Agenda

Developing Your Commercialization Plan

- Agency expectations
- Key components of effective plans
- Sources of market research data
- Supporting documents

Agency Differences

- Receipt dates, number & timing of solicitations
- Type of award (grant or contract)
- Proposal review process
- R&D topic areas
- $ of award (both Phase I and II's)
- Proposal success rates
- Profit or fee allowed
- Gap funding provided (competing continuation grants)
- Payment types & schedules
Requirements for Commercialization Plans

<table>
<thead>
<tr>
<th>Agency</th>
<th>Phase I</th>
<th>Phase II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department of Defense</td>
<td>1 page</td>
<td>2 pages</td>
</tr>
<tr>
<td>Health &amp; Human Services</td>
<td>½ page</td>
<td>12 pages</td>
</tr>
<tr>
<td>Department of Energy</td>
<td>3-5 pages</td>
<td>15 pages</td>
</tr>
<tr>
<td>NASA</td>
<td>½-1 page</td>
<td>3-5 pages</td>
</tr>
<tr>
<td>National Science Foundation</td>
<td>3-5 pages</td>
<td>15 pages</td>
</tr>
</tbody>
</table>

What’s a Commercialization Plan?

<table>
<thead>
<tr>
<th>Business Plan</th>
<th>Commercialization Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Company’s products &amp; services</td>
<td>Specific product or application</td>
</tr>
<tr>
<td>Internal operating guide / request for funding</td>
<td>Defines a path-to-market</td>
</tr>
<tr>
<td>Strategic &amp; tactical</td>
<td>Little emphasis on operations</td>
</tr>
<tr>
<td>Extensive financials</td>
<td>Revenue model; possibly P&amp;L</td>
</tr>
</tbody>
</table>
Commercialization Plan Components

- Market Opportunity
- The Company/team
- Product/technology and Competition
- Financing and Revenue Model

SBIR/STTR Reviewer Questions

**Market Opportunity**

- Is market opportunity described succinctly?
- Does the proposal demonstrate an understanding of a typical customer profile?
- Is the product/service described and the customer need that’s being addressed?
- Can you tell where the Company is in the development cycle?
- Is the market opportunity adequate to justify a Phase I feasibility effort?
SBIR/STTR Reviewer Questions

**Company/Team**
- Is the Company seed-stage, early-stage, or expanding?
- How well is the team positioned to take this innovation to market?
- Have they taken similar products to market?
- Do they have additional outside advisors, mentors, partners, and stakeholders?
- Is the corporate structure consistent with the Company’s stage and vision?

**Product/Competition**
- Does the proposal describe product features that will provide a compelling value proposition to customers?
- What market validation is there about this value proposition?
- Does the proposal demonstrate knowledge of the competitive landscape?
- How will the Company compete? Price, performance, other?
- Does the Company understand issues regarding IP?
- Is there evidence that the Company knows its position in the IP landscape?
- Is there a management plan for handling IP issues?
SBIR/STTR Reviewer Questions

Financing & Revenue Model

- Does the proposal demonstrate adequate knowledge of the level of financial resources needed to take the innovation to market?
- Is there a plan to bring reasonable resources to bear to get the innovation to market?
- How and how soon will the innovation generate revenue?

Agency Differences -- Grants vs. Contracts

- **Grants – Investigated Initiated Topics**
  - HHS (95% $$), NSF, USDA, DOE, ED
  - Some agencies might have topic areas (aka "buckets")
  - Open communications
  - External peer review

- **Contracts – Agency-specified topics**
  - DoD, NASA, DHS, EPA, DOT, DOC, ED, HHS (5% $$)
  - Must respond to a topic
  - Limited time to prepare (8-12 weeks)
  - Limited communications during open solicitation
  - Internal review
Commercialization Plans

Contracting Agencies

- DoD, for example

Volume 2: Technical Volume Outline

20 Pages maximum, to include:

1. Identification and Significance of the Problem or Opportunity
2. Phase I Technical Objectives
3. Phase I Statement of Work (including Subcontractors’ Efforts)
4. Related Work
5. Relationship with Future Research or R&D
6. Commercialization Strategy
7. Key Personnel
8. Foreign Citizens
9. Facilities/Equipment
10. Subcontractors/Consultants
11. Prior, Current, or Pending Support of Similar Proposals or Awards
DoD Commercialization Strategy

**Phase I Requirements**
- Overall strategy for commercializing in DoD, in other federal agencies, and/or in private sector
- Market need being addressed
- Size of target market
- Schedule of expected “quantitative” commercialization results

