The long and winding road

A twisted career path spent with engineers and scientists
Why Am I Here?

I ♥ Engineers and Scientists
## Mom and Dad were both right (mostly)

<table>
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<tr>
<th>Dad</th>
<th>Mom</th>
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<tr>
<td>• Strive for excellence; never settle for mediocrity</td>
<td>• Be nice to others, and learn how to get along in groups</td>
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<td>• Don’t be afraid to compete, win, and lead; but always lead with integrity</td>
<td>• Build strong friendships; maintain an active social life and entertain often</td>
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<td>• Be a lifelong learner; immerse in books</td>
<td>• Marry well, and be an exemplary parent</td>
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<td>• Surround yourself with the smartest people you can find</td>
<td>• Always look your best; stay fit and healthy</td>
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<td>• Work hard; do the extra credit</td>
<td>• Read the news and stay up-to-date on current events</td>
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<td>• Take time to appreciate art and music</td>
<td>• Use proper grammar and spelling</td>
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<td>• Send thank-you notes</td>
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<td>• Give back to your community</td>
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An Unconventional Career Progression

Internal focus: Product Development

External focus: Ensure Products appeal to Customers

Venture Capitalist
Corporate Development
Business Development
Market Development Manager
International Sales Director

Internal and External:
Grow in unconventional organic and inorganic ways

External: Pick Winners outside; understand financial, legal, IP

Portfolio: Assess financial, technical, legal, organization, product, sales, and strategic options for multiple companies

Internal and External: Grow in unconventional organic and inorganic ways

Investment Banker
Board Member
Strategic Advisor
My Products & Projects
### Flexing Different Muscles in Different Structures

#### Big Companies
- Accenture
- Visa
- Sun Microsystems
- Qualcomm

#### Small Companies
- Interactive Investor (BoD)
- Vernier Networks, Packet Design, Precision I/O
- Tesla Motors (BoD)
- DNA Direct (Advisor)
- We Are Curious (BoD)
- Zoox (BoD)

#### Partnerships
- GrowthPoint Technology Partners
- Intellectual Ventures
- Broadway Angels
- Index Ventures
Product Design Process

UNCERTAINTY  CLARITY/FOCUS

RESEARCH  CONCEPT/PROTOTYPE  DESIGN
The Birth of Innovation: The Invention Stage

Idea
- Inspiration
- Creativity
- Imagination
- Curiosity

Invention
- Useful
- Novel
- Non-Obvious

IP
- Document
- Describe
- Protect ideas
- Share

Product
- Commercialize
- Develop
- Market
- Sell

Universities
Solo Inventors/Scientists
Engineers in Big Companies
Government Research Labs

Start-Ups
Venture Capitalists
Large Companies

Science and Engineering Land

Business Development Land

Invention
- Compensation

Science and Engineering Land
- Business Development Land
Role of Business Development

- Senior executive role responsible for **helping the company grow** through:
  - New customers, which may generate new product requirements, and lead to better products
  - New markets or industries
  - New partners, which may uncover potential acquisition/investment targets
  - New channels
  - New geographies

- To be effective, key skills are:
  - Strong with numbers and in-depth knowledge of the industry, business and technology
  - Good understanding of legal and regulatory frameworks, boundaries, and players; good negotiator
  - Good communicator internally (across the company) and externally
  - **Able to triage and prioritize many inbound and outbound requests, and evaluate opportunities**
  - Socially adept – good at networking
Build Relationships with other Functions

R&D    Engineering    Legal    Finance    Sales & Marketing    People & Places
Understand Value of Intellectual Property

- Boosts investor confidence
- Provides a level of defense
- Protects Brand and Ideas
- Allows external business discussions
- Can be licensed/cross-licensed

“Creative monopolies aren’t just good for the rest of society; they’re powerful engines for making it better. Even the government knows this: that’s why one of its departments works hard to create monopolies (by granting patents to new inventions)…”

--- Peter Thiel, Zero to One
Patents in the IT World

• Many patents are required to make a product
  • 50K – 100K for an Integrated Circuit
  • 50K – 100K for an Operating System
  • 150K – 250K for a Microprocessor

• Not possible for one group of researchers to get an “exclusive” position
  • Intel had less than 5% of the patents that made up the Pentium processor

• Result: Big companies with big portfolios cross-license each other (typically to the detriment of new entrants)
How do you evaluate an engineering project in a start-up?
Evaluating engineering projects in start-ups

- What problem does this solve? Does anyone care?
- Is this a cool feature, a product or a company?
- Is this unique? Patentable?
- Can this attract funding from investors? Is it in a “hot” sector?
- Can it attract a stellar team to work for mostly equity?
- How big is the potential market? Who will pay for it? Can it command a premium?
- Are there many large and small competitors? Is anyone approaching this with a better solution?
- How much time and money will need to be spent to prove that this is valuable?
- What is the best first potential application?
Case Study: Tesla Motors 2003

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Raising Capital for Tesla Motors: Reactions from “experts”

• “The American consumer will never care about energy efficient cars. Energy efficiency is only of interest to Birkenstock-wearing hippies from Berkeley”
• “A bunch of Silicon Valley engineers could never build a car company. It’s much too complicated and requires decades of experience in the auto industry.”
• “You will fail. The incumbents will do everything they can to crush you”
• “There is no way you can build a new car company for under a billion dollars!”
• “The last American car company to go public was Ford Motor Co -- in 1956!”
• “You will ruin your reputation by being part of this project. There is just no way it can succeed. You should get out now before anyone finds out you were part of this team.”
Timing and Persistence
How do you evaluate an engineering project in a large company?
Many ways to kill projects in big companies

- Is this a core, adjacent or disruptive to our current business?
- Is this worth allocating budget for? Are there better projects? Is this financially viable? Does it create new risks?
- Will this give us advantage/bargaining power over competitors?
- Could building this in-house upset key partners?
- Does this fit an identified feature/product/market gap? What is the build vs. buy analysis?
- When announced, how will this be perceived by the market? Will this add value to our stock price?
- Do we have an internal team that is passionate about advancing this project? Is this really the best use of their time?
- Are customers/partners/market asking for something like this?
- How many months/dollars are we willing to invest to prove that this is valuable? What is the cost/benefit analysis?
- What are all of the potential applications?
- What does our sales team think? Will they sell it?
SRI’s NABC Method

• **N** for Need. N is the most important factor in the method. An idea without a practical need for it remains just what it is: a good idea and nothing more.

• **A** for Approach.

• **B** for Benefit. B stands for the innovative elements of an idea, in other words that which constitutes its uniqueness.

• **C** for Competition.
Case Study: Qualcomm Gimbal

- Gimbal beacons use Bluetooth Low Energy (BLE) to enable you to understand and engage a customer’s mobile device from centimeters to 50 meters.
- Beacons with maximum flexibility, scalability and security: the premier micro-location solution.
- Capable of being used indoors or outdoors

NABC?
Cheerleader or Critic?

Which is more useful?
Diverse teams accomplish more

Progress and innovation may depend less on lone thinkers with enormous IQs than on diverse people working together and capitalizing on their individuality

Scott E. Page “The Difference”
Some take-aways

• Surround yourself with the smartest people you can find – in many disciplines
• See the big picture: know the major forces at play in whatever industry you choose
• Don’t lose sight of politics, world affairs and the regulatory environment
• Your integrity and your reputation are your core long-term assets
• Get involved with the community at large
• Ensure you care about the mission of your company
• Find the right culture fit
• Remember your personal values
• Be a lifelong learner
• Find your tribe, but learn to work with diverse styles