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An  & PDMA NewEngland Co-Sponsored Event

Tools and Techniques & Effective Practices for  
**Managing the  
Front End of Innovation**  
(Fuzzy Front End Conference)

May 28-30, 2003  
Hyatt Regency  
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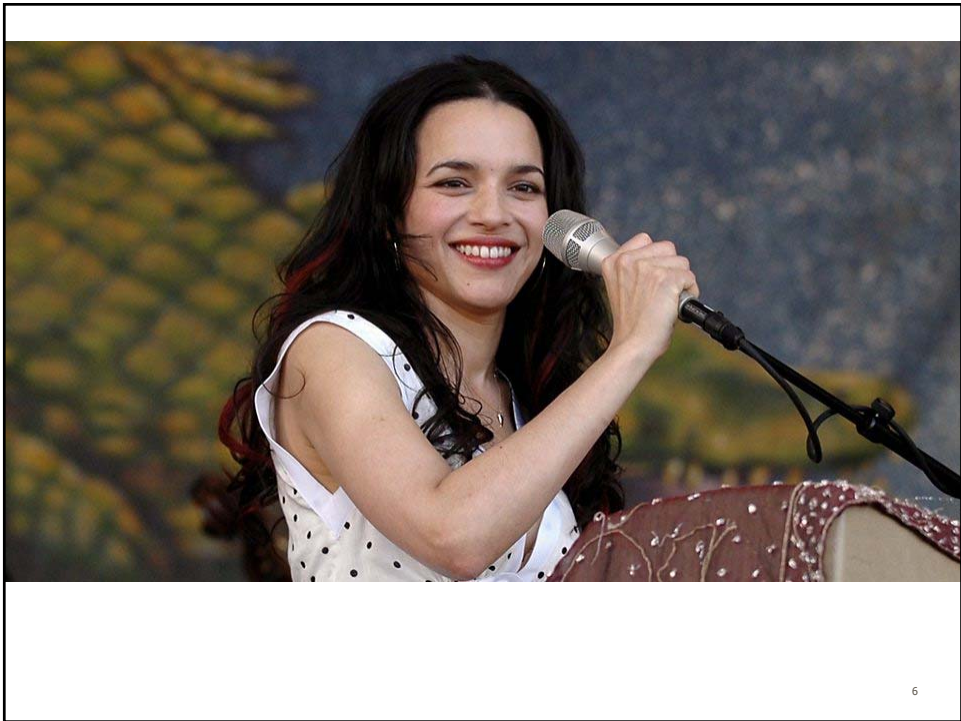
**2003**

Don't miss out on a regional or day 1 or conference seminars - see page 3 for details

To Register, Call 888.670.8200 Fax 941.366.2507 Email register@inusa.com Web www.inusa.com/frontend

Have we made any  
progress in improving  
innovation outcomes  
since 2003?