**Phase II Requirements**
- First product to incorporate the technology?
- Target customer?
- Size of target market?
- Funding plan
  - Operating capital required?
  - Sources and timing of fundraising?
- Description of Company’s marketing expertise
- Competitive analysis
  - How will the Company compete?
DoD Commercialization Strategy

Phase II Requirements

- Schedule of “quantitative” commercialization results
  - At one year after start of Phase II
  - At end of Phase II project
  - After completion of Phase II
    - additional investment
    - sales revenue
- Company Commercialization Report (annual)

DoD Commercialization Strategy – Phase I

- ~1 page
- Strategy for commercializing this technology in DoD, other Federal Agencies, and/or private sector markets
- Market need
- Size of the market
- Schedule showing the quantitative commercialization results from this SBIR project
  - amount of additional investment
  - sales revenue
DoD Commercialization Strategy – Phase I

~1 page

- This section has increased in importance following recent SBIR/STTR reauthorization.
- Emphasis should be on the DoD Phase III applications
  - Be certain to read the Phase III section under the topic in the solicitation very carefully for hints
- DoD is also interested in use with other DoD components, other governmental agencies and “dual use” private sector applications

Include 3 sections

- Market Opportunity
- Product and Competition
- Financing and Revenue Model
DoD Commercialization Strategy - Phase II

**At minimum, must address**

1. What is the first product that this technology will go into?
2. Who will be the customers, and what is the estimated market size?
3. How much money will be needed to bring the technology to market, and how will that money be raised?
4. Does the company contain marketing expertise and, if not, how will that expertise be brought into the company?
5. Who are the proposing firm’s competitors, and what is the price and/or quality advantage over those competitors?

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**Must include amount of additional investment required and sales revenue expected**

- Schedule showing anticipated quantitative commercialization results at various time points
  - 1 year after start of Phase II
  - At completion of Phase II
  - After completion (no time period specified)

**Must report actual sales and investment data in Company Commercialization Report (Volume 4) after each Phase II at least annually.**
DoD Evaluation Criteria

- Soundness, technical merit, and innovation of the proposed approach
  - PH I: 50
  - PH II: 40
- Qualifications of the proposed/key investigators, supporting staff, and consultants
  - PH I: 30
  - PH II: 30
- Potential for commercial (Gov. or private sector) application and benefits expected to accrue from this commercialization
  - PH I: 20
  - PH II: 30

Technology Readiness Levels (TRL)

Each level increases the complexity of either:

- Technology
  - Concept -> Component -> Breadboard -> Prototype -> Actual system
- Environment
  - Lab -> Relevant Environment -> Operational Environment
Commercialization Plans

**Granting Agencies**
- NSF, for example

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The Planning Process

- Define the opportunity
- Identify the “target” customer
- Define the market
- List alternative solutions
- Describe your product or service
- Define the “value proposition”
- Describe the business model
Opportunity Assessment

Important Problem

Who has the Problem?
Customer

How do they deal with it?
Competition

How do we compare?
Value Proposition

How many with the problem?
Market

Customer

Who is the initial, target customer?

- Who has the greatest need?
- Who is the best fit?
- Who is most accessible? Influential?
- Where is the biggest opportunity?
Market

- Definition
- Size
- Segmentation
- Growth rate

Market Definition

Potential → Addressable → Accessible
Commercial Opportunity

- **Target Customer**
  - Profile
  - Needs

- **Target Market**
  - Size
  - Structure
  - Dynamics

Competition

- Analyze competition on two levels
  - Alternative approaches to a solution
  - Companies offering alternatives
- Identify your most “direct” competitors
  - Basis of competition
  - Strengths & weaknesses
  - Feature/benefit comparison
The Value Proposition

- Incremental improvements
  - Better, faster, cheaper
- “Disruptive” advances
  - Completely new approach
  - Provides unique capabilities

Competitive Advantage

- Technology
  - Intellectual Property
- Talent
- Business Strategy
Business Model

How are you going to make money?

- Licensing technology
- Products
  - Develop
  - Manufacture
  - Selling
- Services

Developing the Business of Technology

Business Model

What Combination of Business Activities?

