An Engineer in a Small Business or Start-up Environment

Don Bartlett
IEEE Talk/Discussion
10/17/03
Don Bartlett - Bio

• Education: BSEE from Iowa State University
• 19 years experience in the semiconductor industry
• Work History
  – Burr Brown Corp
    • Analog Design Engineer
  – NCR / Symbios / LSI Logic
    • Analog Design Project Leader
    • Manager
    • Director
    • Chief Consulting Engineer
  – SiLutia
    • Founder / Technical Director
  – AMCC
    • Analog Design Manager
  – Greyrock Technology
    • Founder / President
• 25 issued or pending patents
Start-up #1: SiLutia Incorporated

- Founded
  - Early May 1999
  - Don Bartlett, Randy Zwetzig, Dan Curran, Gary Amato
- Fully self-funded by founders and operations
- High-Speed I/O Focus
- Established positive cash flow within ~4 months
- Created 13 local jobs within 1 year
- Sold to AMCC late September 2000
  - Established positive cash flow
  - >1/2 year capital reserves
  - Long-term revenue streams established through royalties
  - Revenue run rates > $3M/year
Start-up #2: Greyrock Technology

• Founded
  – Late July 2003
  – Don Bartlett, Dan Curran, Steve Bassett
• Fully self-funded by founders and operations
• Analog-centric Design and Development Focus
• Established positive cash flow within ~3 months
• Created 4 local jobs to date
• Infrastructure and Design Systems
  – Capable of Design Starts w/in 6 weeks
Small Business vs Start-Up

- Small Business is not synonymous with Start-Up
- Small Business: Independently owned company less than 20 employees
- Start-Up: A business expanding at >10% per year
  - Growth flattens and becomes income-substitution, small business
  - Growth continues and becomes an opportunity-building business for stakeholders
Multiple Perspectives

• Starting or Joining a small business or a start-up
  – Business Models
    • Bootstrap
    • Venture Funded
    • Alternative Investors
  – Starting your own business
    • Motivations
    • Should I start a business?
    • Likelihood of Success
    • Commitments
    • Risk

• Working in small or start-up businesses
  – Advantages / Disadvantages
  – Pay and Benefits
  – Personal Traits for Success
Business Models - Bootstrap

• Fully self-funded
  – Initial Investments and subsequent capital calls
  – Services, Consulting
  – Maintain control and ownership
• Services/Consulting vs Products Company
  – Bootstrap methods work well for services – you probably become a small company
  – Bootstrapping yourself to a products company much more difficult
    • Are the days of the garage entrepreneur over?
    • Cost of semiconductor products too high
    • Tools costs, even for board products high
    • Sales and Distribution Channels difficult to build
• “Time is Money” – Only when someone is willing to pay you for your time!
  – Often more time than money, easy to justify learning and implementing new things
  – Need to understand inefficiencies of learning and implementing infrastructure versus contracting it out
• After the “real work” begins
  – Usually not cost effective to do it all yourself
  – You have someone willing to pay you money for what you’re good at
  – Pay could be direct, could be from venture capital, could be from other sources – all have certain expectations based on their investments
Business Models – Venture Capital

- What you need?
  - More than an idea
  - Execution and Management Teams
    - Experienced in other companies
    - Experienced in other start-ups
- Venture Capital – Initial Stages
  - Seed Funding $100k-$300k
    - Marketing and execution plans
    - Some level of prototype
    - Expect you to have “skin in the game”
  - Start-up Funding
    - Proof-of-concept complete
    - Scale to build first product
  - 1st Stage Funding
    - Drive toward production
- Benefits of Venture Funding
  - Contacts in the industry
  - Experienced Entrepreneurs
  - $
- Disadvantages of Venture Funding
  - Loss of control
  - Dilution of ownership
Business Models – Alternative Funding Options

