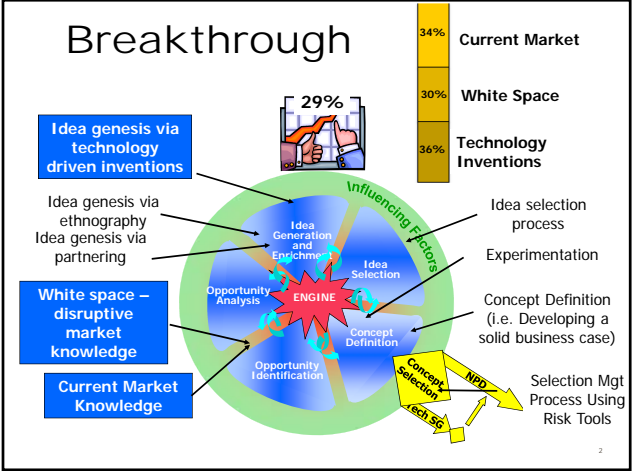
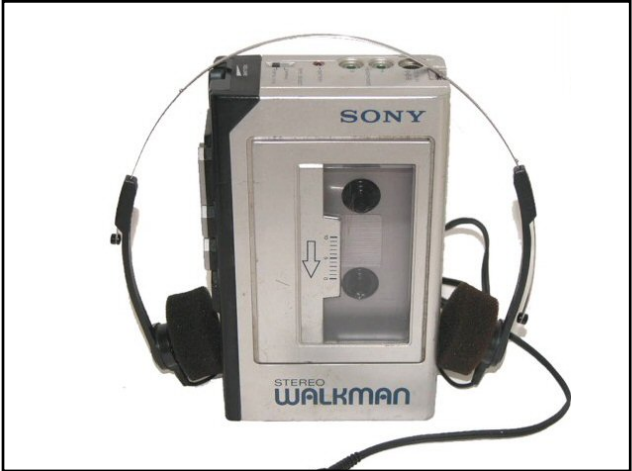


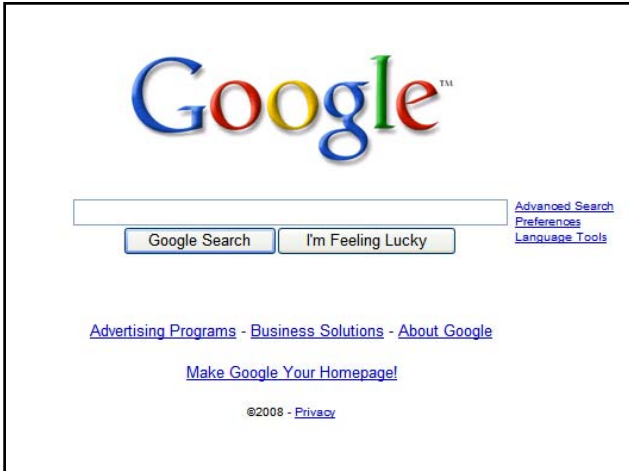
Breakthrough Innovation

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Why is it so difficult for large and successful incumbent firms?