2003





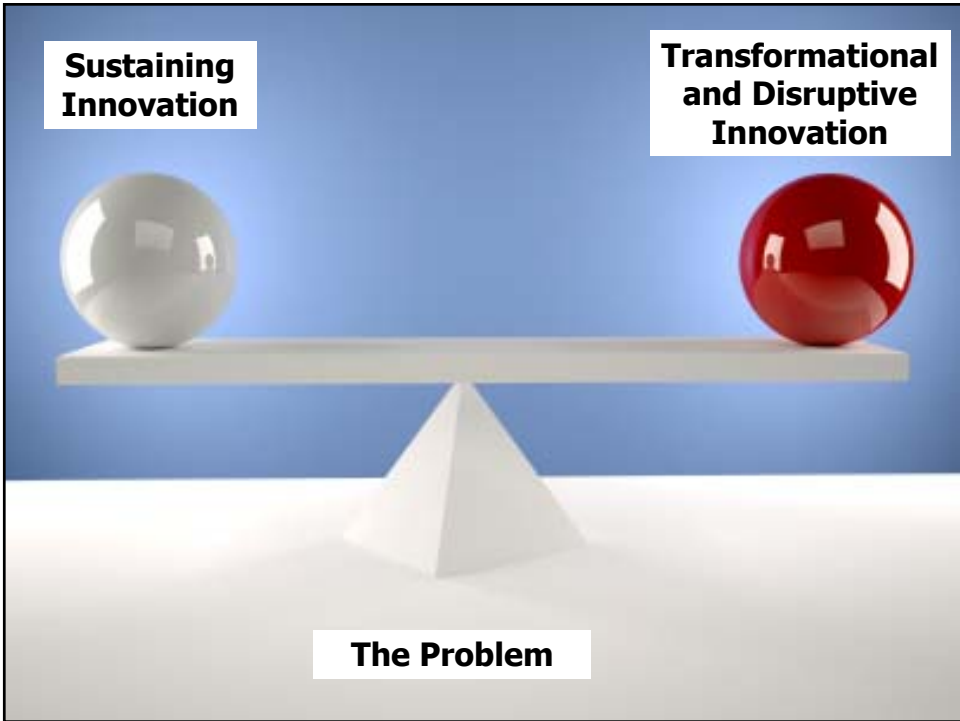
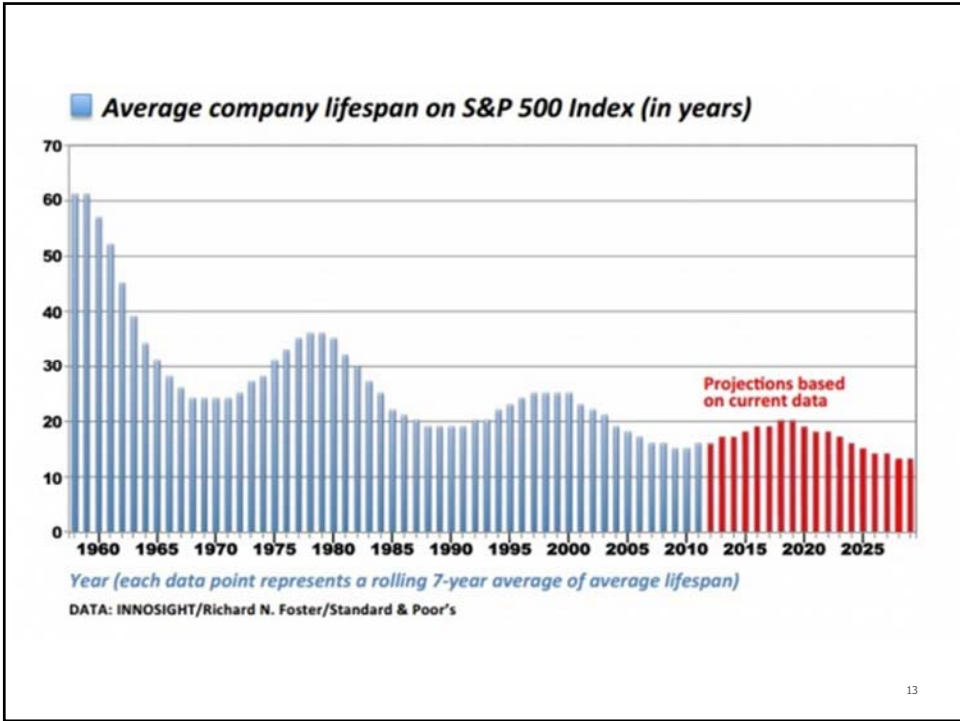


**Block Buster has 9000 stores**



Would you make the  
same mistakes  
today?





# 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 Elsum, I.R., "The Three Faces of Business Model Innovation: Challenges for Established Firms," Research - Technology Management, 55, 3; 52 - 59, May - June 2011.

## Sustaining Innovations



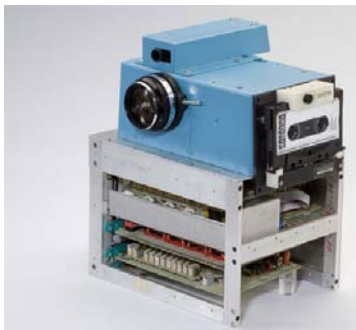


# Transformational Innovations



17

# Disruptive Innovations



In 2017 we do  
**KNOW** how to  
attain this  
balance?

