

Section 1

BASIC CONCEPTS

Meeting the Challenge

A Financing Primer

Commercialization Strategies

Complex Strategies for Rich
Technology Platforms

Licensing

Teaming for Success

Equity Investments

Meeting the Challenge

PRELUDE

WHAT MAKES THIS BOOK UNIQUE?

INTENDED AUDIENCE

CONCLUSION

Prelude

The ATP Commercialization and Business Planning Guide for the Post-Award Period is a combination text and workbook, with one objective—to increase the likelihood of commercialization success by companies which receive funding through NIST's Advanced Technology Program (ATP). Meeting this objective is a tall order—and one which a book cannot accomplish on its own. To be of value, ATP awardees should use the Guide frequently. Pick it up when you first receive notification that you have won an ATP award, and continue to use it until your program is complete. “Using” the book doesn’t imply merely dusting it off now and then for casual reading, but instead means working through the activities found in the workbook. The activities take time to complete and are intended to create cognitive dissonance. In other words, they are designed to help the technology entrepreneur develop new business habits—and part with misconceptions.

Most of you will need help “staying the course.” I recommend that you seek assistance from members of your Board, staff, advisors, state service providers, and consultants. As long as the assistance is timely, affordable, motivating, and the result of solid experience, it does not matter who provides it. Advisors can help you with the sometimes-difficult task of putting these workbook activities on the front burner while at the same time keeping you focused on the demands of your core business. Advisors can also help ensure that the quality of the work you accomplish is appropriate to the task with which you are faced.

What Makes this Book Unique?

During the past several years I have had the opportunity to view dozens of ATP-funded companies from various perspectives and to compare them with firms that receive funding through other Federal programs. It appears that ATP-funded firms face some unique problems and issues that arise as a consequence of the revolutionary nature of the technologies often funded by the Advanced Technology Program.

The ATP program is intended to promote U.S. competitiveness by supporting high-risk R&D in technology areas where there is substantial potential for enhancing U.S. economic growth. ATP awards vary in size, are multi-year, require a funding match, and can be made to single companies or joint ventures, including

This book is intended for use ONLY during the post-ATP-award period. Be sure to refer to ATP documents for guidelines on proposal preparation. Do not use this book for that purpose.

Seek the involvement of an experienced, motivating mentor. A mentor can be a state service provider or a consultant. Or, you can find a mentor among:

- *your Board of Directors*
- *your staff*
- *your Board of Advisors*

ATP gathers feedback on business and economic developments from awardees on a quarterly basis, through the ATP Business Reporting System.

both large and small firms. ATP succeeds in attracting firms that work in advanced technology areas. As a result, ATP awardees often have unique needs. For example:

- Some of the technologies funded by ATP are “hot.” Therefore, once an ATP award is announced, a small company may suddenly find itself flooded with inquiries and suitors. On the surface, this would appear to be an enviable situation. However, there is a downside: the company is suddenly thrust into the position of having to make quick, far-reaching decisions about partners, commercialization strategies, and valuation.
- A related problem is that many small, innovative companies do not yet have the basis for understanding how much money or effort it truly takes to bring a product to market. As a result, they either avoid or rush into arrangements, without understanding the full implication of their actions.
- Technologies funded by ATP frequently affect multiple industries. As a consequence, an ATP awardee needs to contemplate the implementation of a far more complex “constellation of strategies” to exploit his/her company’s particular technology. Again, this requires the awardee to think quickly—and strategically—across diverse industries. This is difficult for even the most skilled businessmen and businesswomen to do. Once a multi-faceted strategy has been mapped out, the awardee must wisely select the initial focal point of his/her efforts. When confronted with many options, it is easy to inadvertently squander precious time, energy, and resources.
- Perhaps as a consequence of the problems faced by awardees early on, many ATP-funded start-up companies engage in private placements as a means of financing early-stage growth. Different financing options require different types of documentation. Often there is confusion about the differences in style and purpose of business plans used externally with debt and equity financing, and the prospectus and private placement memoranda used with Initial Public Offerings (IPOs) and private placements.
- The prospect of rapid growth requires that a company’s founder spend more time planning, and that he or she remain focused, so as to steer the course of a rapidly moving enterprise. From a human resource perspective, rapid expansion is much like an uncontrolled chemical reaction: highly unpredictable. Growth, therefore, requires a mixture of diplomacy, vision, energy, and flexibility on the part of the founder.

Companies that receive ATP funding appear to face a sharper and more rapid learning curve than other companies do. As a consequence, the Guide places a special emphasis on the special issues raised above, at the same time that it attempts to provide some of the fundamental business knowledge that any technology entrepreneur must master. Throughout the Guide, reference is made to unique considerations in biotechnology, information technologies, and other advanced fields.

This ATP Guide is divided into three sections. Section 1 contains seven chapters and provides the reader with a cognitive framework in which various commercialization issues can be considered. Section 2 is a tutorial that describes how to make a winning presentation to equity investors and/or potential strategic allies. Section 3 is a workbook of activities which can be completed selectively by the ATP awardee.