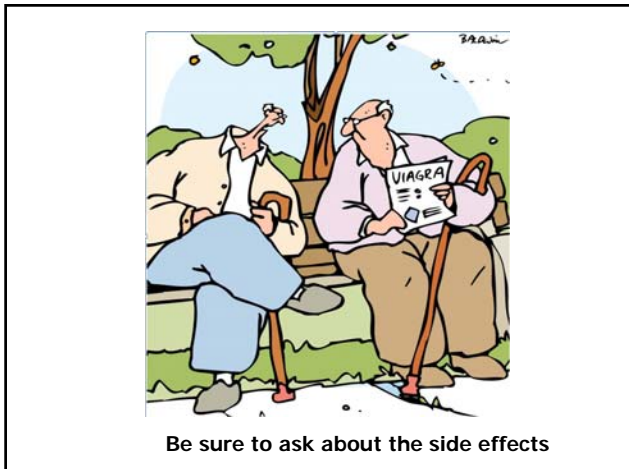
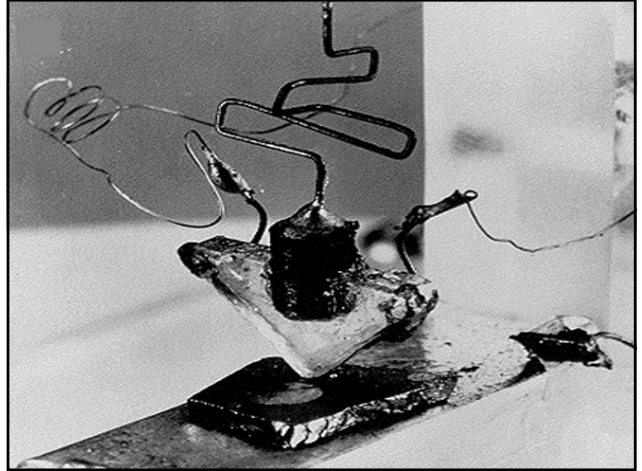
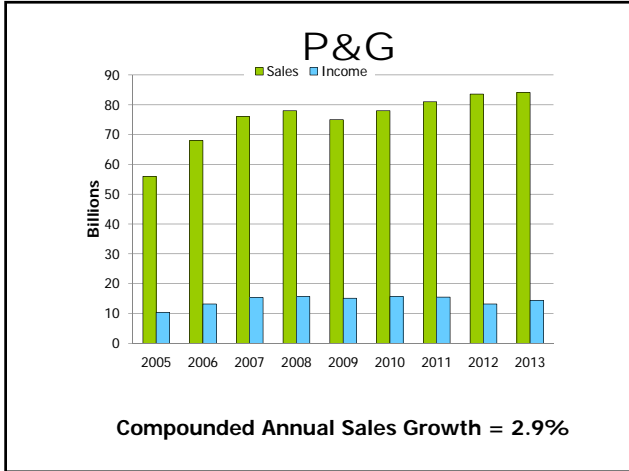






Why is it so difficult?

Large companies are not innovative



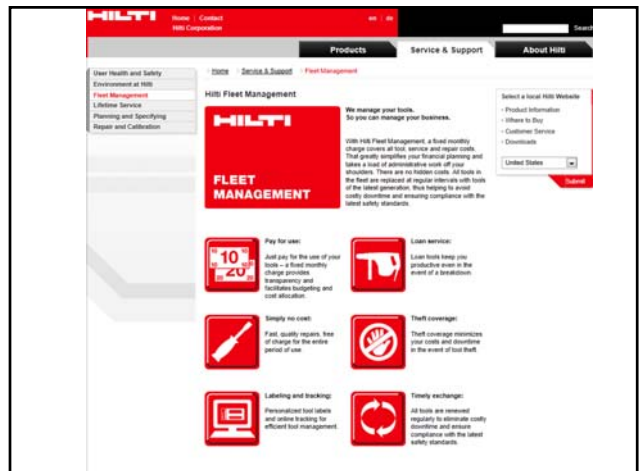
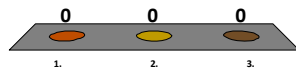
OK - large companies
are innovative
**BUT not in developing
new business models**

What do we mean by a **new** business model?



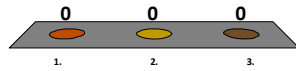
Was iTunes a new Business Model for Apple?

1. Yes
2. Not sure
3. No



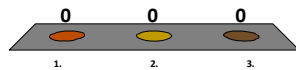
Is the Tool Management system new Business Model for HILTI?

- 1. Yes
- 2. Not sure
- 3. No



Is the Celeron Chip a new Business Model for Intel?

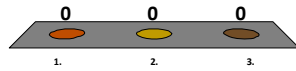
- 1. Yes
- 2. Not sure
- 3. No



Immelt, J. R., Govindarajan, VJ, and Trimble, C. (2009) "How GE is Disrupting Itself," Harvard Business Review.

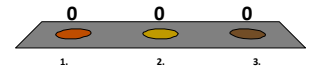
Is the low cost GE EKG machine a new Business Model for GE India?

1. Yes
2. Not sure
3. No



Is the low cost GE EKG machine a new Business Model for GE USA?

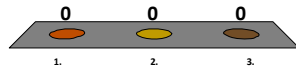
1. Yes
2. Not sure
3. No



No frills, bulk prices sold through the internet

Is Xiameter a new
Business Model for Dow
Corning?

1. Yes
2. Not sure
3. No



Why?

The definition of
breakthrough
innovation sucks



Transformational and
disruptive innovation?

