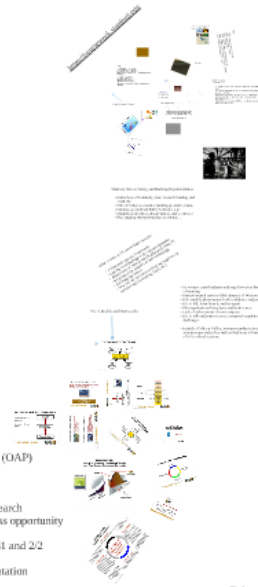


Opportunity Assessment Project (OAP)

Meet with team
Pick an idea
"Get out of the building" for research
Figure out whether it is a business opportunity
Develop a business story
Series of team deliverables – 1/31 and 2/2
Project website
Positioning statement and presentation
OAP Presentation
OAP written analysis
15% of your grade

- Ticket to introduction to them --> 1 pg. (2 paragraphs) initial opportunity, market, tech., customers
- Due Jan. 11th at the latest, ungraded, don't spend too much time on it
- Semester is short, get started

A Science and Engineering Approach to Tech-based Entrepreneurship

What can and can't we teach about entrepreneurship?

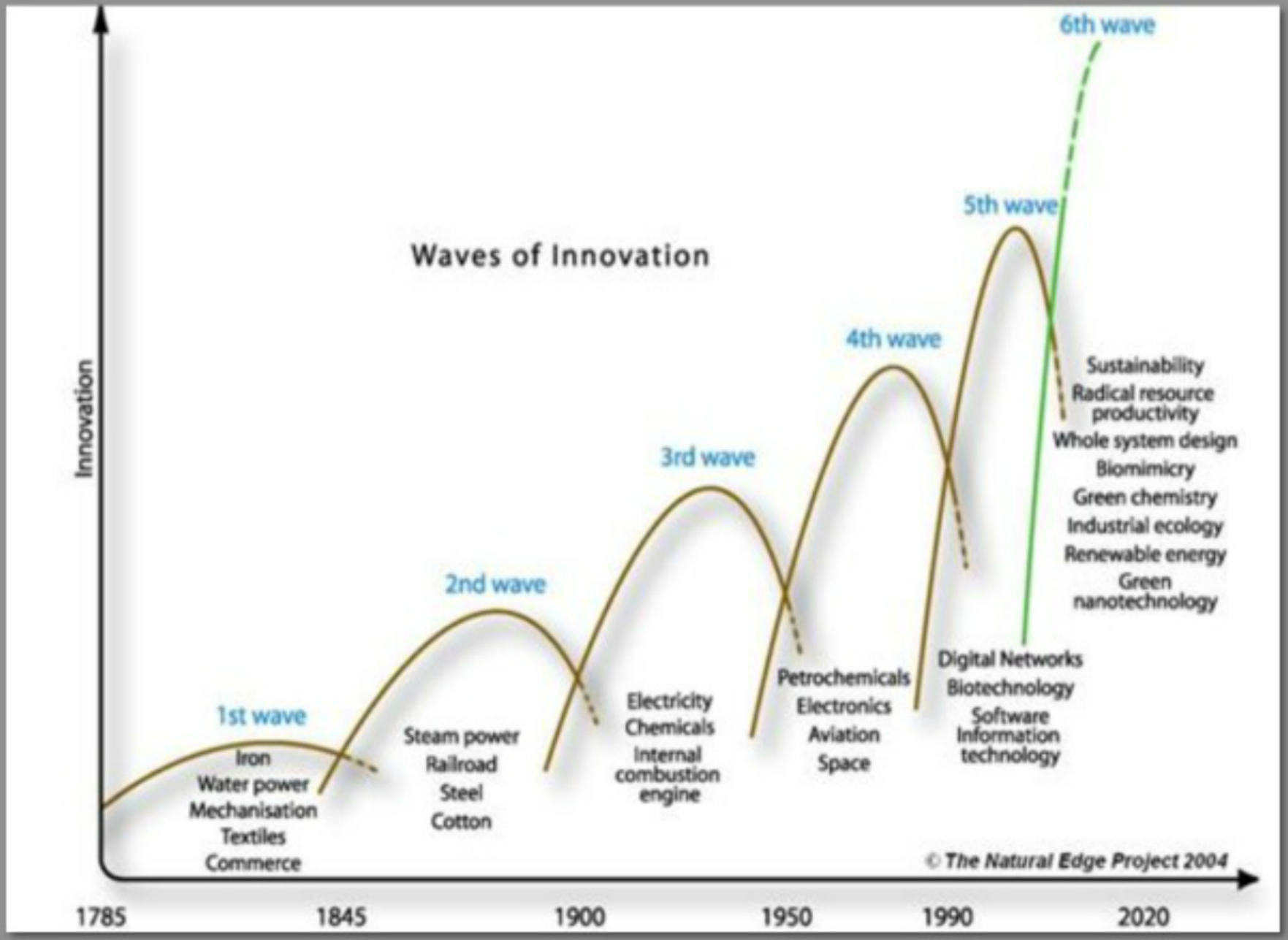
Venture performance = team + technology + market size + market growth + luck

