Learning to Surf

*The Lean Mindset*
Our Two Minds

System 1:
- Fast
- Reflexive
- Responsive
- Expertise
- Intuition
- Habit
- Tacit Knowledge
- Autopilot
- Makes Most Decisions
- Overrides System 2

System 2:
- Slow
- Deliberate
- Rational
- Analysis
- Evidence
- Plans
- Explicit Knowledge
- Manual Mode
- Checks up on System 1
- Basically Lazy
Learning to Surf

Tacit Knowledge
Responsive
Reflexive
Expertise
Autopilot
Intuition
Habit
Fast

“Instead of learning to surf, conventional organizations try to control the waves! This almost never works.” --- Allen Ward
Learning to Surf

Expertise

10 Years / 10,000 hours of Deliberate Practice

Coach

Feedback

Challenge

Progress

Cognitive Biases

Confirmation Bias
Tendency to seek out or interpret information in a way that will confirm preexisting viewpoints.

Anchoring
Tendency to “anchor” or rely heavily on the first trait or piece of information that was observed.

Loss Aversion
Tendency to strongly prefer avoiding losses to acquiring gains.
Dealing With Cognitive Biases

Options
- Teenage Decision-making*
  - Weather-or-Not
  - Either-Or
- Widen the Frame
  - Both – And
  - None of the Above
- Develop Multiple Options
  - Learn as Much as Possible
  - Decide as Late as Possible
- Look for Patterns
  - Find the Bright Spots
  - Look for Analogies

Opinions
- The Wisdom of Crowds
  - Multi-discipline Team
  - Voting Customers
- Widen the Perspective
  - Invite Disagreement
  - Look at the Adoption Chain
- Zoom in – Zoom out
  - Get Close
  - Attain Distance
- Look at Base Rates
  - What are the odds?
  - What makes you different?

* Decisive by Chip and Dan Heath

Go to the Gemba
Can Big Companies Surf?

**ERICSSON**

$33 Billion
110+ Employees
Sells ~ 40% of mobile network equipment.
It supplies software and operations, and manages infrastructure build-out projects.

Will supply much of the equipment and software, installation and operation.
The past was not good enough for the future.

Results:

- Twice as fast
- Higher hit rate
- Significantly higher quality
- More engaged engineers

Mats Lindén
Both Speed And Quality

**Design Stage**
- Model
- Hypothesis
- SBE
- Wireframes

**Develop Stage**
- Design
- Code & Script
- Unit Test
- Refactor

**Commit Stage**
- Compile
- Commit Tests
- Assembly
- Code Analysis

**Acceptance Stage**
- Configure Environment
- Deploy Binaries
- Smoke Test
- Run Acceptance Tests

**Capacity Stage**
- Configure Environment
- Deploy Binaries
- Smoke Test
- Run Capacity Tests

**Production**
- Configure Environment
- Deploy Binaries
- Smoke Test

**Environment & Application Configuration Scripts**

**UAT Stage**
- Configure Environment
- Deploy Binaries
- Smoke Test
- Manual Testing

**Self-Service Deployments**
- Testers

**Operations**
- Push-Button Releases
- Reports
- Metadata

**BINARIS**

**ARTIFACT REPOSITORY**

**Reports**
- Metadata

**Source Code & Tests**

**Version Control**
Reliable Promises

The past was not good enough for the future.

Accept uncertainty and learn how to live with it.

1. Manage features, not projects.
2. Decouple releases from development.
   a) Product and technical leadership.
   b) Autonomy and responsibility.
4. Reorganized management jobs
5. Central planning coordinates features
   a) Sets content and allow date to vary

Hendrik Esser
Both Predictability And Autonomy

Managing Complexity
1. Probe
2. Observe
3. Adjust

Achieving Predictability
1. Flow
2. Obstacle
3. Adjustment

Managing Complexity
1. Probe
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Energized Workers

Remember times when:

✓ You are deeply engaged
✓ Distractions disappear
✓ Time evaporates

This is called FLOW.

People are Energized by

A Challenge to Reach Their Full Potential

Mihaly Csikszentmihalyi
(me-high chick-sent-me-high-ee)
What is a Challenge?