Brown, B. and Anthony, S. "How P&G Tripled Its Innovation Success Rate." Harvard Business Review, June 2011
Koen, P.A., Bertels, H. and Etlum, J.R. "The Three Faces of Business Model Innovation: Challenges for Established Firms." Research -
Technology Management, 55, 3: 52 - 59, May - June 2011.

Sustaining Innovations



33

Transformational Innovations



34

Disruptive Innovations



Why are transformational innovations so difficult for large and successful incumbent firms?

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4

Business Model Rigidity

Leaders will make significant investments in breakthrough innovation, but **will force the solution into the sustaining business model**



Business Model Rigidity

Kodak invests \$5 billion in digital over the next 10 years (40-50% of R&D budget)



Sustaining businesses **execute** a business model, breakthrough innovations need to **search** for one

The true product of the breakthrough innovation team is the **business model NOT the solution**

2



The Church of New Finance

I. Return on net assets (RONA)	V. Earnings per share (EPS)
II. Economic Value- added (EVA)	VI. Return on Capital Employed (ROCE)
III. Gross Margin %	VII. Marginal Revenue / marginal cost
IV. Internal Rate of Return (IRR)	VIII. Thou shalt be data-driven and fact-based.

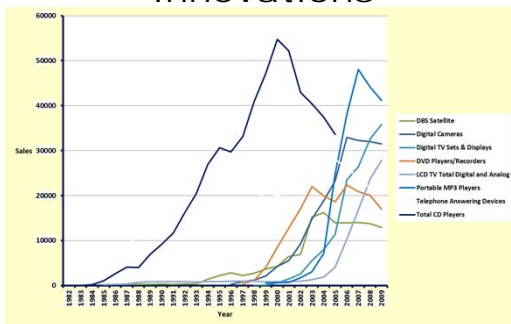
Adopted from a Clay Christensen presentation



Common methods of financial analysis systematically bias against high risk innovation

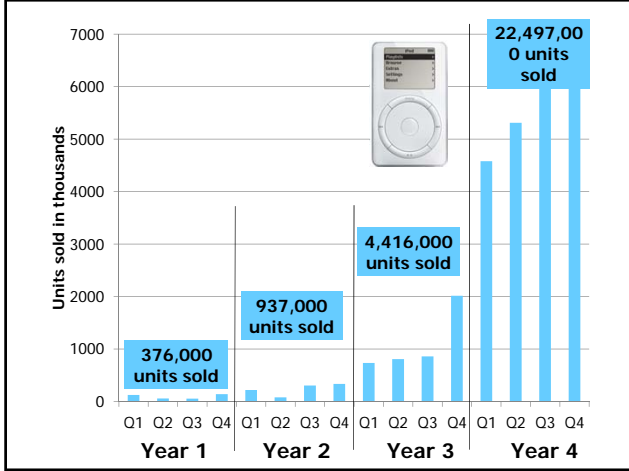
Embrace financial uncertainty and SLOW diffusion rates

Diffusion of Breakthrough Innovations



Chandrasekaran, D and Tellis, G. "Global Takeoff of New Products: Culture, Wealth, or Vanishing Differences," Marketing Science, 2008, pp 1-17





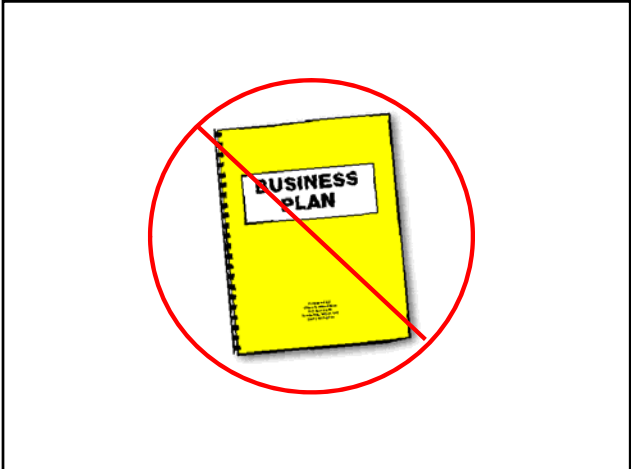
IHFY Income in a Hypothetical Future Year

