Innovation Culture and Management Practice

Outline:
- Intro to Self and Berkeley
- Innovation Culture
- Innovation Leadership
- How we teach it at Berkeley

Ikhlaq Sidhu
Chief Scientist & Founding Director, Sutardja Center for Entrepreneurship & Technology
IEOR Emerging Area Professor Award
Department of Industrial Engineering & Operations Research, UC Berkeley
My Background: Ikhlaq Sidhu

- All Degrees in Electrical Engineering through Ph.D
- HP – Laser Printer Design
- US Robotics/3Com – Created Advanced Development Center
- Awarded 3Com’s “Inventor of the Year” award in 1999
- Granted over 60 US Patents
- New Venture: CTO Cambia – Wireless Infrastructure
- Professor in IEOR at UC Berkeley
- 2005 Founded Center for Entrepreneurship & Technology (S/CET)
  - Venture Lab, Global Venture Lab, SkyDeck Accelerator
  - Founding Chief Scientist, Fung Institute for Engineering Leadership
  - Engineering Leadership Professional Program (ELPP)
Some Background at UC Berkeley

2005: Center for Entrepreneurship & Technology:
Innovate, Lead, & Commercialize in a global economy

2008-2011: Engineering Leadership for Silicon Valley Firms
Firms: Google, VMware, NetApp, Cisco, Yahoo!, Samsung, Applied Materials, Lam, and many others.

2011: Master of Engineering Program. All departments

2015: Management of Technology & Innovation

2007: Venture Lab
2012: SkyDeck Accelerator
The Center is well-known for creating the “Berkeley Method of Entrepreneurship”

Co-developed by Ikhlaq Sidhu and Ken Singer

Mixbook: http://www.mixbook.com/
inDinero: https://indinero.com/
Imprint Energy: http://www.imprintenergy.com/
QVSense: (acquired)
We Make It Safer: http://wemakeitsafer.com/
Magoosh http://magoosh.com/
Mobile Works: https://www.mobileworks.com/
ReTargeter: http://retargeter.com/products
CellAsic: http://www.cellasic.com/
Thirst: http://www.thirst.com
Dash Robotics: http://dashrobotics.com/
AdsNative: http://www.adsnative.com/
Outline: http://outline.com/
Twindom/Dreambox: http://web.twindom.com/
Flowbit: http://www.flowbit.org/
Eko: http://ekodevices.com/
http://skydeck.berkeley.edu/teams/
Connor Landgraf
Eko Devices

Eko provides physicians with certainty when diagnosing heart conditions. We’ve built one of the world’s first stethoscopes that can automatically detect heart murmurs.

Philip Lee, Paul Hung
CellASIC

- Secured over US$5M SBIR grant funding from National Institute of Health (NIH)
- Commercialized microfluidic analysis
- Grew self-sustained

Jessica Mah
inDinero

inDinero helps thousands of small businesses in the United States with a mission to educate and support them as they

Christine Ho
Imprint Energy

- Imprint Energy is Named in the 2014 Global Cleantech 100 (October 6, 2014)

Harshil Goel, Jordan Greene, Zachary Hargreaves
VIRES AERO

“This is the first true innovation in aviation since the jet engine.”
- Tim Draper, DFJ

Andrew Laffoon and Aryk Grosz
Mixbook

- Country: United States
- CEO: Andrew Laffoon
- Website: www.mixbook.com
- Employees: 60
- Founders: Andrew Laffoon, Aryk Grosz
- Headquarters: Palo Alto, California
UC Berkeley S/CET brings leaders, innovators & Silicon Valley know-how into the classroom

Fall 2014:
- Mehdi Maghsoodnia, founder of Combustion Ventures a.
- Auren Hoffman, CEO, LiveRamp
- Ramona Pierson, cofounder & CEO, Declara.
- Yok Matsuoka, CTO, Nest
- Juan Pablo Dellarroquelle, VP, Engineering at Medallia (recently received $50 million in funding from Sequoia Ventures).
- Jun Wu, Senior Staff Research Scientist of Google and ex-VP of Tencent Technologies.
- Margret Schmidt, CDO, TiVo.
- Nova Spivack, CEO, Bottlenose.
- Jeff Rothschild, Infrastructure Software VP, Facebook.
- Dadi Perlmutter, former EVP & GM, Intel.

Spring 2015
- 02.03 Ted Hoff, co-inventor, Intel 4004 Chip
- 02.24 John Doerr, Partner, Kleiner Perkins
- 03.03 Dean Drako, Founder and Board of Directors, Barracuda Networks
- 03.17 Vinod Dham, “Father of the Pentium Chip”
- 03.31 Darian Shirazi, Founder and CEO, Radius
- 04.14 Kathleen Glaub, CEO, Afferent Pharmaceuticals
- 04.21 Jason Wang, Andy Zhang, Shawn Tsao & Richard Din, co-founders of Caviar
Technology and Business Change Areas that We are Observing

- Wearables
- Education Technology
- Cloud Dynamics
- Drones
- Digital Banking
- IoT Applications
- Data and Business
- Health Services
- Robotics and Internet
- Self-Driving and EV
- TV and Media Future
- Digital Manufacturing
Some misconceptions about learning Technology Entrepreneurship
Entrepreneurship Misconception #1:

Reality:
- Not Linear
- Complex and People Oriented
- Many unwritten rules
- Not enough data to make a plan
Entrepreneurship Misconception #2:

It cannot be taught prescriptively like other subjects.
And, we can not simply “Test for Retention”
Two Cities in USA

• Chicago

• San Diego

What is the role of entrepreneurial culture?
How does this relate to Innovation Culture
Engineers and Scientists Perspective

• Engineering is hard = All the Value
• Doers, Builder, Demos, Systems thinkers
• They think: Marketing people are like Vultures
• Other people have fuzzy logic
• Care about credit more than money
• Engineers and Scientists are not all the same:
  o Some focus on risk avoidance and reliability
  o Others are comfortable with risk and can influence people
Background: Growth vs Fixed Mindset Findings

• Fixed: Don’t lose the “label”.