Who **KNOWS**

**3M**

**CORNING**

**intel**

**GOODYEAR**  
MORE DRIVEN

**GORE**  
Creative Technologies  
Worldwide

**ExxonMobil**

**NIKE**

**P&G**

**Companies that are or have been part of a  
research consortium at Stevens**

## Who DOESN'T



LOCKHEED MARTIN



Givaudan



Bristol-Myers Squibb



Mid Level Managers who are part of the MBA program at Stevens

21

Do you **KNOW**  
how to win with  
transformational  
innovations?



6 Questions

Q1 – How **should** we make our innovation management decisions at our company?

1. **What others seem to be doing**
2. **What senior leaders have done and believe has worked in the past**
3. **Closely held ideologies**
4. **Learn from practices at high performing companies**
5. **None of the above**

25

Q1 – How **should** we make our innovation management decisions at our company?

1. **What others seem to be doing**
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4. **Learn from practices at high performing companies**
5. **None of the above**

Decisions should be based on an evidenced based approach

26

# What is an evidenced based approach?

Pfeffer and Sutton, Hard Facts, Dangerous Half Truths And Total Nonsense: Profiting From Evidence-Based Management , Harvard Business School, 2006.

## The Paradox

US Companies spend over \$60 billion in training and another \$45 billion on consultants



29



40,000 management books in print with 3500 new ones published each year



# Plethora of Innovation Tools



innovation tools

420,000,000 hits



organizing for breakthrough innovation

683,000 hits

- Organizing for breakthrough innovation | McKinsey & Company  
www.mckinsey.com - [organizing-for-breakthrough-innovation](#) - McKinsey & Company  
Service Scheme. Looking back over the past 50 or more years, all our periods of strongest growth  
were driven by breakthrough innovations. This started off with...
- PDF Organizing for Breakthrough Innovation - Arthur D. Little  
www.adlittle.com/downloads/.../Breaththrough\_innovation.pdf - Arthur D. Little -  
Organizing for Breakthrough Innovation: Structures for systematically developing and exploiting  
radical ideas. Stefan Franke, Frank Heesbraken, Rick Edgar.
- Organizing for Radical Innovation - Innovation Excellence  
innovationexcellence.com/blog/2014/09/26/organizing-for-radical-innovation/ -  
Sep 26, 2014 - The fact is, inside most companies breakthrough innovation - inside the  
organization in order to create innovative new product solutions.
- bcg perspectives - A Breakthrough Innovation Culture and Organization  
https://www.bcgperspectives.com/.../innovation\_growth\_digital\_economy\_breakthro... -  
Oct 20, 2014 - What kind of culture supports breakthrough innovation? It's one that embraces risk  
and speed while still focusing on cost and results—and one.
- Organizing for Breakthrough Innovation - www.smartorg.com  
smartorg.com - Blog -  
Oct 18, 2012 - Being successful with innovation is more than just having a great idea and running  
it. Moving ideas to reality is hard. Really hard. To say it...
- PDF Organising for breakthrough innovation - Institute for Manufacturing  
www.ifm.eng.cam.ac.uk/.../Breaththrough\_innovation.pdf - Institute for Manufacturing -  
Barriers to breakthrough innovation in established firms: 3. Organizational - research has shown  
that there are ways that established firms can organise for...
- Organizing for Breakthrough Innovation Summary | Joel Claret et al.  
https://www.getabstract.com/stu/.../organizing-for-breakthrough-innovation/26355 -  
★★★★☆ Rating 7/10 - Review by getAbstract  
In this getAbstract summary, you will learn: How Roche's organizational setup fosters innovation.  
Why decentralized management is essential for innovation, and...
- \*Organizing for Breakthrough Innovation: Leadership, Structures, and ...  
proceedings.sagepub.com/engrment/014112870?thead=early-enk&highlight=...  
No studies to date have taken a systems-level approach to examine factors that may contribute to  
success in commercializing breakthrough innovation (39).
- Organizational Models for Breakthrough Innovation | Integrative ...  
integrative.innovation.net/7p-964 -  
Mar 20, 2015 - As we have suggested earlier, innovation activities that are radical or disruptive in  
nature, should be separated from incremental innovation...