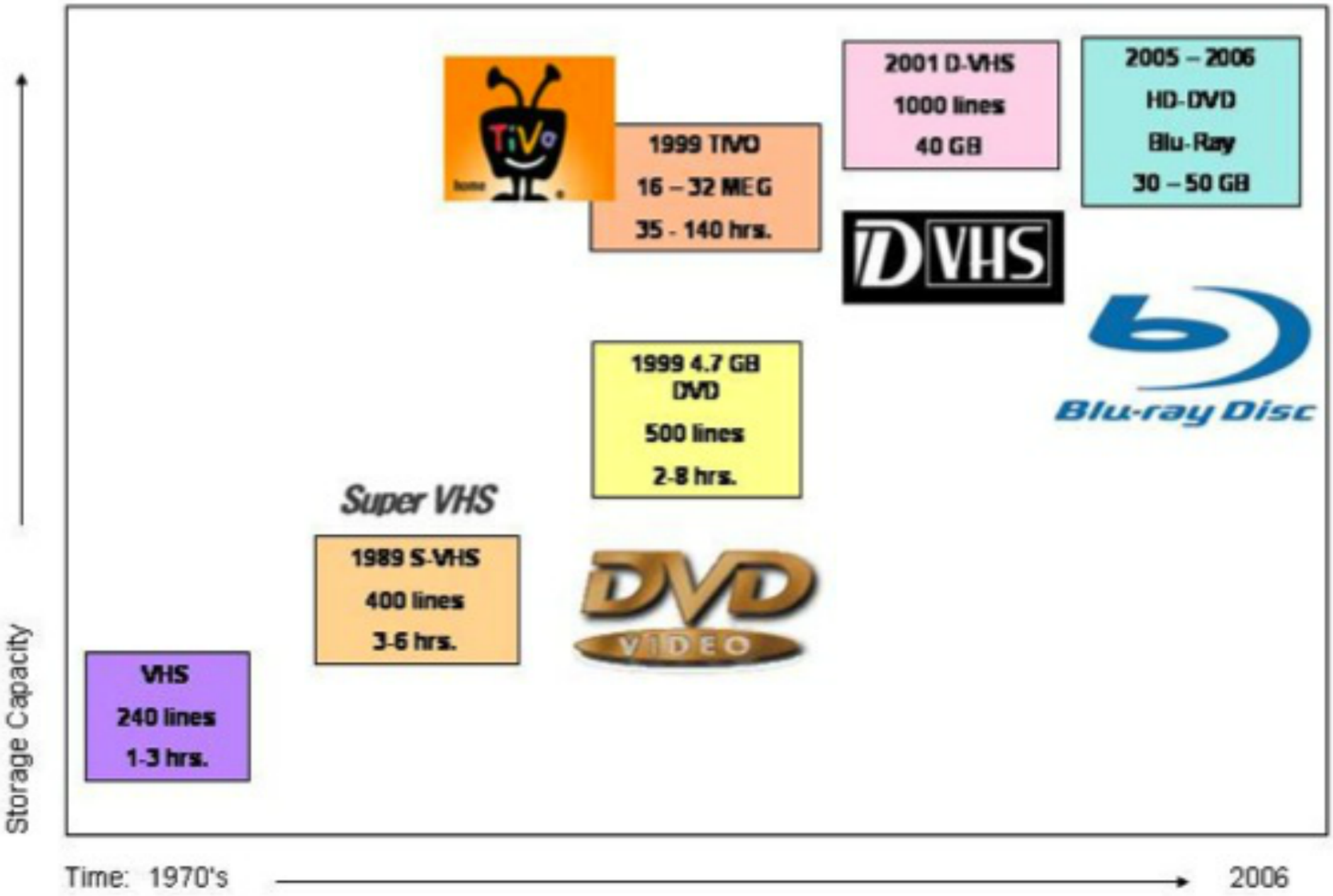
Venture performance = startup process + team + technology + market size + market growth + luck

