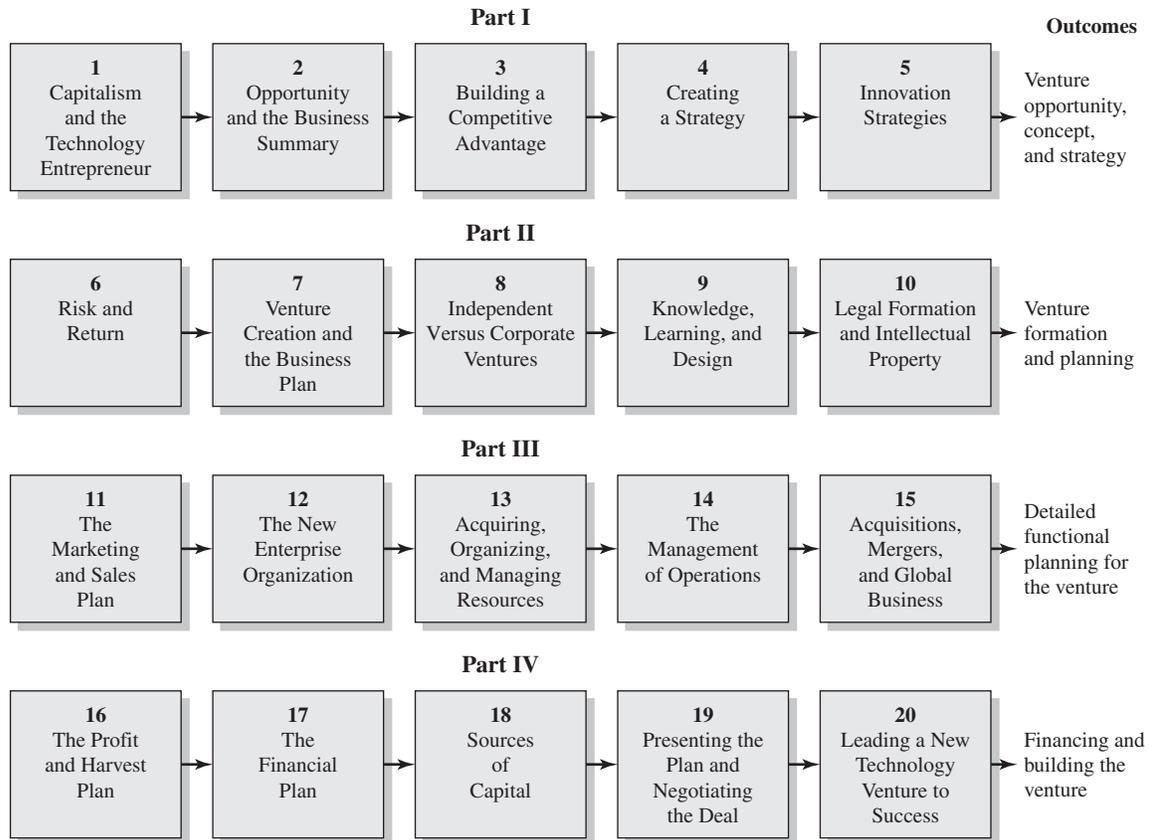


FIGURE P1 Chapter sequence.

complete syllabus for an introductory course on technology entrepreneurship and a PowerPoint presentation for each chapter are provided for instructors. Visitors to either website can link to the author's blog to interact with the authors and other readers (see <http://thomasbyers.net>).

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