**BUT all of these efforts fail to  
produce ANY real  
improvements in performance**

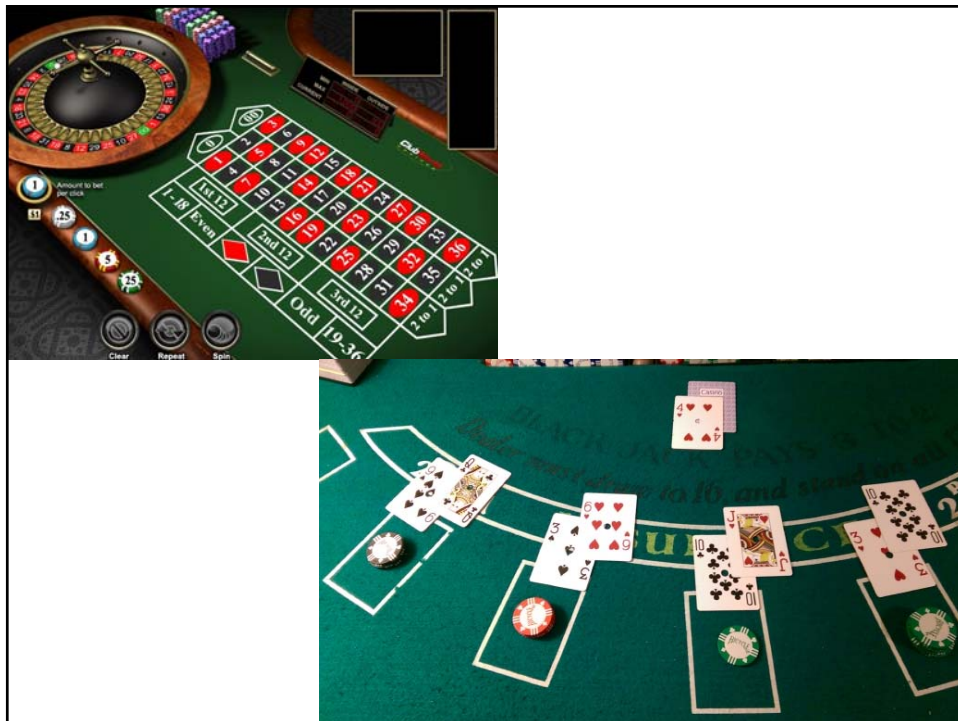
33

Why??

34

...we base our innovation management decisions on a lot of things - **BUT NOT facts from innovation studies!**