Tech. startups are about experimentation in the economy:

What is the process?

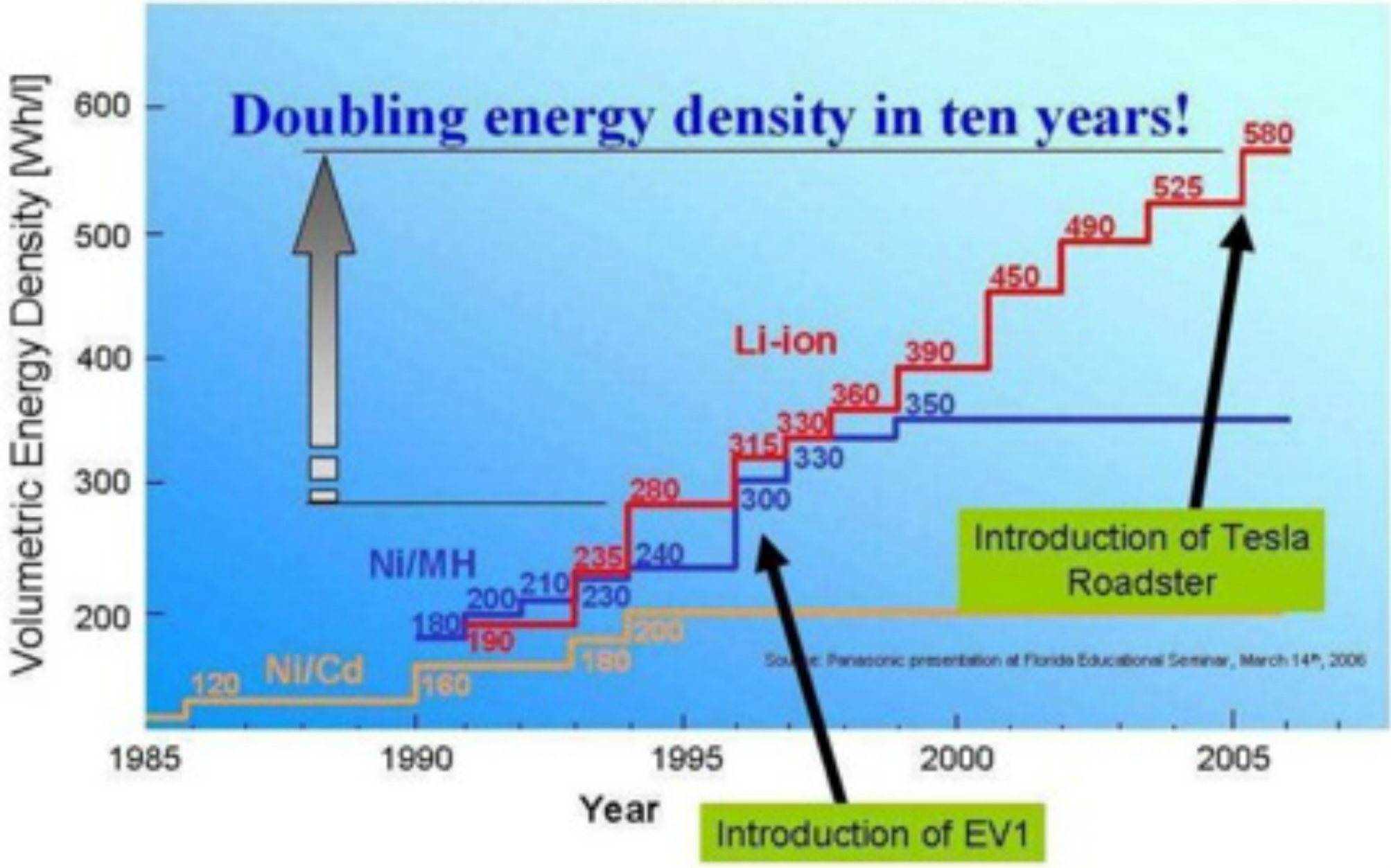
Analogous to the scientific method

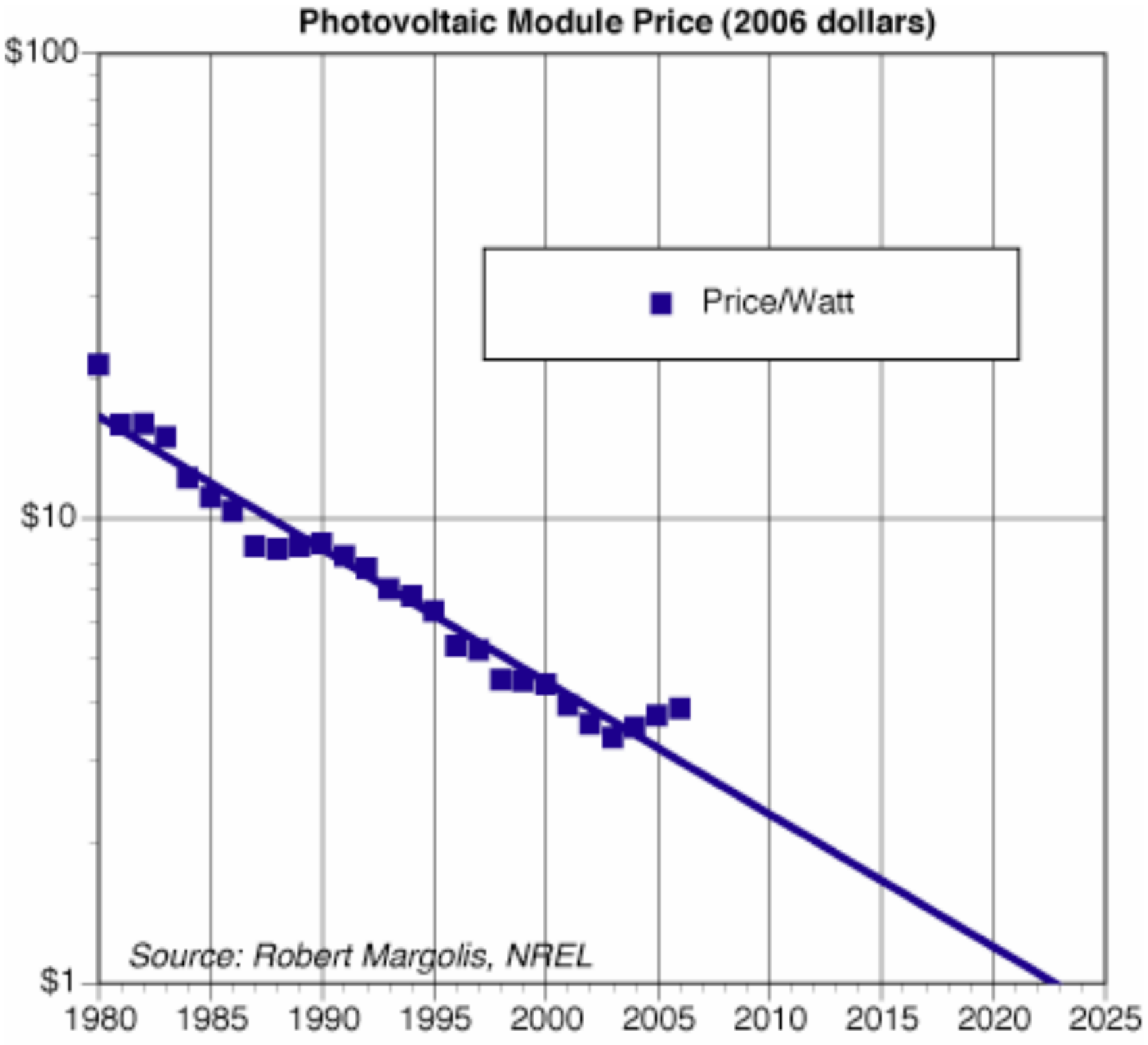

Waves of Innovation
Innovation
1st wave
Iron
Water power
Mechanisation
Textiles
Commerce
2nd wave
Steam power
Railroad
Steel
Cotton
3rd wave
Electricity
Chemicals
Internal combustion engine
4th wave
Petrochemicals
Electronics
Aviation
Space
5th wave
Digital Networks
Biotechnology
Software
Information technology
6th wave
Sustainability
Radical resource productivity
Whole system design
Biomimicry
Green chemistry
Industrial ecology
Renewable energy
Green nanotechnology
© The Natural Edge Project 2004
1785
1845
1900
1950
1990
2020


2001 D-VHS
1000 lines
40 GB
2005 – 2006
HD-DVD
Blu-Ray
30 – 50 GB
1999 TIVO
16 – 32 MEG
35 - 140 hrs.
1999 4.7 GB
DVD
500 lines
2-8 hrs.
Super VHS
1989 S-VHS
400 lines
3-6 hrs.
VHS
240 lines
1-3 hrs.
Storage Capacity
Time: 1970's
2006

