Life at an SBIR Company

ANDY MYERS

TECHNOLOGY TRANSFER LEAD, KANSAS CITY NATIONAL SECURITY CAMPUS (KCNSC)

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Background

- Education
  - BS in Chemistry, Purdue University
  - MS and PhD in Chemistry, University of Rochester
  - MBA, Pittsburg State University
- Experience
  - Union Carbide Corporation – Post Doctoral Researcher
  - TDA Research, Inc. – Sr. Chemist and Primary Investigator
  - Pittsburg State University – Executive Director, Kansas Polymer Research Center, Business and Technical Institute, and PSU Research Foundation
  - Honeywell Federal Manufacturing & Technologies, M&O for DOE's Kansas City National Security Campus (KCNSC) – Technology Transfer Lead

SBIR Experience

- TDA Research, Inc. (Golden, CO)
  - Started in 1987 from NREL engineers/managers
  - 55 to 75 employees
  - TDA does RESEARCH, no manufacturing or direct product sales
  - Main technical areas: environmental or defense-related toxic substances removal (ChemE processes, sorbents and catalysts), materials research (polymers, ceramics, nanocomposites, fullerenes)
  - Majority technical staff, over half with Ph.D.'s
- Primary Investigator at TDA Research
  - 11 Years at TDA (1998 to 2009)
  - I wrote about 5 proposals a year, generated ~$2.6M from DOE, DOD, NASA, EPA, NSF
  - Inventor on 3 patents

Main Responsibilities

- Secure Funding, Manage Projects
  - Generate ideas for new proposals and projects
  - Write proposals and reports
  - Manage projects – technical direction, staffing, budgets, IP
- Establish partnerships
  - Federal funding sources
  - Industrial partners
  - Research Collaborators
- Marketing / Networking / Continuous Education
  - How do I "sell" what I've created, and what's next?
  - What do I need to learn to move forward?

Best Parts

- I got to work on really cool sh*t
- As long as I could get funding, I could pursue my own technical projects
- I got to work with really creative and smart people
- I learned amazing things
- Getting Funding!!!
- Traveling, talking science, and creating partnerships
- I learned how to run a project, draft reports and patents, follow a budget, plan strategically
- I helped America

Biggest Problems

- Staying funded
  - Status, lab and office space, staffing, and project progress were all dependent on having and keeping funding
  - The nature of the SBIR cycle results in lots of short projects and funding gaps
  - Risks to momentum
- Multi-tasking / Wearing Many Hats
  - Technical and personnel management, proposal and report writing, communicating with funding agencies and partners, justifying expenses (patenting, overhead expenses), and following all necessary federal accounting practices
- How do I (can I?) pay for that?
  - Very lean organization, everything was tied to a project

Worst Parts

- Losing or waiting for funding
  - Loss of project funding often stopped R&D of that effort
  - Life without funding isn't nearly as good as life with it
- The hamster wheel of funding
  - Yes, you can have a raise (or space, equipment, people), but you'll need more projects to pay for that
  - SBIR money is rarely sufficient to move a new product to market
- Phase I efforts are exhausting
  - The goal of a Phase I project is to get Phase II funding
- Insufficient and/or inflexible resources
  - Thou shalt not charge to overhead
- **Lack of coherent or coordinated Business Development**

Best Lessons

- How to Make Connections
  - People
  - Money
  - Partnerships
  - **Ideas & Applications**
- Small companies can't compete on scale, money, or resources
  - You have to be clever, innovative, and quick
  - You can find value in lower profit projects
  - Not burdened by "Not invented here" or "Doesn't fit our existing business" – but your commercial partners are

How can a Federal Lab help a Small Business?

- Craft messages to emphasize partnership ability
- Address IP concerns (you're not trying to steal their IP)
- Access to equipment, people, other R&D partners
- Make yourselves visible, easy to find, approachable
- Meet them where they are (conferences, trade organizations, etc.)
- Figure out how to explain the value of a CRADA
  - Get beyond the initial, "Why would I devote any effort to something that doesn't provide funding to me?"
- Emphasize areas of common interest – economic development, technical advances, commercial opportunities, benefit to US

How SBIR Led to Tech Transfer

- Both careers require
  - Finding new applications or approaches for new (or old) technologies
  - Making connections to new people and partners
  - Lots of project management
  - Cold calls
  - Convincing someone else to give you money
  - Learning quickly about a technology, sharing that with someone as if you were an expert
  - Additional education and appreciation for business and legal areas
  - Ability to operate in the middle

Thank you