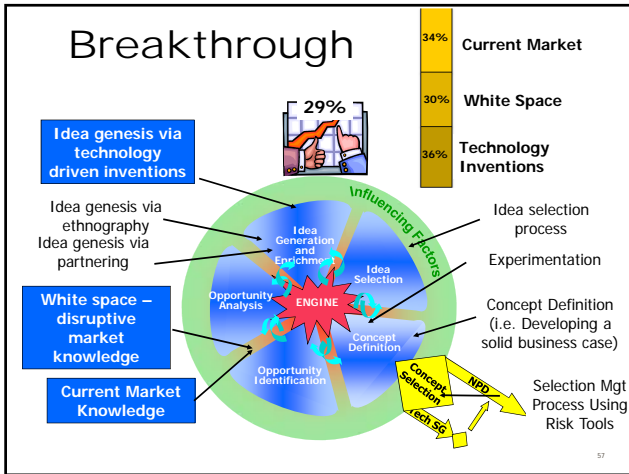
$$IHFY = (\text{Unit Volume}) \times (\text{Price}) \times (\text{Margin})$$

Goal is to estimate **3x – 10x** to determine potential income provides **enough value** to the firm

Presentation from John Evans, VP of Engineering and Technology, Lockheed Martin

3





“No business plan survives the **first contact with the customers**”

Adopted from Blank and Dorf, The Startup Owner's Manual, KS Ranch, 2012

Business plans are valuable in **sustaining businesses** – when you can **execute** on the plan

Some facts from start-ups

60



And the ones that succeed change their original business plan **66%** of the time

.....Quoted from Ash Maurya

90% of breakthrough innovation projects **change their business models 4 times** before they "get it right"

Quote from Mark Johnson, author of Seizing the White Space, HBR, 2010



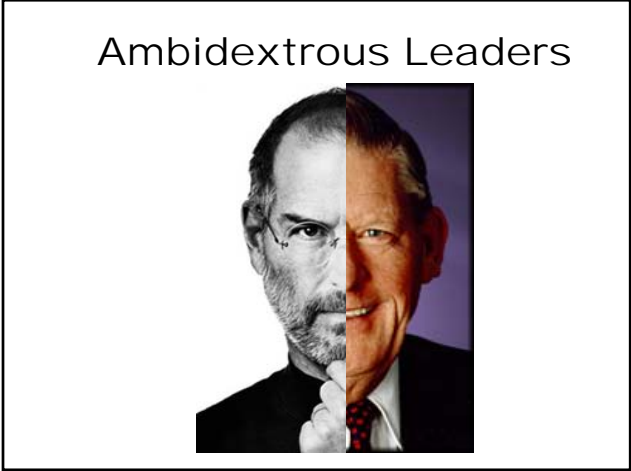
The true product of the transformational innovation effort is the **business model NOT the solution**

4

Apply the same leadership practices that we use in sustaining to transformational innovations

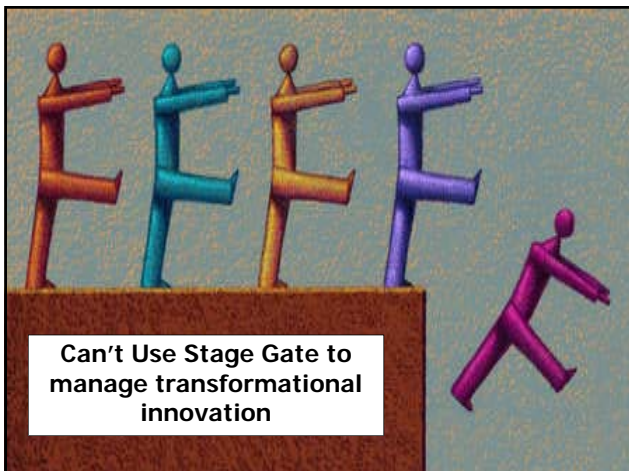
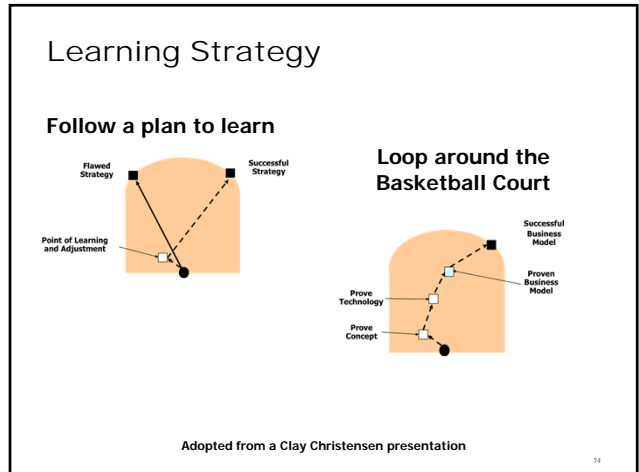
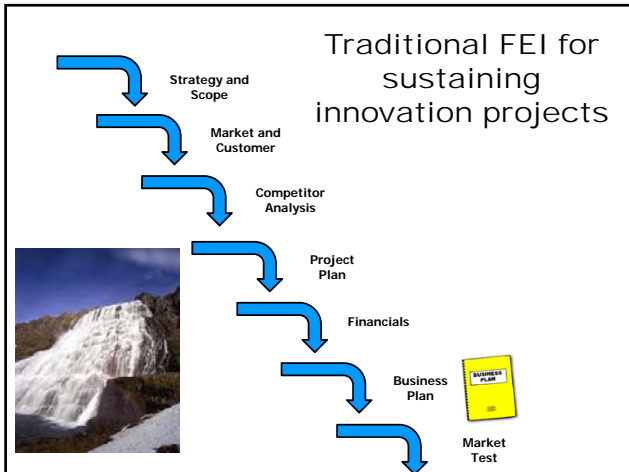
Which CEO's embrace breakthrough thinking?