Battery Energy Density Trend

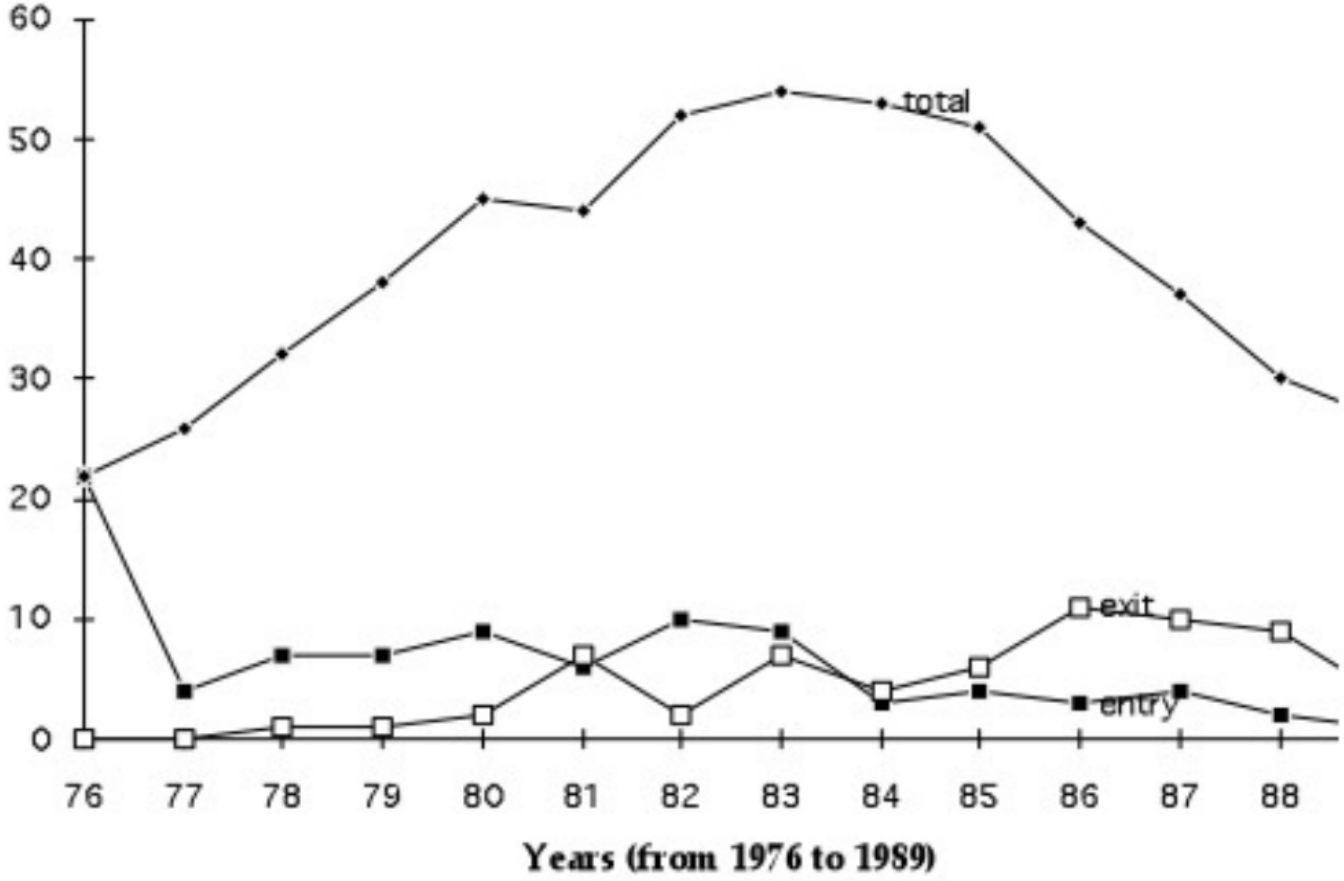
Lithium Ion vs. Ni-MH vs. Ni-Cd




Photovoltaic Module Price (2006 dollars)
$100
$10
$1
Price/Watt
Source: Robert Margolis, NREL
1980
1985
1990
1995
2000
2005
2010
2015
2020
2025

What about patterns in the firms and startups that are attempting to commercialize these innovations?

Number of Firms in the U.S. Rigid Disk Drive Industry



Christensen, Suarez and Utterback, 1998

startups that are
innovations?