- Research
- Product Development
- Manufacturing
- Marketing
- Sales
Commercialization Strategies

- Licensing
- Marketing & Sales
- Truncated Development
- Distribution
- Joint Development

Financing Strategy

- How much money will it take?
  - To get from here to there
- Where will the money come from?
- When will you raise it?
Revenue Model

The Revenue Model should be consistent with:
- the business model
- the commercialization strategy

Should include the appropriate revenue "categories"

Business Model

What Combination of Business Activities?
- Research
- Product Development
- Manufacturing
- Marketing
- Sales
### Business Model

#### Categories of Revenue

<table>
<thead>
<tr>
<th>Revenue Source</th>
<th>Research</th>
<th>Development</th>
<th>Manufacturing</th>
<th>Marketing &amp; Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Sales</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Manuf Profit</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Service Fees</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>License Fees</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Royalties</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Business Activities

- Research
- Product Development
- Manufacturing
- Marketing & Sales

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### Commercialization Plan Components

#### Revenue Model

- Revenue projections or P&L projections
- Categories of revenue streams
  - Do not include debt or equity as revenue
- You choose start & end dates
- Consistent with business model and commercialization strategy
- Clearly state assumptions
- Use text to highlight important points

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Agenda

Developing Your Commercialization Plan

- Agency expectations
- Key components of effective plans
- Sources of market research data
- Supporting documents

Market Analysis

- Use standard market definitions
- Size in units, **not** dollars
- Growth rate is an important parameter
- Other market characteristics critical to the commercialization plan
  - number and diversity of companies
  - distribution channels
High Temperature Plastics

$5,100

Freedonia Group Inc
June 1, 2013
249 Pages - SKU: FG5069061

Countries covered: United States

US demand to rise 5.8% annually through 2017. US demand for high temperature plastics is forecast to expand 5.8 percent annually to $3.1 billion in 2017, with volume exceeding 300 million pounds. Advances will be propelled by the ongoing adoption of high temperature plastics in place of more conventional materials (such as metal, glass, and other polymers) due to their exceptional performance properties. Gains will be further supported by an improving economic outlook and rising consumer confidence, which will boost durable goods output.

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List of Market Competitors
- Large corporations
- Smaller technology firms
- Focus on "public" companies

Company Profiles
- AGC Chemicals Americas, see Asahi Glass
- Arkema SA
- Asahi Glass Company Limited
- BASF SE
- Bayer AG

Celanese Corporation
- Chevron Phillips Chemical Company LLC
- China Lumena New Materials Corporation
- Daikin Industries Limited
- DIC Corporation
- DePuy (Ed) de Nemours
- Dymon, see 3M
- Ensinger GmbH
- Evonik Industries AG
- Fortron Industries, see Celanese and Kureha
- HalolPolymer OJSC
- Karamay Company Limited
- Kureha Corporation
- MDA Manufacturing, see Daikin Industries and 3M
- Mitsubishi Chemicals Incorporated
- Royal DSM NV
- RTP Company
- Saudi Basic Industries Corporation
- Selvay SA
- 3M Company
- Tecon, see Celanese
- Toyota Industries Incorporated
- Tooh Corporation
- Victrex plc
**Agenda**

**Developing Your Commercialization Plan**
- Agency expectations
- Key components of effective plans
- Sources of market research data
- Supporting documents

**Commercialization Plan**

**Supporting Documents**
- **Phase I**
  - Market validation by third parties
  - Evidence that company has started “communicating” with stakeholders
- **Phase II**
  - Evidence of commitment of follow-on resources
  - Contingent on technical success
Letters of Support - Phase I

Letters of Support for the Technology

Inclusion of letters of support for the technology within the proposal is strongly encouraged. Letters of support act as an indication of market validation for the proposed innovation and add significant credibility to the proposed effort. Letters of support should demonstrate that the company has initiated dialog with relevant stakeholders (potential customers, strategic partners, or investors) for the proposed innovation and that a real business opportunity exists, should the technology prove feasible. The letter(s) must contain affiliation and contact information of the signatory stakeholder.

Letters of Support - Content

Single page
Use official letterhead
Addressed to the Principal Investigator

- **Paragraph #1**: Description of the author or the organization
  - Who/what are they?
  - Why/how are they knowledgeable about this market sector?
- **Paragraph #2**: How do they view the problem?
  - Why is it significant?
  - Why does it present a commercial opportunity?
- **Paragraph #3**: What would be the impact of a viable solution?
  - Who would benefit and how?
Letters of Commitment – Phase II

- From prospective investors, strategic partners, customers, licensees, etc.
- Commitment of tangible resources (e.g., funding, services, business agreements)
- Estimate dollar value
- Describe achievements necessary to secure the commitment

Take Home Lessons

Commercialization Plans are not Developed over a Weekend

- Start planning early
- Focus on the problem
  - To identify the target customer and market
- Validate assumptions
- Develop relationships that will result in letters of support and/or commitment
Developing the Business of Technology

Essentials of SBIR/STTR Commercialization Planning

Michael Kurek
michael@bbcetc.com

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