5

Apply the **same FEI management** methods we use in **sustaining** to **transformational** innovations

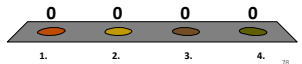




Lean start-up

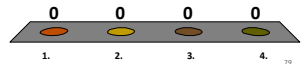
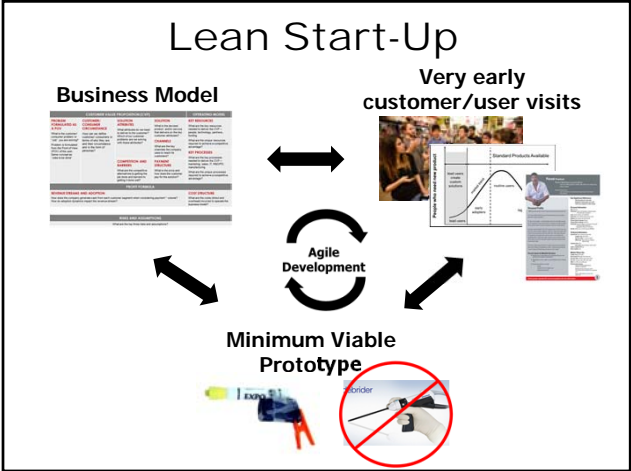
How do you manage Breakthrough Innovation?

1. Stage Gate
2. Lean Start-Up
3. Other
4. I don't have a clue



Are you using Lean Start-Up in your company?

1. Proficient – how we do breakthrough
2. Applied to 1 or 2 projects
3. Just learning about it
4. Don't know what it is

Uses the **business model** as a converging tool for **brainstorming** breakthrough innovation **business hypothesis**



CUSTOMER VALUE PROPOSITION (CVP)			OPERATING MODEL
PROBLEM FORMULATED AS A POV	CUSTOMER/ CONSUMER CIRCUMSTANCE	SOLUTION ATTRIBUTES	KEY RESOURCES
What is the customer/ consumer?	How can we define...	What attributes do we need to deliver to the customer?	What is the devised product and/or service that delivers on the key...
<p>Uses the business model as a converging tool for brainstorming for transformational business hypothesis</p>			
RISKS AND ASSUMPTIONS			
What are the top three risks and assumptions?			

2. Early and abundant customer visits

We often wait too long to talk with customers

Adopted from Blank and Dorf, The Startup Owner's Manual, KS Ranch, 2012

"No business model survives the first contact with the customers"

Adopted from Blank and Dorf, The Startup Owner's Manual, KS Ranch, 2012

3. **VERY EARLY**, fast low fidelity prototyping

Show this



Don't wait for this

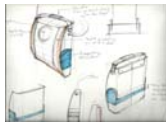


Words

...blah, blah, blah....

Sketch

..worth a 1000 words...



Prototype

..worth a 1000 pictures...