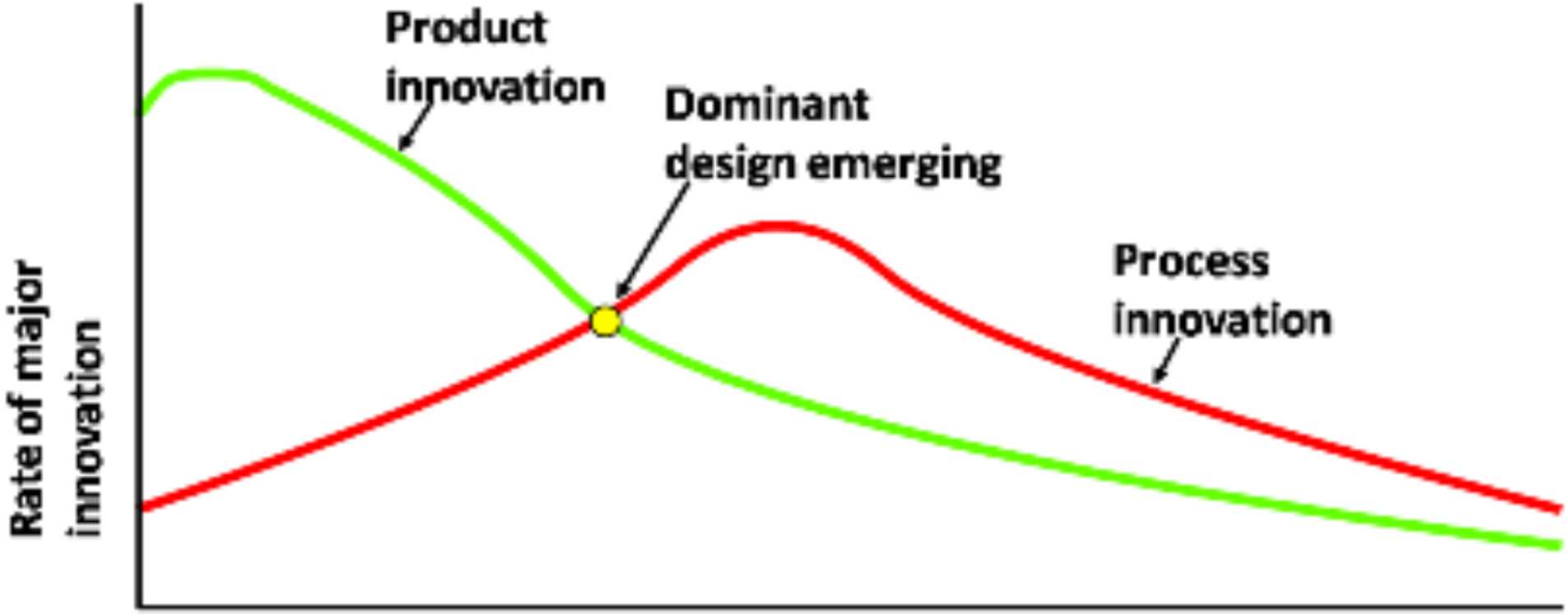
Changes in Market Leadership -- Hard Disk Drive Industry

Product Generation:	**Leading Firm**:
14-inch (1973)	Control Data
8-inch (1978)	Priam, Shugart
5.25-inch (1981)	Seagate, Miniscribe
3.5-inch (1986)	Conner, Quantum
2.5-inch (1990)	Conner, Quantum
1.8-inch (1994)	Integral