Section 1 opens with this prelude. Following this introductory chapter, it provides a Primer to Financing Options, intended to introduce the reader to the domain of available options. A simple typology of commercialization strategies is presented in Chapter 3. With the framework in place, the reader is then introduced in Chapter 4 to the complexities posed by having a rich technology platform. In such situations one must consider the myriad of ways in which to best exploit the technology. The result is a constellation of strategies which may be applied to various upstream and downstream applications. Finally, Chapters 5 - 7 provide a more in-depth treatment of three financing options.

Section 2 provides a sample presentation to equity investors. It is divided into four parts: Company/Technology/Product, Market Assessment, Goals and Objectives, and Challenges/Requirements/Opportunities.

Once the reader understands the financing options available, he or she needs to prepare to meet the demands of the following tasks: (1) select the best strategy; (2) convey the opportunity to others; (3) understand the value of an opportunity as well as the expenses associated with its commercialization; (4) make a logical case for investment by a strategic ally/investor; (5) engage in successful negotiations with appropriate partners or investors; and (6) successfully guide the growth of his or her firm. For most small companies, success in these endeavors requires increased business acumen. Section 3 of the Guide is designed to sharpen these business skills.

Intended Audience

This book was written expressly for both ATP awardees and their advisors. It is directed at the technology entrepreneur. Much of the advanced information contained in Section 1, while new for many ATP awardees, should constitute the

This book was written for both ATP awardees and their advisors to use during the post-ATP-award period. However, other companies will also find the materials useful.

Lack of knowledge, traditional biases, an overwhelming amount of work, and high expectations are often a deadly combination.

knowledge and experience base of a skilled advisor. Thus, Section 1 is designed to impart both basic and more advanced information to awardees, with respect to funding and partnering options.

Section 2 provides guidance on a method for succinctly representing an awardee's opportunity in an oral presentation to private sector investors.

Section 3 has a different objective. It outlines a variety of activities which the ATP awardees can address on their own. At the same time, the awardee's advisor can selectively recommend activities from Section 3 once he or she has determined the weak points in an ATP firm's preparation.

The reason for including a workbook in this Guide merits more than passing mention. When confronted with inquiries from potential investors and allies, pressures to grow rapidly, and the need to make quick and profound judgments, an entrepreneur may be inclined to turn such responsibilities over to a consultant. This is not the appropriate course of action, however. A technology entrepreneur MUST be actively involved with all such decisions. Just as a product concept evolves and changes over time, so, too, must the business acumen of the technology entrepreneur. Failure to expand one's understanding of the business will sooner or later have profound—and usually negative—consequences for the company. Such consequences include: (1) pursuing less promising product concepts; (2) missing the market window of opportunity; (3) making poor hiring decisions; (4) picking the wrong partners; (5) harboring unrealistic expectations; (6) overextending one's finances; (7) being blindsided by a competitor's actions; and (8) failing to negotiate a win-win relationship with investors and partners. Although preparation is not an antidote to all of these problems, one stands a far better chance of responding appropriately if well prepared.

The solution to these problems is not merely a function of money. Without preparation, money is insufficient. Why am I so convinced that money is not enough? In the mid-1980's, I worked as a consultant to a Fortune 500 company with an "intrapreneuring" program. One of my roles was to assess the training needs of these intrapreneurs and to outline some of the problems of the fledgling ventures—a unique opportunity.

The premise behind the intrapreneuring experiments of the 1980's was the belief that if one could combine entrepreneurial vision and zeal with the resources of a large company, success could more readily be realized. Therefore, technology entrepreneurs from within a company—intrapreneurs—were sent to skunk works or corporate incubators and provided with whatever resources they required. Unfortunately, the expectations—at least for this company's intrapreneuring program—were not realized. While there were many reasons, the key seemed to be the failure of the technology entrepreneurs to adequately increase their business acumen. Lack of new knowledge and traditional biases, combined with an overwhelming amount of work and high expectations, is a deadly combination.

The good news is that most scientists and engineers can learn the business skills needed to be successful. But training must be flexible, experienced professionals must provide it, and it must offer a structure that makes the designated activities a priority. We have used this approach with hundreds of technology entrepreneurs and have demonstrated its effectiveness.

How to Use This Book

The objective of this workbook is to provide you, the ATP awardee, with a way of increasing your business know-how at a speed commensurate with the challenges ahead. New information that results from the workbook activities should be synthesized and compiled into a set of useful documents, all of which become part of your commercialization toolkit. Recognizing that it is always difficult to add planning to an already busy schedule, it is highly recommended that you seek a skilled advisor to work with you on completing these activities. In fact, your advisor should become your sparring partner. This person should be vested in your success, rather than your opinions, and should offer new ways of looking at things.

When to Use This Book

In this workbook, several assumptions have been made regarding when you will require certain information and tools. Starting with a proposed schedule should provide you with a clear idea of how to proceed. All companies and situations differ, however, and the proposed schedule may not meet your exact needs. If this is the case, make appropriate adjustments.