35

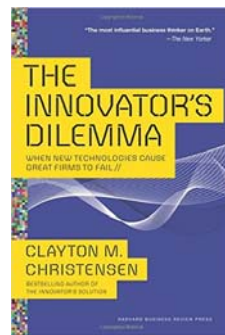


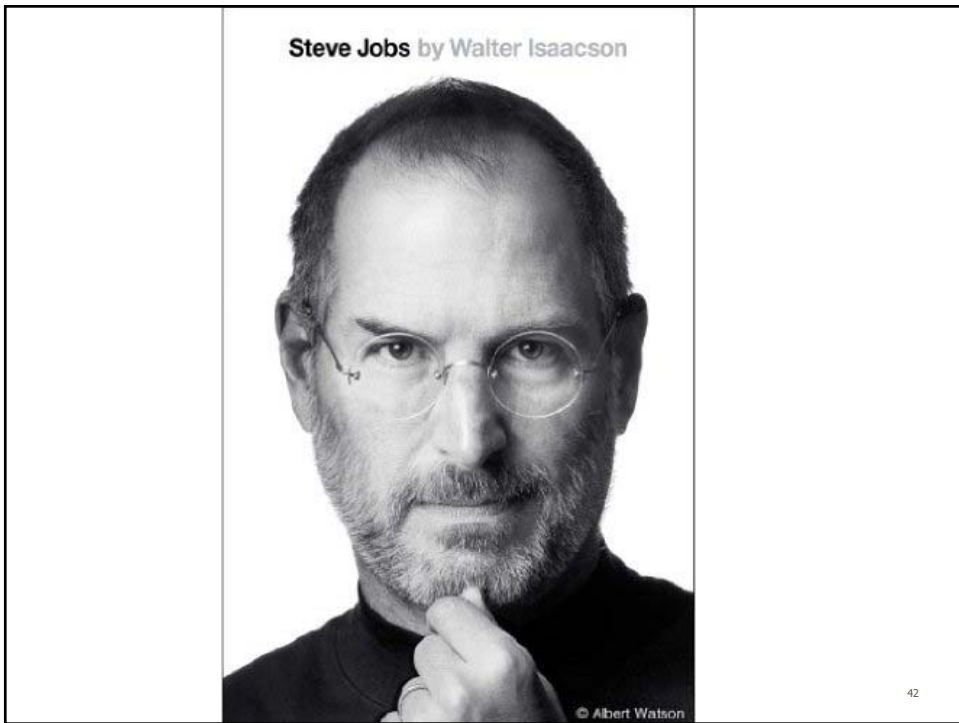


# Evidence

<b>Visionary</b>	<b>Comparison</b>
3M	Norton
American Express	Wells Fargo
Boeing	McDonnell Douglas
Citicorp	Chase
Ford	GM
GE	Westinghouse
HP	Texas Instruments

Collins, James and Porras, Jerry, "Built to Last," HarperCollins, 1994









Q2 – What is the **MOST CRITICAL** factor to succeeding with a transformational innovation?

- 1. Senior Leadership**
- 2. Having dedicated resources**
- 3. Having a risk accepting culture**
- 4. Dedicating a full time team**
- 5. Understanding the change process**



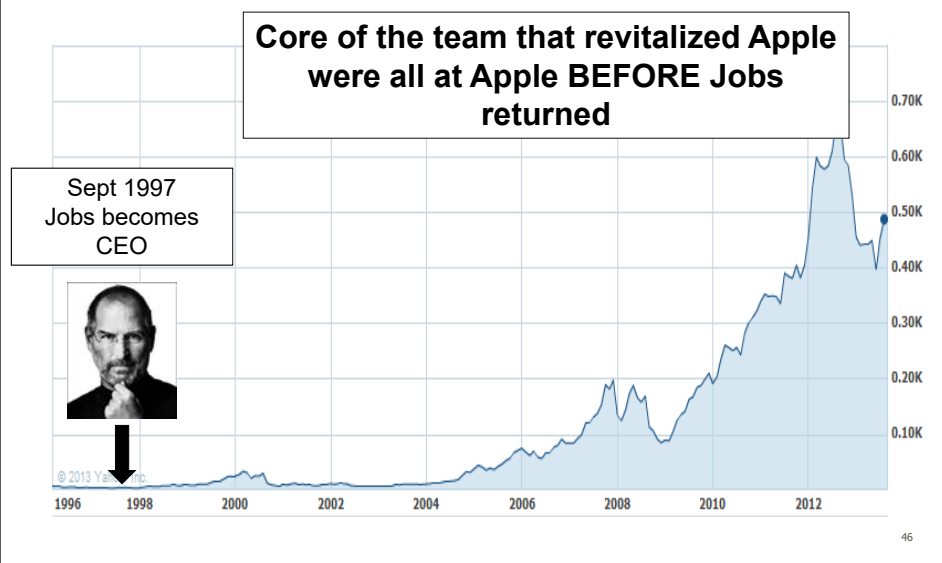
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Govomdararajan, Vijay and Trimble, Chris, "The Other Side of Innovation," Harvard Business Review 2010.  
Christensen, Clay, "The Innovators Dilemma," Harper Business, 2011  
Christensen, Clay, "The Innovators Solution, Harvard Business Review, 2013.

