My Journey So Far

Formal methods, Z, and real-time systems

Executable business models, modelling, UML, MDD, MDA

CMM, Software tools, IPSEs, and SEEs

Process improvement, agile delivery, and DevOps

Business model innovation and digital transformation

www.AlanBrown.net
“It is not the strongest of the species that survives, nor the most intelligent, but the one most responsive to change.”

~-Charles Darwin, 1809
R&D Meet E&S

M. Schrage, R & D MAKES ROOM FOR E & S, MIT Sloan School
Project and Product Management: Dealing with Uncertainty

<table>
<thead>
<tr>
<th>Strong Programmability</th>
<th>Weak Programmability</th>
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<tbody>
<tr>
<td>Make a Movie</td>
<td>Walking in Fog</td>
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<td>Project management as 'directing’</td>
<td>Project management as ‘scouting’</td>
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<td>e.g. Systems development</td>
<td>e.g. Early-stage research</td>
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<td>Paint by Numbers</td>
<td>Going on a Quest</td>
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<td>Project management as ‘conducting’</td>
<td>Project management as ‘guiding’</td>
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<td>e.g. House building</td>
<td>e.g. Product development</td>
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Outcome measurability

High

Low
Welcome to the Future!
Pop Quiz

1. How many wireless devices are connected to the Internet?
2. Which country leads in mobile money transfers?
3. How many cars were sold in 1Q17 by: Tesla and GM? Which has the highest market capitalization?
4. If you had $22B to spend, would you buy:
   a) Sony  b)The Gap  c) United Airlines  d) WhatsApp?
Wearables Plus AI Transform Experiences

Disney has introduced the ‘MagicBand’ into its hotels and theme parks:

- Billion dollar investment delivering six month pay-back
- Extends the average ‘stay’ by improving the customer experience
- Ensures smooth traffic through every theme park asset (rides, restaurants, etc)
- Provides unique customer data to support future planning

https://www.wired.com/2015/03/disney-magicband/
Innovation and Business Models

D
What is desirable to users?

F
What is feasible with Technology

V
What is viable in the marketplace
Toward a Discipline of Agile Innovation Engineering

Design Thinking
Lean Experimentation
Business Model Innovation
Agile Software Delivery and Devops

Strategic Change Management
Design Thinking Activities

**Empathize**

Learn about the audience for whom you are designing, by observation and interview. Who is my user? What matters to this person?

**Define**

Create a point of view that is based on user needs and insights. What are their needs?

**Ideate**

Brainstorm and come up with as many creative solutions as possible. Wild ideas encouraged!

**Prototype**

Build a representation of one or more of your ideas to show to others. How can I show my idea? Remember: A prototype is just a rough draft!

**Test**

Share your prototyped idea with your original user for feedback. What worked? What didn’t?
Elements of Value

**LIFE CHANGING**

- Self-transcendence
  - Provides hope
  - Self-actualization

- Motivation
- Heirloom
- Affiliation/belonging

**EMOTIONAL**

- Reduces anxiety
- Rewards me
- Nostalgia
- Design/aesthetics
- Badge value

- Wellness
- Therapeutic value
- Fun/entertainment
- Attractiveness
- Provides access

**FUNCTIONAL**

- Saves time
- Simplifies
- Makes money
- Reduces risk
- Organizes
- Integrates
- Connects

- Reduces effort
- Avoids hassles
- Reduces cost
- Quality
- Variety
- Sensory appeal
- Informs
It’s All About
New Digital Business Models

The App Store As A Digital Business Model

- Business
- Networked Digital Platform: Site | Device | API
  - Reach
- Customer Ecosystem: buy | use
- Developer Ecosystem: create
- Applications: use

network effect
monetize
commitment
build
cultivate

HOW | WHAT | WHO

ACTIVITIES | RELATION | OFFER | CLIENTS
PARTNERS | RESOURCES | CHANNELS

COSTS ↔ REVENUE
<table>
<thead>
<tr>
<th>Key Partners</th>
<th>Key Activities</th>
<th>Value Propositions</th>
<th>Relationships</th>
<th>Customer Segments</th>
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<td>Key Resources</td>
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<td>Cost Structure</td>
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<td>Revenue Streams</td>
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Twisted Freemium Business Model
most relevant for software development companies

Key Partners
- Open source development community

Key Activities
- Product support services
- Product versioning and testing

Value Proposition
- Free open source based product
- Continuously serviced product

Customer Relationships
- Self-service and access to platform

Customer Segments
- Self-service customers
- Paying customers

Key Resources
- Open source product

Channels
- Online platform
- Local branches

Cost Structure
- Platform development costs
- Sales costs
- Distribution costs

Revenue Streams
- Professional subscription
Reality Check

• Any business model must be
  – Appropriate
  – Viable
  – Executable
  – Adaptable

• How can you “test” a business model?
Common Assumptions to Test

- Who is the right customer?
- How much / how will they pay?
- Essential launch features that customers will value the most?
- Who is the decision maker?
- Who else influences decisions?
- What kind of customer relationship is needed?
- How will we effectively acquire customers?
- How many customers to be profitable?
- Optimum distribution channels?
- Partnerships needed?
- Capabilities needed?
a business model might look great on paper...

... but be honest that it's
... just a set of hypotheses
you need to adapt the business model until you can prove it works
Why the Lean Start-Up Changes Everything

by Steve Blank
Minimize *Total* Time Through the Loop

- **Learn**
- **Build**
- **Measure**
- **Data**
- **Code**
- **Ideas**
Techniques

![Diagram of the LEARN cycle with Techniques]


- **Measure Faster**: Funnel Analysis, Cohort Analysis, Net Promoter Score, Search Engine Marketing, Predictive Monitoring
Product Development at Lean Startup

Validated Learning about the Customer

Problem Space

customer discovery → customer validation → customer creation → company building

pivot

Hypotheses
Experiments
Insights
Product Development at Lean Startup

Validated Learning about the Customer

**Problem Space**
- Customer discovery
- Customer validation
- Customer creation
- Company building

**Solution Space**
- Data
- Feedback
- Insights

Hypotheses
Experiments
Insights

**24 Hours**
**2-4 Weeks**

**Daily Scrum Meeting**

**Product Backlog**
**Sprint Backlog**

**Potentially Shippable Product Increment**
But Remember....

"THE ROLE OF CULTURE HAD A LARGER IMPACT ON INNOVATION THAN INNOVATION STRATEGY, OVERALL BUSINESS STRATEGY, DEEP CUSTOMER INSIGHT, GREAT TALENT AND THE RIGHT SET OF EXECUTION CAPABILITIES." (REPORT SUMMARY)
• **Slow or stalled decision-making** caused by internal politics, competing priorities, or need to reach consensus.

• **Inability to prove business value** of digital through traditional ROI calculations, without key sponsorship.

• **Too much focus on technology** rather than willingness to address deep change and rethink how people work.

• **Lack of understanding operational issues** at the decision-making level; tough going from theory to practice.

• **Fear of losing control** by management or central functions, and fears that employees will waste time on social platforms.
Questions