- **FFF (Family, Friends, and Fools)**
  - Needs to be managed carefully, SEC has restrictions on investors
  - Complicated, financially, personally, and professionally
  - Loss of ownership, but probably less than with Venture money
  - Usually able to maintain the same level of control
  - Not much help with contacts or business consulting

- **Angel Investors**
  - Limits number of investors
  - Loss of ownership and control
  - May not be much help with contacts or business consulting
Starting a Business

• What motivates people to start a business?
• Should I start a business?
  – Understand the impact
  – Prepare
• Likelihood-of-Success Indicators
• Commitments
  – Financial
  – Time
  – Others Livelihood
• Risk Management
  – Financial
  – Professional
Motivations - Top Reasons for Starting a Business

1. Autonomy ~30%
2. Income/Wealth ~20%
3. The Challenge ~13%
4. To pursue an idea ~8%
5. Better utilize skills ~7%
6. No better Alternative ~5%
7. Other ~17%

* Source: Engineering Your Startup by Michael Baird
What Motivated Me?

• Autonomy – The desire to work for myself and control my own destiny

• Better Utilize Skills – desire to utilize a broader range of skills
  – Design/Development
  – Customer Interaction
  – Business Management

• The Challenge – Could I do this? I always wanted to know

• This time, not many alternatives
Should You Start a Business?

• Impact to Personal Life
  – Alignment to life goals
    • Self worth/esteem
    • Family
    • Financial
    • Legacy
  – Quality of Life
    • Family
    • Work
    • Other Interests

• Preparation
  – Financial
  – Health
  – Relationships
Impact to Me and My Family

• Life Goals
  – Still able to extract self worth/esteem from work and family
  – Thought this may be a way to build something that was a contribution to the community
  – Wasn’t sure whether long-term financial goals could be met

• Quality of Life
  – Working from home wasn’t a good answer
  – We had to adjust to a reduced financial situation

• Preparation
  – Financial
    • Had a path to eliminate all debt and minimize living expenses
    • Had saved $
  – Health
    • I worked to ensured this wouldn’t be an issue
    • Had a thorough exam to be on the safe side
  – Relationships
    • Is your spouse ready for this? My wife and family were very supporting
    • We were open with our children on what we were doing and the impact that they might see.
Success Indicators

✓ Always had a desire to own or start a business or owned a business in the past
✓ Had a self employed father or mother
✓ Have a 4-year technical degree or a masters degree in a technical field
✓ Think you can do a better job at …
✓ Independent by nature
✓ Moderate need for power and low need for affiliation
✓ >10 years work experience
✓ Have published more papers or patents than colleagues
✓ Work has been focused on applied development not research
✓ Have risen to a management position in career
✓ Modest emphasis on financial reward
✓ More extroverted than peers, but considered an introvert compared to the rest of the population
✓ Have always felt challenged and satisfied during career
✓ Tend to read management and business books as often as engineering technical books
My Success Indicators

• My father owned a small business
• 4 of my siblings own(ed), or partially own, businesses
• Planned to start a business at 40 – previous employment satisfied many of the entrepreneurial desires
• Money is helpful, but I never made that the focus of my life or career
• I matched up favorably with many of the other checks
Success Indicators

• Matching or not matching the list of success indicators is not a guarantee of the success or failure of your company

• It’s a probabilistic function – matching more of the indicators improves the probability

• The Success Indicators may be correlated, but I’m sure not all are causal
Commitments

• Financial - Must commit enough resources to the business to be successful
  – Initial investment, SW, HW, Equipment, Furniture
  – Work without pay
  – Future capital calls, same level of capital as first investment 6 months to 12 months out.