• Growth: Comfortable that you don’t know, but can learn.

• Results: K-12

• Reinforcement Matters

Reference: Carol Dweck

http://www.voicelifted.com
• P1-4: Comfort with deciding but not knowing the result of personal decision.
• W1-4: Comfort with deciding but not knowing the result of professional decision
• Global data with Engineers, Business Managers, and Innovators/Entrepreneurs
Entrepreneurs and Innovators have largest willingness to be outside comfort zones
Innovators are not from the same background.
Evolution Over Time

CZ Time Evolution

- Entrepreneurs
- Management
- Engineers
- P=W

P

W

2.4

2.5

2.6

2.7

2.8

2.9

2

2.1

2.2

2.3

2.4

2.5

2.6

2.7

2.8

2.9

2

P
A Line of Thought
(which is provable!)

• People can learn new things only when they are outside of their comfort zone.

• Innovators and entrepreneurs are the comfortable with ambiguity. (and in fact even increasingly so over time)

• Innovative Organizations & Cultures
  o Learn faster
  o Must be comfortable with new and ambiguous situations
  o Mindset and psychology are at the root of innovation culture

Good News:
Comfort with growth, ambiguity, and resilience can be taught.
How: Reinforcement, Mental Training, and Berkeley Method Games
How does this relate to Innovation Management
Leadership for Traditional Firms

Top down
Set direction and get alignment

This model does not work as well if innovation is critical.
Leadership in the Context of Innovation is Different

- Managing (at the edge of) Chaos
- Best Ideas are not from the leader
- Bottom up ideas meet top down objectives
- Transparency, Flatness, Data Driven
- Tolerance for diverse ideas
- Organization and people must learn and adapt.

Where is the balance: protect the brand and history vs invent the new story
Little Head:
- Does what they are told/job
- Easy to manage
- Accepts that it's not my business
- Needs upfront clarity on task
- Avoids Risk
- Accepts conventional wisdom

Big Head:
- Asks Why, Needs Context
- Hard to manage
- Easily board
- Questions Hierarchy/boundaries
- Minds everyone's business
- Accepts risk, OK with ambiguity
- Eager to take on complexity

Reference: Nir Merry, Applied Materi
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Big Head: (Intrapreneur)
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And how should a leader manage this group?

Reference: Nir Merry, Applied Materials
Innovation Process Example: Google Model
20% Free Time + Organic Integration

- Engineers to experiment with time off.
- Contents in transparent internal database
- Managers can not stifle innovation

- Objectives + Key Results:
  - Top down meets bottom up
  - Transparent skunk works
  - Quarterly

20% Free Time
80% Regular Work
Innovation Process Example: Google Model
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Levels of Motivation:
1. Base Needs
2. Carrot and Stick (Incentives)
3. Intrinsic Motivation

See Daniel Pink, “Drive"
Getting to Innovation

Growth mindset allows comfort with ambiguity.
Reinforce mindset and E-culture

Seminal Skill for Innovators & Entrepreneurs:
- Step outside CZ
- Can Learn / adapt

Can be Learned with Reinforcement, Games and Exercises (BME)

Creates Corporate or Social culture allows faster learning and adaptation:
- Requires license to innovate by firm
- Requires self elected life choices
How we teach Technology Entrepreneurship
Inductive Learning
The Berkeley Method focuses on creating an environment for self learning:

1. You can learn it only while you are trying to do it.
2. Instructor hosts the environment for students to interact directly with the problem. Students make their own decisions and learn inductively.
3. Behavior training – through games and exercises
4. De-emphasis of “grades” and refocus on “goals”
5. Leverage real-world competition
Berkeley Method Curriculum

Start Here

A Richard Newton Distinguished Innovator Lecture Series

Berkeley Method Entrepreneurship: Bootcamp or Semester Course Format

Berkeley Method Courses:
Collider Projects, Challenges Labs, and Skill Development Courses

Industry Path

Venture Lab

SkyDeck

New Venture Path

Successful Alumni Innovating in Industry

Successful Alumni Innovating in New Ventures

Awareness -> Theory -> Practice -> Mindset

Undergraduate Path -> Certificate in Entrepreneurship & Technology
Graduate Path -> Management of Technology Innovation
Example: BME Bootcamp
Creating an Innovative Culture

Inductive Learning

Learn While Doing + Cases Studies

Diversity = Value

Industry and Social Challenges

Cultural Rules for Entrepreneurs

Students interact directly with problems

Testing with Real World Goals

Games + Exercises
Thank you & Discussion