Carnegie Mellon University
Swartz Center for Entrepreneurship

SWARTZ CENTER FOR ENTREPRENEURSHIP TAKES NEXT STEPS
Agile Innovation System
Lean Startup Concepts
Agenda

1.) Introduction to Agile & Lean Startups - Dave Mawhinney


3.) Videos, “How We Validated Customer Need”, Rob Daley, 4Moms
That Lean Startup Crap is just for lightweight Web 2.0

Elaine Chen “#Leanstartup – Hardware Edition”
http://www.slideshare.net/chenelaine/lean-startup-hardware-edition-20563840

Mike Kuniavsky “Lean Hardware startups”
http://www.slideshare.net/mikek/lean-hardware-startups-elements-of-a-ubiquitous-computing-innovation-ecosystem
Invention Award 2014

SOLEPOWER

POWERING THE FUTURE
ONE STEP AT A TIME
There is Nothing New Under the Sun!!

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Kaizen!

Rapid, Continuous, Incremental, Improvement

Source:  http://en.wikipedia.org/wiki/Kaizen
In 1951, as part of the United States effort to rebuild Japanese industry, the Civil Communications Section’s (CCS) Economic and Scientific Section (ESS) developed the training film "Improvement in 4 Steps" (Kaizen eno Yon Dankai). This is the original introduction of "Kaizen" to Japan.

For the pioneering, introducing, and implementing Kaizen in Japan, the Emperor of Japan awarded the Second Order Medal of the Sacred Treasure to Dr. W. Edwards Deming in 1960.
2001: Agile Manifesto

We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:

**Individuals and interactions** over processes and tools

**Working software** over comprehensive documentation

**Customer collaboration** over contract negotiation

**Responding to change** over following a plan

That is, while there is value in the items on the right, we value the items on the left more.
Why do most start-ups fail?

Will the dogs eat the dog food?

“A and C are a bit on the gritty side... B seems to have a bitter aftertaste... C has a good taste but a bit too mushy...”

They don’t talk to customers early and often enough!

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Another Evolution: MVP

Minimally Awesome Product

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Minimal Viable Product – Lean Startups

Customer Development is as important as Product Development

Product Development

- Concept/Bus. Plan
- Product Dev.
- Alpha/Beta Test
- Launch/1st Ship

Customer Development

- Customer Discovery
- Customer Validation
- Customer Creation
- Company Building
Customer Development meets Agile Product Development

The Lean Startup!
There is Nothing New Under the Sun!!

The Scientific Method

Theory
- create or modify the theory
- use the theory to make a prediction

Prediction
- design an experiment to test the prediction

Observation
- perform the experiment

Experiment
Phases in the Embryonic Stage

2. Feasibility
   - Benchscale Model
   - Lab Tests
   - Private Information Gathering
   - Preliminary Business Assessment

3. Verification
   - Prototype Product Design
   - “Quiet” Field Exposure Evaluations
   - Manufacturing Operations Management Team

4. Demonstration
   - Produce First Production Quantity
   - “Noisy” Customer Involvement
   - Replicate Formula for Success
   - “Seasoned” Management Team
   - Detailed Plan of Attack

5. Commercialization
   - Full Scale Production
   - Explosive Market Development
Three Failure Modes

1. False Positive

2. Signal to Noise Problem

3. Your Product is not Good Enough!
The Goodness Factor

If you enter a market that has an existing solution and your product is the same “price”, then you must be **THREE TIMES BETTER**.

Or, if you offer the same benefit, you must be **THREE TIMES CHEAPER**.

Why?

People are LAZY!!! The great HABIT FORCE is hard to break. So you must have a **GOODNESS FACTOR** to compel them to change!
The Goodness Factor

Don Jones
Robot Entrepreneur & VC
Quantitative Benefits

1. Saves Time

2. Saves/Makes Money

3. Hooks you up!

4. Fame/Recognition

5. Altruism/Doing Good
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