Wealth, Innovation, Design, & Entrepreneurship (WIDE)

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The **WIDE** Agenda

all individuals in society become wealthier

- economic growth

- innovation & good design

- entrepreneurship
History Lesson: What Was and What Will Never Be

[ ... and, yes, that is an oblique Led Zeppelin reference ... ]
The **WIDE** Agenda

- **all individuals in society become wealthier**
- **economic growth**
- **innovation & good design**
- **entrepreneurship**
The **WIDE** Agenda

Wealth

Not Wealth
The **WIDE** Agenda

**Wealth**

**Not Wealth**
The **WIDE** Agenda

Wealth

Not Wealth
The **WIDE** Agenda

- all individuals in society become wealthier
- economic growth
- innovation & good design
- entrepreneurship
all individuals in society become wealthier

but wait —isn’t economic growth fueled by more than just innovation and design?
Fundamentally, there are (at least) two types of economic growth:

1. giving people something they don’t already have, and
2. giving people more of something they do already have

**My claim:** 0->1 is significantly more transformative than 1->2
Economics of 0, 1, 2

0 → 1 Food, housing, communications, transportation, medical care, etc.

1 → 2 Food, housing, communications, transportation, medical care, etc.
Economics of 0, 1, 2

0 ➔ 1
Food, housing, communications, transportation, medical care, etc.

1 ➔ 2
Food, housing, communications, transportation, medical care, etc.
Economics of 0, 1, 2

Economics of BETTER: Transformative Innovation-driven ALL in society benefit

Economics of MORE: NOT transformative Optimization (cost)-driven Optimizers benefit
“Innovation and trade: the ultimate engines of growth.”
—The Economist, Oct 3, 2009

“We have to choose to do what past generations have done: shape a brighter future through hard work and innovation.”
—Barack Obama, Sep 22, 2009
(ASEE’s “Obama Touts Innovation Agenda At New York Community College”)

“In the new knowledge economy, innovation and knowledge are the most important factors driving economic growth.”

“Innovation is the heart of economic recovery & future prosperity.”
—Roll Call, Nov 20, 2008
… But, Boy, Is Innovation Hard

• “In an era when most technology outfits have tightened their belts to adapt to a slower-growing market, one company stands out for forging ahead on innovation: Apple Computer.” *(BusinessWeek)*

• “Big companies are losing their ‘A’ players, and they’re struggling to attract ‘B’ players. In an industry where everything is about people, large tech companies are in trouble because they are losing the talent war. And keep in mind, an ‘A’ player in an organization can usually produce the same results as three ‘B’ players.” *(VentureBeat)*

• “Lots of companies have tons of great engineers and smart people. But ultimately, there needs to be some gravitational force that pulls it all together. Otherwise, you can get great pieces of technology all floating around the universe. But it doesn’t add up to much.” *(Steve Jobs, on innovation)*
I Would Add …

• Everyone in the US wants to make **money**, not **stuff** *(manufacturing for most of our stuff happens elsewhere)*

• Can really only innovate at the **stuff** level (making new stuff, better stuff)

• Innovation at the **money** level only benefits the innovator

• Our lack of a US manufacturing base means several things:
  ○ We are forcing (and teaching) the rest of the world to innovate
  ○ We’re not innovating any more as a society — just scattered outliers
  ○ Our economic growth (wealth, std of living, etc.) is falling behind others
What is Design? What is Innovation?

- Can’t define it, but you know it when you see it … 😊

- Close interaction with **burnout** phenomenon in start-ups

- An inability to eat, think, sleep, care for one’s self while technical problem remains

- Much “innovation” is just good design (… interesting)

- Requires staring at one problem for extended period (much like Ph.D. in that regard)

Image search for “burnout”
Let’s think more on that last point …

**Innovation and design:** Requires staring at one problem for extended period

**Academia:** Attention flits from topic to topic in a scheduled, often frenetic pace.

Semester concept is both arbitrary and contrived/artificial — false sense of progress (innovation recognizes no schedule)

**We’re training you** to be poor designers.
But, wait, there’s more …

Students calculate the effort needed to get the desired (or lowest acceptable) grade. You do the minimum work required. **We** (unconsciously) **train you** to do this.

In design, anything less than full attention = failure.
Put Simply

Design & Innovation — what it demands of you:

- Focus: 100%
- Time: extended period

The Academic Environment — what it demands of you:

- Focus << 100%
- Time ≤ 1 semester (typically, ≤ 1 week)

Conclusion: *Education is counter-productive at the society level?*
It Has Been Borne Out in Reality

- **Innovation and design requires staring at one problem for extended period**

- Contrast that with academia (undergrad in particular):
  - Attention flits from topic to topic in a scheduled, often frenetic pace
  - There is neither time nor incentive to spend more than a small fraction of focus on any given topic

Is it any wonder that **SO MANY** successful entrepreneurs/innovators dropped out of school?
I Think Academia is to Blame

- 1700s – 1900s: rise of wealth
- 1940s/50s: rise of **education**
- 1960s/70s: stopped innovating
- 1980s/90s: stopped m’facturing
- 1980s on: decline of wealth
all individuals in society become wealthier

economic growth

innovation & good design

entrepreneurship
Important development in last decade:

Manufacturing as a Service
The Basic Idea

Design Blueprint

You  Factory

Manufactured Device
The Basic Idea

Design Blueprints

Factories

Manufactured Device

Assembly
Some Blueprints
Some (other) Blueprints
## Pros & Cons

<table>
<thead>
<tr>
<th>Disadvantages</th>
<th>Advantages</th>
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<tbody>
<tr>
<td>Can’t Possibly compete with big companies</td>
<td>Idea already proven in marketplace (shareware, boutique electronics)</td>
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<tr>
<td>Might fail</td>
<td>Win/win situation (even company failure is good résumé material)</td>
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<tr>
<td>Can’t afford it</td>
<td>Low risk/reward ratio</td>
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<tr>
<td>Window of opportunity?</td>
<td>Start soon</td>
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*Bottom line: Do it for yourself, your country, the economy, whatever … just DO it.*
Questions?
(thank you for your attention)

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... or just Google “bruce jacob”
BACKUP SLIDES
The **WIDE** Agenda

**Innovation creates Wealth**

For you
For others (beneficiaries of your innovations)
For the economy

Wealth is **not** like energy;
it obeys no laws of conservation
Teach Innovation Despite Scheduled Frenzy?

**Necessary Elements:**

- Look at one problem for extended period (years?)
- Personal investment in outcome (reward, pride, etc.)
- Time commitment need not be large on per-week basis
- Need to see **real examples** of both success and failure
- Must be guided by innovators (not academicians, not MBAs)
- Failure is acceptable (grades)

Olin College, est. 1997