Christensen, 1997

Three Stages of Innovation

The Innovation Process



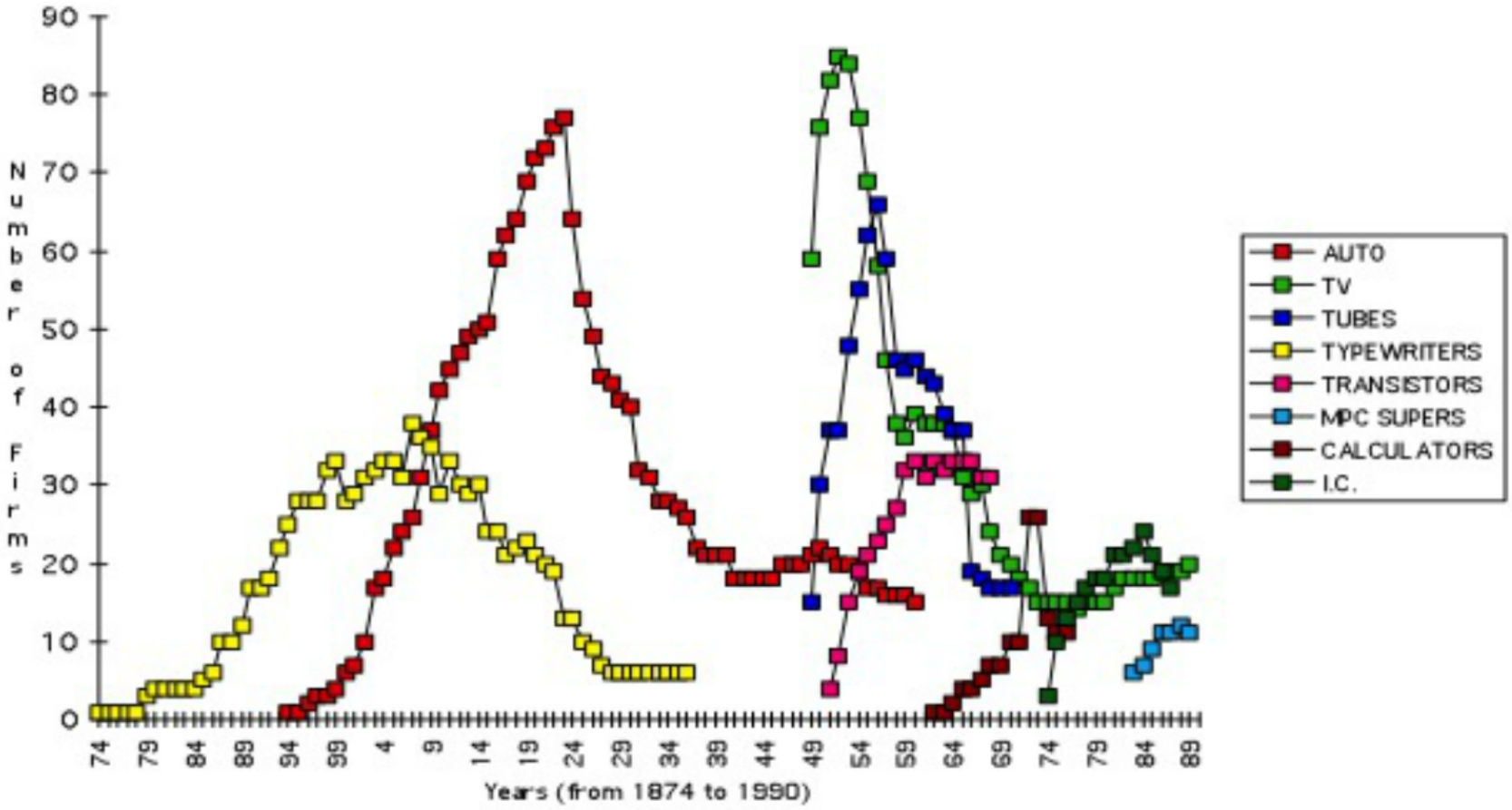
Fluid phase
- Trial and error product design
- Inefficient processes
- Number of competitors grows
- Informal structures

Transitional phase
- Dominant design emerges
- Major process improvements
- Number of competitors declines
- Project and task focused structures

Specific phase
- Incremental improvements
- Scale driven, highly efficient
- Stable competitor structure
- Highly structured organisations

Source: James Utterback, "Mastering the Dynamics of Innovation"

Number of Firms in Several Industries



James M. Utterback and Fernando Suarez, "Innovation, Competition and Industry Structure," Research Policy, Vol. 22, No. 1, February 1993, Pp. 1-21.

Stanford, Silicon Valley, and Enabling Experimentation

- Interaction with industry, basic research funding, and creativity
- Silicon Valley as a nearby planting ground for ideas
- Defense, government R&D, Terman's role
- Students as inventors, disseminators, and workforce
- Encouraging entrepreneurship on campus …

Other factors in Silicon Valley's Success

- Talent pool and social networks
- Loyalty to technology with a unique openness
- Importance of immigrants (highly multicultural)
- Its many early adopters of new technology
- Job hopping culture
- Services infrastructure with many suppliers for outsourcing (accounting, legal, etc.)

- Its venture capital industry and angel investors that provides help + financing
- Entrepreneurial spirit or DNA (impact of Western frontier)
- Role models (demonstrate both confidence and paranoia)
- OK to fail, learn from it, and try again
- Flat organizational structures and meritocracy
- Lack of enforcement of non-competes
- OK to talk and partner across company boundaries about common challenges

- Outside of Silicon Valley, entrepreneurship is increasing as entrepreneurs and policy makers find ways to bring these aspects of SV to other locations.

9 Key Models and Frameworks