The figure on the next page provides an overview as to when certain documents and activities should be completed. It is important to note that this book is intended for use by ATP firms during the post-ATP-award period. During the preparation of an ATP proposal, companies are expected to include a preliminary business plan with their proposal. Be sure to consult ONLY ATP proposal preparation documents for guidelines on how to produce that plan. Do NOT use the Guide for that purpose. The Guide is intended for use ONLY in the post-award period—that is, during the period following the announcement that a company has received an ATP award. The purpose of this guide is to help ATP awardees to “flesh-out” and enhance commercialization planning activities initiated at an earlier time.

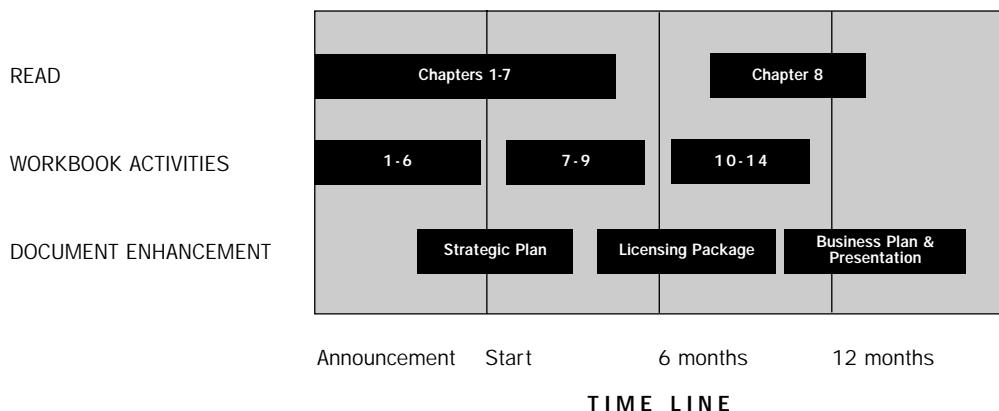
Most importantly, planning requires commitment. Unless you decide to commit the time and resources required for thoughtful planning, you might be caught off guard when opportunities and challenges present themselves.

Commercialization Toolkit™

- ***Strategic plan***
- ***Licensing package***
- ***Business plan***
- ***Presentation materials***

Suggested schedule for completing various activities.

**FIGURE II-2:
SCHEDULE FOR DEVELOPING A COMMERCIALIZATION TOOLKIT**



Conclusion

The purpose of the ATP Commercialization and Business Planning Guide is to provide assistance to new ATP awardees. The book is divided into three sections:

- ▶ Section 1 offers an overview of financing options, with detailed information on licensing, corporate partnering, and equity investment.
- ▶ Section 2 provides guidance on how to make a winning presentation to potential equity investors, strategic allies, and/or potential licensees.
- ▶ Section 3 is a workbook to be used by the technology entrepreneur on his or her own or with the guidance of an experienced advisor to develop specific components of a business plan.

For maximum benefit, you are urged to seek the involvement of an experienced and motivating mentor or advisor. Working together through the various workbook activities, you can synthesize and incorporate the material into a variety of documents—documents that will become part of your Commercialization Toolkit™. Suggested outlines for the various documents that you are likely to need in the commercialization of your technology are included at the end of various chapters in Section 1. These include:

- ▶ A strategic plan
- ▶ A licensing package
- ▶ A business plan
- ▶ Presentation materials

The quotation on the following page is fictitious but offers insights into the types of challenges and changes that are commonly experienced when commercializing a rich technology platform.

One Company's Perspective

When TechWest applied for ATP funds, we were already a going concern with equity investment from two private individuals. We sought ATP funding as a means to develop novel methods of production which would allow us to meet perceived market need for our product.

Upon receiving the ATP award, our immediate challenge was to raise the additional funding required to meet our overall business objectives. This took most of my time, but we were successful in realizing our short-term financing goals.

Three years have elapsed since first receiving our ATP award. During this time, my focus has shifted from inside management to customer-focused activities. I have added staff to handle more of the day-to-day operations. This shift in role was easier for me than for some founders, as my background is more on the business, as opposed to the scientific, side.

Customer interaction was vital to our company's growth and surfaced new opportunities which ultimately resulted in a shift away from our initial product concept to a new focus. TechWest has always been open to investigating new commercialization strategies which would result in the creation of greater value.

As a consequence of this new focus, many changes were required in our firm. The biggest challenge was changing the culture of the company. We had to shift from being a relatively small, scientific, low-volume operation to a production-oriented, ongoing business. This required a change in emphasis from R&D to engineering. Some personnel could not make this shift and are no longer with the company. This required management action and decisions.

Currently, we also outsource some significant work, and are extremely careful about protecting our technological base while outsourcing. Outsourcing, by the way, was not a part of our original intent.

To date, approximately \$20 million of private sector financing has been invested in the firm, from two sources: our initial private investors, who made multiple rounds of financing, and a customer who made a minority equity investment.

My advice for other ATP firms: be persistent in seeking financing—do not take “no” for an answer. Have an active and interested Board. Don’t be reluctant to change focus when you can justify that another direction presents a better business opportunity, and be prepared to make the necessary cultural shifts.