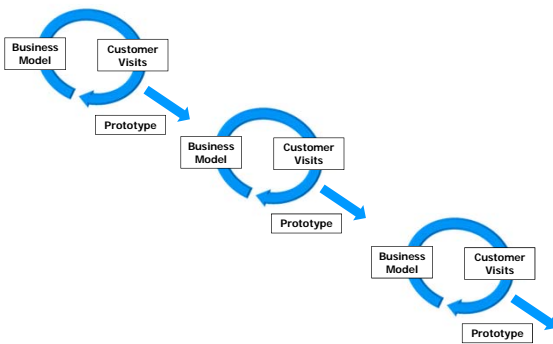


from IDEO

Minimum Viable Prototype
(MVP)

Minimum set of features that are necessary to get early customer validation of the business model

4. Rapid Learning



Experiences with large corporations

Experience

- **Implementing lean start-up in 3 large companies**
 - 2 are in the top 10 innovators in the world
- **Teaching lean several start-up as part of the EMTM Corporate Entrepreneurship Course**
- **Teaching lean start-up as part of Mgt 103 freshman engineering class of over 500 students on entrepreneurship**

6

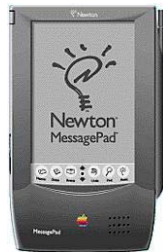
*Lessons
Learned*

All of the companies
struggled with getting to the
right problem

97

Many innovations fail **not**
because of a fatal flaw in the
innovation itself, but because
the company **fails to**
understand the problem they
are solving

Newton: Enamored by
technology. **PC in your pocket.**
Not what functions are needed
by mobile user



Segway: **A transportation device**
for everyone NOT for someone.
Not determining which users
have a problem requiring the
attributes of a Segway





Google Glass: **A mobile device for everyone.** Not determining which users have a problem requiring it

GLASS



"...Google didn't improve Glass in **specific ways for an application to attract users** from a target market to buy Glass. In the end, by trying to be a "cool tool" for **everyone** Glass ended up being something nobody really needed"

-Forbes, Feb 12, 2015, Adam Hartung

Apple Watch: What **problem** are they trying to solve and for **whom**?





The current music players “truly sucked ...they hold 16 songs, and you couldn’t figure out how to use them” – Steve Jobs

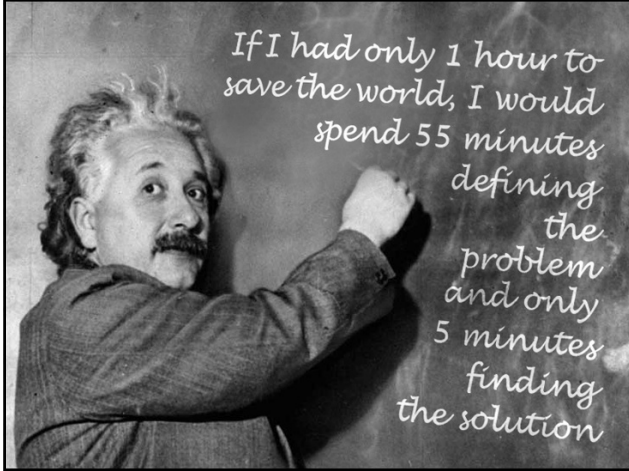
Isaacson, Walter, “Steve Jobs,” Simon & Schuster, 2011. pg 384



107

Nespresso

- } One of the fastest growing businesses in the Nestle group**
- } Average growth of 30%/year since 2000**
- } In 2011 sales where \$3.9 billion**



Incubators for 3rd world rural regions



Is this the problem?

**Rural clinics in India, Bangladesh,
Nepal, Cambodia and Indonesia**

**need a much lower cost and
maintenance free incubator**

**so that they can prevent premature
babies from dying.**

Neonature Incubator



How about this?

