PREFACE

Entrepreneurship is a vital source of change in all facets of society, empowering individuals to seek opportunities 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. Entrepreneurship is now playing a vital role in finding solutions to the huge challenges facing civilization, including health, communications, security, infrastructure, education, energy, and the environment.

Many books have been written to help educate others about entrepreneurship. Our textbook was 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. 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 smartphones, personal computers, tablets, and the Internet in the past two decades and their subsequent integration into everyday commerce and our personal lives. When we refer to "high-technology" ventures, we include information technology enterprises, biotechnology and medical businesses, energy and sustainability companies, and those service firms where technology is critical to their missions. At the beginning of the twenty first century, many technologies show tremendous promise, including computational systems, Internet advancements, mobile communications platforms, networks and sensors, medical devices and biotechnology, artificial intelligence, robotics, 3D manufacturing, nanotechnology, and clean energy. 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 state of the economy.

APPROACH

Just as entrepreneurs innovate by recombining existing ideas and concepts, we integrate the most valuable entrepreneurship and technology management theories from the world's leading scholars to create a fresh look at entrepreneurship. 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, our readers gain 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 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 high-technology firms (e.g., Apple, Google, and Genentech) and traditional firms that use technology strategically (e.g., FedEx 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 growth-oriented, high-potential venture, including high-impact nonprofit enterprises such as Conservation International and the Gates 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 and high-growth 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 by 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 students and others with a particular interest in high-growth ventures.

For example, our courses at Stanford University, the University of Oregon, 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 in which 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 technology entrepreneurship, numerous enhancements appear in this fourth edition. Recent compelling academic theories and practitioner insights in entrepreneurship from leading scholarly journals, trade books, and popular blogs and press are included in the text. Special attention is given to business model development and measurement, lean start-ups, design thinking, intellectual property, and marketing and sales. All examples and exercises were reviewed to place even more emphasis on exciting technology ventures around the globe.

Chapters 1 and 2 have been extensively revised to better introduce the art and science of venturing. Chapter 3 now contains the latest techniques on business model development and lean start-up methodologies. The concept story and business plan development materials and tools are consolidated and improved in a new Chapter 6 to start Part II. Similarly, a new Chapter 8 consolidates and expands content regarding creativity and product development. Chapter 11 is solely focused on the vital topic of intellectual property. Chapter 12 now has all key material on teams and organizational learning in one place. Two new full-length cases regarding clean technology and sustainability are included in the appendix. The AgraQuest sequential case in each chapter has been replaced with an examination of an exemplary enterprise relevant to that material. Cases no longer in use from previous versions are available on our websites. Some reordering of sections within 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 and model development should consider placing a higher priority on Chapters 3, 6, 9, 11, 12, 17, 18, and 19. 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 is 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 Spotlights—A special exercise called the "venture challenge" guides readers through a chapter-by-chapter formation of a new

TABLE P1 Overview of cases.

Cases in appendix B	Synopsis	Issues
Method	A start-up contemplates a new product line	Opportunities, vision and the business model, marketing and sales
Method products	A product development effort runs into problems	Innovation strategies, creativity, and product development
Biodiesel	Three founders consider an opportunity in the energy industry	Opportunity identification and evaluation, business model
Yahoo!	Two founders face a decision on financing that forces them to confront their vision	Vision and business model, sources of capital, business plan
Barbara's Options	A soon-to-be graduate weighs two job offers	Stock options, finance
Artemis Images	A promising image management company runs into trouble	Competitive strategy, business model, team, finance
Sirtris Pharmaceuticals	A life sciences firm faces major decisions about its future	Alliances, licensing, market strategy
Cooliris	A young entrepreneur struggles to hire a team	Hiring process, scaling issues

enterprise. At the end of each chapter's narrative, a successful enterprise is profiled in a special "spotlight" section.

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. A sample business plan is provided in appendix A.

Cases—Eight comprehensive cases are included in appendix B. A short description of each case is provided in Table P1. Additional cases from Harvard and ECCH are recommended on this textbook's websites.

References and Glossary—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 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 and models can reorder the chapters with emphasis on Chapters 3, 6, 9, 11, 12, 17, 18, and 19.