Safety-Focused Goals (Prevention Focus)
- Prevent Failure
  - Is it safe?
  - Find the safest option
- Duty and Obligation
  - Setbacks => redoubled efforts
  - Praise => more relaxed efforts

Aspirational Goals (Promotion Focus)
- Create gains
  - Let’s do it!
  - Explore all the options
- Aspirational Goals
  - Praise => redoubled efforts
  - Setbacks => discouragement

Regulatory Fit Theory*
- People learn from childhood to favor a focus
- Use goals that fit the regulatory focus of the people

Goal Conflict
- Large companies struggle with aspirational goals.
- Startups struggle with safety-focused goals.

*Work of Troy Higgins
Moore’s Law

Cramming more components onto integrated circuits

By Gordon E. Moore

Director, Research and Development Laboratories, Fairchild Semiconductor
division of Fairchild Camera and Instrument Corp.
Electronics, Volume 38, Number 8, April 19, 1965

If transistors were people

If the transistors in a microprocessor were represented by people, the following timeline gives an idea of the pace of Moore’s Law.

2,300
Average music hall capacity

> 134,000
Large stadium capacity

> 32 Million
Population of Tokyo

> 1.3 Billion
Population of China

1970 Intel 4004
1980 Intel 286
1990 Pentium III
2000 Core i7 Extreme Edition
2011

Now imagine that those 1.3 billion people could fit onstage in the original music hall. That’s the scale of Moore’s Law.
Constant Improvement On Steroids

At Intel, every department is involved in Moore’s Law. Even PDE. (Product Development Engineering) Especially PDE!

From First Silicon to PRQ. (Product Readiness Qualification)

Timeline:
1. 2007-2008: Early Agile
2. 2009-2010: Advanced Agile
3. 2011-2012: Beyond Agile

Post-silicon Validation Challenges, by Keshava, Hakim, & Prudvi (Intel), presented at DAC ’10, Anaheim, 2010
Triple Productivity in Eighteen Months

20011 – 2012: Beyond Agile

Moore’s Law required:
3X More Validation Cycles

Lean Product Development
Solution sets converge through a series of Integrating Events (IE’s).

Same Funding and Time
18 months to figure it out.

3X Working Group:
Translate 3X to Specific Targets

www.targetedconvergence.com
Integrating Events Drive Learning

**Integrating Event Goals:** A = Assignment, F = Funding, C = Convergence, D = Done

- **IE0** Proposal
  - Define Needs
- **IE1** Concept
  - ID Gaps & Plans
- **IE2** Feasibility
  - Establish Feasibility
- **IE3** Optimization
  - Pick Best Solution for Entire System
- **IE4** (LRM)
  - Build It
- **IE5** Done

**Learning/Decisions**
- Define Needs
- ID Gaps & Plans
- Establish Feasibility
- Pick Best Solution for Entire System
- Build It

**Schedule Tension**
- Front Scheduled
- Back Scheduled

**Learning Docs**
- Project Knowledge Brief
  - Optional Problem KB’s to Close Specific Gaps

**Converge**
- Concept Cust Intr.
- Trade Offs Plans
- Gaps/Alts Proj Defn Plans
- Causal Map
- D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 D10
- Results Adjustments Knowledge Map

From Patrick Elwer - Intel PDE
**Test-Frist Engineering**

**Goal:** Every two weeks, over a 48 hour weekend, software will be validated by placing 55,000 units in test sockets.

**Feasibility:** Robot specs show it is capable of doing this.

**Coach:** Have you tested it?

**Team:** No…but –

Team decided to test 1500 parts.

Robot broke down after 80….

*It took a year of improvements for the robot to work reliably at the needed volume and speed.*
Great results happen when:

- People know why they are doing their work
- Organizations focus on delivering outcomes and impacts rather than features
- Teams decide what to do next based on immediate and direct feedback from the use of their work
- Everyone cares

Yes, the planet got destroyed. But for a beautiful moment in time we created a lot of value for shareholders.
Learning to Surf

Develop Expertise

- Meaningful Challenge
- Feedback
- Progress

Guard Against Bias

- Confirmation Bias
- Anchoring
- Loss Aversion

Try Multiple Options

- All of the Above
- None of the Above
- Exactly the Opposite
- Set-Based Design
- Bright Spots
- Analogies

Seek Multiple Opinions

- Multi-discipline Team
- Customer Votes
- Invite Disagreement
- Adoption Chain
- Front Line
- Base Rates
Thank You!

*The Lean Mindset*

*Book Available Fall, 2013*