**Desperate parents living in remote
villages without electricity and are far
from clinics**

**needs the means to give her dying baby
a chance to live**

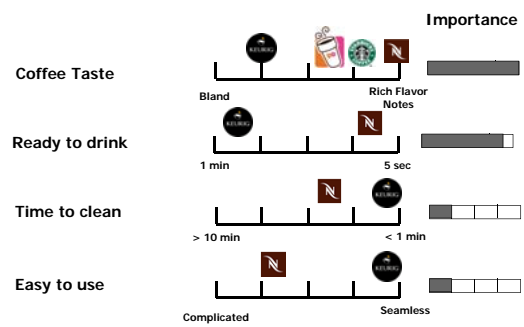


2

Confuse solution attributes with the solution

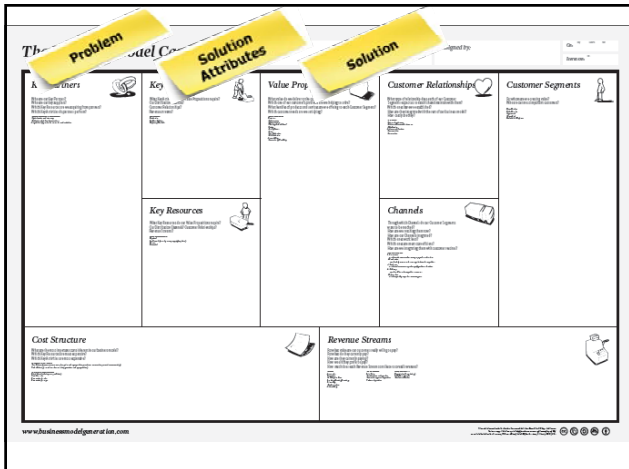


Solution Attributes Map



3

Osterwalder's Business Model Canvas **does not work** in the FEI for transformational innovations



The Business Model Canvas

To use as a brainstorming tool each item on the canvas MUST be distinct and explicit

www.businessmodelgenerator.com

FEI Canvas

CUSTOMER VALUE PROPOSITION (CVP)			OPERATING MODEL
PROBLEM FORMULATED AS A POV What is the customer/ consumer problem or "Job" you are solving? Problem is formulated from the Point of View (POV) of the user. Same concept as "Jobs to be done"	CUSTOMER/ CONSUMER CIRCUMSTANCE How can we define customer/ consumers in terms of who they are and their circumstance and in the form of personas?	SOLUTION ATTRIBUTES What attributes do we need to deliver to the customer? Which of our customer problems are we solving with these attributes? CHANNELS What are the key channels the company uses to reach its customers? COMPETITION AND BARRIERS What are the competitive alternatives to getting the job done and barriers to getting it done well?	SOLUTION What is the devised product/ and/or service that delivers on the key customer attributes? KEY RESOURCES What are the key resources needed to deliver the CVP – people, technology, partners, funding KEY PROCESSES What are the unique resources required to achieve a competitive advantage? PAYMENT STRUCTURE What is the price and how does the customer pay for the solution?
REVENUE STREAMS AND ADOPTION How does the company generate cash from each customer segment when considering payment * volume? How do adoption dynamics impact the revenue stream?			COST STRUCTURE What are the costs (direct and overhead) incurred to operate the business model?
PROFIT FORMULA			
RISKS AND ASSUMPTIONS What are the top three risks and assumptions?			

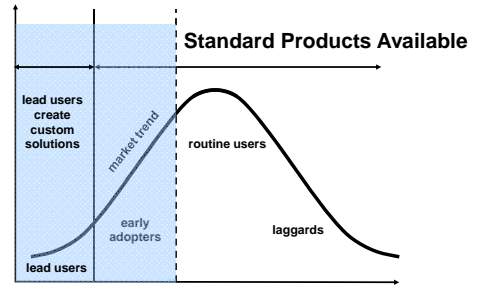
Developed specifically for large companies

Problem	CUSTOMER VALUE PROPOSITION (CVP)			Solution
PROBLEM FORMULATED AS A POV What is the customer/ consumer problem or "Job" you are solving? Problem is formulated from the Point of View (POV) of the user. Same concept as "Jobs to be done"	CUSTOMER/ CONSUMER CIRCUMSTANCE How can we define customer/ consumers in terms of who they are and their circumstance and in the form of personas?	SOLUTION ATTRIBUTES What attributes do we need to deliver to the customer? Which of our customer problems are we solving with these attributes? CHANNELS What are the key channels the company uses to reach its customers? COMPETITION AND BARRIERS What are the competitive alternatives to getting the job done and barriers to getting it done well?	SOLUTION What is the devised product/ and/or service that delivers on the key customer attributes? PAYMENT STRUCTURE What is the price and how does the customer pay for the solution?	KEY RESOURCES What are the key resources needed to deliver the CVP – people, technology, partners, funding KEY PROCESSES What are the unique resources required to achieve a competitive advantage? COST STRUCTURE What are the costs (direct and overhead) incurred to operate the business model?
PROFIT FORMULA				
RISKS AND ASSUMPTIONS What are the top three risks and assumptions?				