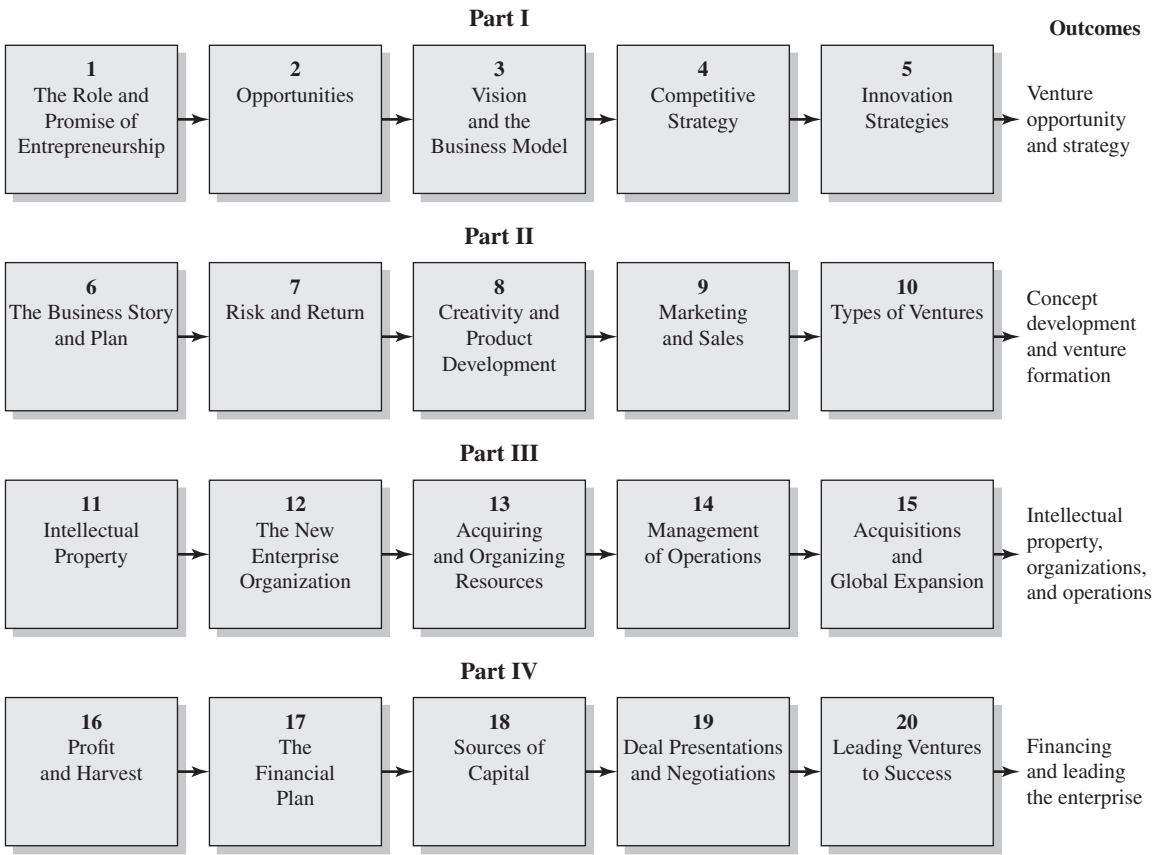

FIGURE P1 Chapter sequence.

Video Clips—A collection of suggested videos from world-class entrepreneurs, investors, and teachers is listed at the end of each chapter and provided on this textbook's websites. More free videos clips and podcasts are available at Stanford's Entrepreurship Corner website (see http://ecorner.stanford.edu).

Websites and Social Networking—Please visit websites for this book at both McGraw-Hill Higher Education (http://www.mhhe.com/byersdorf) and Stanford University (http://techventures.stanford.edu) for supplemental information applicable to educators, students, and professionals. For example, a complete syllabus for an introductory course on technology entrepreneurship and additional learning resources for each chapter are provided for instructors.

ELECTRONIC TEXTBOOK OPTIONS

E-books are an innovative way for students to save money and create a greener environment at the same time. An e-book can save students about half the cost of a traditional textbook and offers unique features like a powerful search engine, highlighting, and the ability to share notes with classmates using e-books.

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