• Time
  – 55-80 hour work weeks

• Responsibility for Others- Your first employee
  – They expect to get paid
  – They expect to have some longevity in the job
  – They should understand the risks and rewards
My Commitments

• Financial
  – Put up sizable initial capital
  – Worked for 1.5 years without pay

• Time
  – Worked at least 60 hours a week – but I generally did this prior as well.
  – One stretch I worked 14-16 hour days for about 5 weeks in a row, we did take some time off on Sundays
  – I Did get a vacation into the second year, I built a demo board while taking the week “off”.
  – Didn’t plant my garden for two years in a rows
  – Leveraged time where I could

• Responsibility for Others
  – The first hire was one of the more frightening experiences
  – The burden of being responsibility for someone else’s situation is stressful – you worry about your own affairs as well as others.
Risk Management

• Financial
  – Have an alternative plan – what happens if the business fails?
  – Change your lifestyle

• Personal / Professional
  – Don’t stop learning – easily done when you’re one of the primaries within the company
  – Keep contacts active
  – Retain new skills required in a small business
How I Managed Risk

• Financial
  – A backup plan that would put us in a debt-free position
  – Changed our lifestyle
    • Fewer meals out, movies, etc.
    • Looked for cheaper alternatives for entertainment
    • Cut vacations

• Professional
  – Continued learning at home and on the job
  – Position forced me to learn, more than I ever cared to know in some cases, about numerous topics
  – Kept contacts open
    • Previous work associates
    • Previous customers
    • New associates
Working in Small or Startup Businesses

• Advantages / Disadvantages
  – As with any situation there are advantages and disadvantages
  – Each of us will have our own perspective on what’s an advantage versus a disadvantage

• Evaluating Opportunities at Small or Startup Businesses

• Pay and Benefits

• Personal Traits for Success
  – Traits for a smaller environment

• Time versus Money
  – Making trade-offs between time and money
  – Each employee is responsible for these trade-offs
Advantages / Disadvantages

- Clear connection between effort and company outcomes
- Exposure to many aspects of the business
- Contribution in more areas
- Opportunity to do learn and do other things
- Few Politics, less rigid hierarchy
- Potential financial gain
- Everyone easily aligned to strategic outcomes – “see the big picture”

- “Working without a net” - less support from others
- More emphasis on the individual’s performance
- Potentially less diverse environment
- Perception that it’s less stable
- Lack of infrastructure
- Lack of formal training / educational opportunities
- Less social opportunity
Evaluating Opportunities at Small or Startup Businesses

• The People
  – Likelihood of success
    • Match to success criteria
    • Previous experience in small/startups or pas jobs
  – Motivations for doing what they’re doing
  – Industry Connections
  – Compatibility with others within the business

• The Company
  – Objectives
  – Small business versus Startup
  – Strategic Plan

• Evaluation Criteria
  – Personalize it – what’s important to you
  – Talk with others already in a similar situation
Pay & Benefits / Work Environment
A SiLutia/Greyrock Perspective

• Competitive Pay and Benefits
  – We generally matched or exceeded individual’s pay when hired
  – We attempted to match total $ expenditures for benefits
  – Bonus Plans established for everyone based on company objectives
  – Stock Option availability for everyone joining company (Greyrock has significantly modified the SiLutia Stock Option Plan)

• Work Environment
  – Individuals required to understand more aspects of the business, Net Aadmin, Marketing/Sales, Application, etc.
  – Open atmosphere
  – Flexibility
Start-Up Traits for Success

• Generally, start-up companies are looking for similar traits in individuals as large companies – The ingredients are all the same, just the amounts change.

• Typical Behavioral Dimensions
  – Technical Competence
  – Attention-to-Detail
  – Initiative
  – Motivation
  – Respect for Others
Key Behavioral Dimensions

• Technical Competence
  – Thorough technical background
  – Ability and desire to learn new things - quickly
  – Ability to quickly understand issues

• Attention-to-Detail
  – Confidence in ability to define the important details
  – Development of criteria for determining importance of each detail

• Initiative
  – Look for ways to improve the overall efficiency and effectiveness
  – Propose and develop new and improved ways

• Motivation
  – Need to be self motivated – not someone looking over your shoulder
  – Alignment of motivation with company outcomes

• Respect for Others
  – Can’t afford to have people not working closely with each other and respecting each others abilities
  – Must extend beyond local environment to vendors, customers and community