4

**FEI teams focus on
the wrong customers**

People who need new product

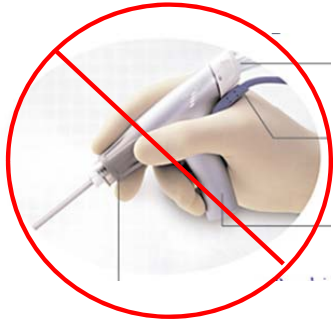


130



5

Most envision the prototype as a fully featured solution



The initial prototype is often much more minimum than you think



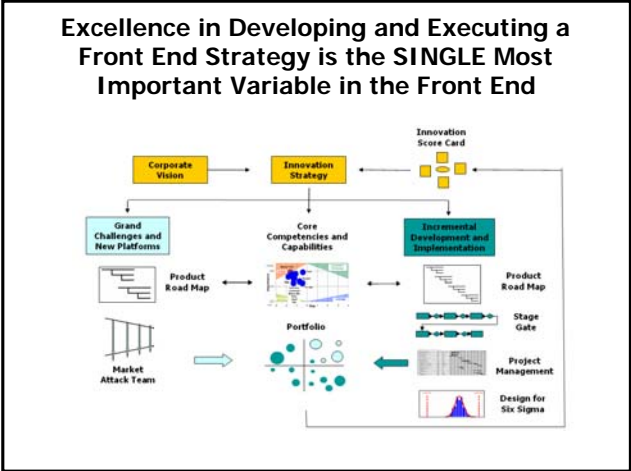
Courtesy of IDEO

6

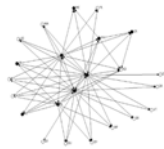
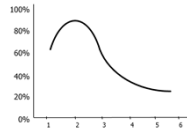
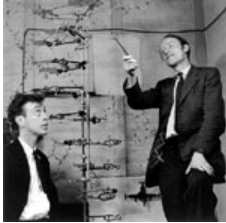


CUSTOMER VALUE PROPOSITION (CVP)				OPERATING MODEL
PROBLEM FORMULATED AS A POV What is the customer/consumer problem or "Job" you are solving? Problem is formulated from the Point of View (POV) of the user. Same concept as "Jobs to be done"	CUSTOMER/CONSUMER CIRCUMSTANCE How can we define customer/consumers in terms of who they are and their circumstance and in the form of personas?	SOLUTION ATTRIBUTES What attributes do we need to deliver to the customer? Which of our customer problems are we solving with these attributes?	SOLUTION What is the devised product and/or service that delivers on the key customer attributes?	KEY RESOURCES What are the key resources needed to deliver the CVP – people, technology, partners, funding?
		COMPETITION AND BARRIERS What are the competitive alternatives to getting the job done and barriers to getting it done well?	CHANNELS What are the key channels the company uses to reach its customers?	KEY PROCESSES What are the key processes needed to deliver the CVP – marketing, sales, IT, R&D/OP, manufacturing?
REVENUE STREAMS AND ADOPTION How does the company generate cash from each customer segment when considering payment? * volume? How do adoption dynamics impact the revenue stream?		PAYMENT STRUCTURE What is the price and how does the customer pay for the solution?	COST STRUCTURE What are the costs (direct and overhead) incurred to operate the business model?	
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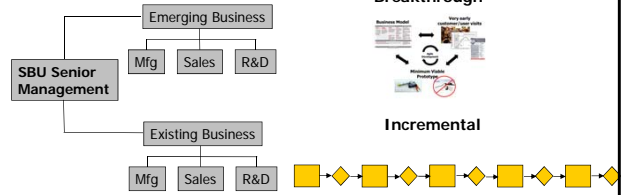
Bertels, H., Koen, P.A., and Elsum, I. "Business Models Outside The Core: Lessons Learned From Success And Failure." In draft at Research-Technology Management 138



Effective Networked Teams and their Leaders are MORE important to success than any Tools or Techniques



Incremental and Breakthrough Projects Require Fundamentally Different Innovation Management Practices



Breakthrough
Innovation
Challenges



Ambidextrous Leaders



Small, Full Time Co-located Teams



Not Worshiping at the Church of New Finance



Embracing Lean Start-Up

