Product Development and Customer Development through Government R&D Funding

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There’s this customer...

• 17 million employees
• Spent $2.6 trillion on goods and services in 2006
• Invests around $100B annually in developing new technology
• The largest wholly-owned subsidiary of this company spends more than the entire economy of France
Meet the world’s most important Venture Capitalist:

I want to FUND your Company
Total Venture Capital Dollars Annually

Venture Capital Amount Invested ($B)

AMOUNT INVESTED ($B)

YEAR

DATA SOURCE: THE MONEYTREE REPORT BY PWC AND NVCA; DATA: THOMSON REUTERS
U.S. R&D Funding by Source, 1953-2007

expenditures in billions of constant 2007 dollars

Source: NSF, Division of Science Resources Statistics. (Data for 2007 are preliminary.)
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“People forget this: Silicon Valley was actually built on federal funding. People have this notion that SV was built in garages. And it’s true, we have some high-profile cases, Jobs – basement, Google in dorm, these things are true – the real fact is that Silicon Valley is the story of federal funding. HP – National Semiconductor, Sherman Fairchild…. People forget that Lockheed was our largest employer. It was these activities that led to the commercial spin-offs – We need to jump “back to the future””

Russell Hancock, Chief Executive, Joint Venture: Silicon Valley Network KQED Forum: State of the Silicon Valley Economy, 2/17/10
PAX’s track record

• 2008 – ATP grant ($1.9M)
• 2009 – ARPA-E grant ($3.0M)
• 2010 – CEC-ETDG grants (3 @ $350K)
• 2010 – DOE-SBIR Phase 1 grant ($150K)
• 2010 – DOE-NETL FOA-115 ($2M)
High Level Timeline

- Founded
- Grant 2 Ph1
- Grant 2 Ph2
- Grant 1 Ph2
- Grant 1 Ph1
- BioFlux product launch
- IonFlux product launch
- Series A
- Series B

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Grant pipeline and success rates

Fluxion Biosciences - Grant Financing Pipeline

- Electrophysiology (IonFlux) not funded, Resubmit, Not scored
- Single cell electroporation 0.12M completed
- Single cell EP (Phase II) Awarded - Y1, Renewed - Y2 ongoing, Supplement Submitted
- siRNA delivery via electroporation Not scored
- Cell Based Pathogen Detection (DARPA) Not funded
- High throughput biofilm analysis Not scored, Resubmit, 0.2M Awarded, Score 173, Ph2 Awarded
- High throughput cell adhesion Score 271, Score 228, Resubmit
- Magnetic Bead Separation Score 208, Awarded
- Cell-Strain System Score 210, Resubmit

Success (# applications): 33%
Success (# concepts): 33%
Funded applications: 3 Phase I ($0.52M), 2 Phase II ($3.2M)

Platelet Diagnostic: Unscored, Resubmit
Wound Healing: Planned

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Why pursue government funding?

• $ (obviously)
  – Fund new areas or side projects

• Development of the government customer
  – Uncle Sam is largest consumer of goods and services on the planet

• Market/technology/regulatory intelligence

• Get $ that might otherwise go to the competition

If all you’re looking for is $, look elsewhere…
Funding strategies – Part 1: things one can do w/out any help

- Do nothing
- Apply for open competitions when you find them (SBIRs etc.)
- Develop relationship with gov’t R&D sponsors - business development
- Join an existing public/private R&D consortium

Try to steer existing $s toward your company
Funding strategies Part 2: What lobbyists/professionals can help to do

- Introduce you to key program managers
- Create/lead an industry/gov’t R&D partnership
- Develop Congressional support for R&D funding
- Develop State/local support for economic development (e.g. NY)
- Improve odds of funding for open competition (yes, all $ is political)

Try to create new $s directed toward your company
Some realities

• All gov’t $ is political
• People tend to feed themselves first before sharing with friends
  – Know where you are in the line
• You must align your work (or, at least, your messaging) with the programmatic goals of the agency
• Jobs, jobs, jobs (and, more jobs...)

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In summary...

• Gov’t funding can be valuable component of support for a start-up BUT
  – Management must have a long-term strategy
    • Alignment of R&D and business goals is CRITICAL
    • CEO and CTO need to do the aligning
  – Hard to do w/out at least a bit of help
    • Would you develop your legal strategy w/o a lawyer?
• Gov’t funding and Equity investment are not competitive BUT
  – Perfect synergy is hard to achieve
    • Both sides need to have some flexibility
  – Timescale for funding is completely different
  – The value of the $ is often overestimated while the value of the market development is often underestimated