45

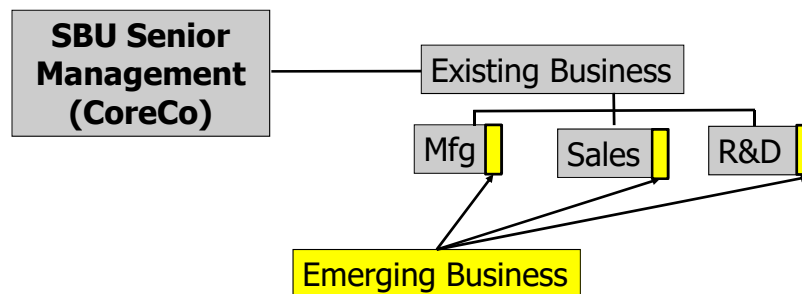
## Apple



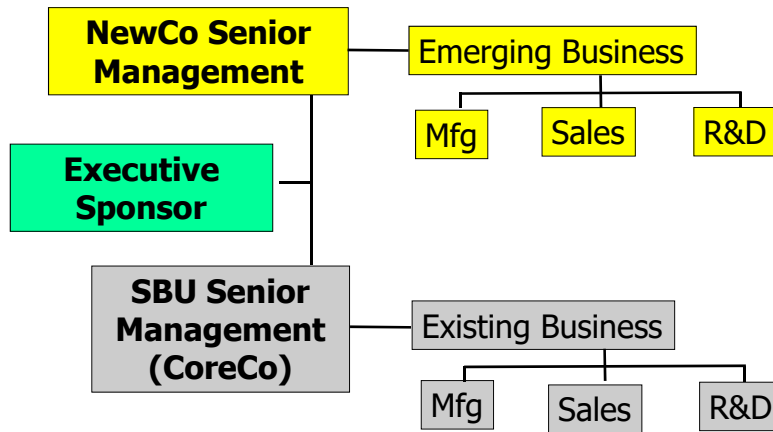
Q3 - What is the **MOST successful organization structure** for transformational innovation?

47

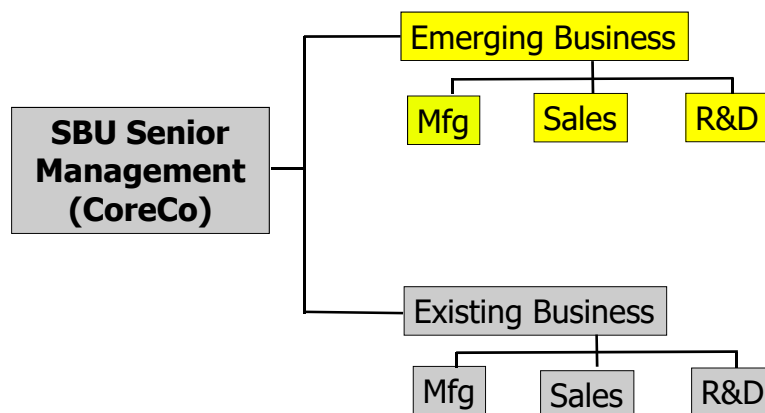
## Integrated



## Separated



## Ambidextrous



O'Reilly, Charles A., III, and Michael L. Tushman. "Organizational Ambidexterity in Action: How Managers Explore and Exploit." *California Management Review* 53, no. 4 (Summer 2011): 5–21.  
O'Reilly, Charles A., III, and Michael L. Tushman. "The Ambidextrous Organization." *Harvard Business Review* 82, no. 4 (April 2004): 74–81.

Q3 – What is the **MOST successful organization structure** for transformational innovation?

- 1. Integrated**
- 2. Separated**
- 3. Ambidextrous**

51

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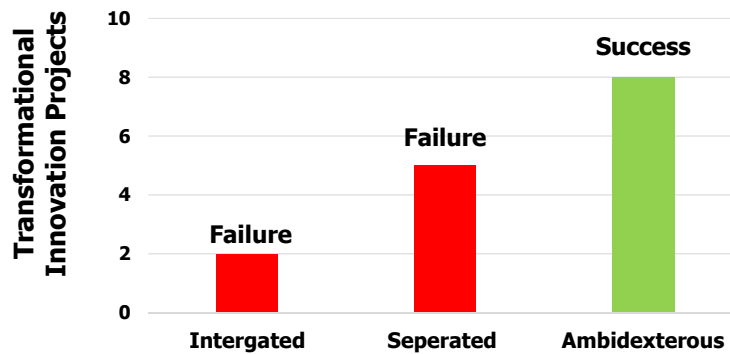
O'Reilly, Charles A., III, and Michael L. Tushman. "Organizational Ambidexterity in Action: How Managers Explore and Exploit." *California Management Review* 53, no. 4 (Summer 2011): 5–21.  
O'Reilly, Charles A., III, and Michael L. Tushman. "The Ambidextrous Organization." *Harvard Business Review* 82, no. 4 (April 2004): 74–81.  
O'Reilly, Charles III and Michael Tushman. "Lead and Disrupt," Stanford Business Books, 2016.

52

Ambidextrous organizations are **90% more effective** in developing transformational innovations than either integrated or separated

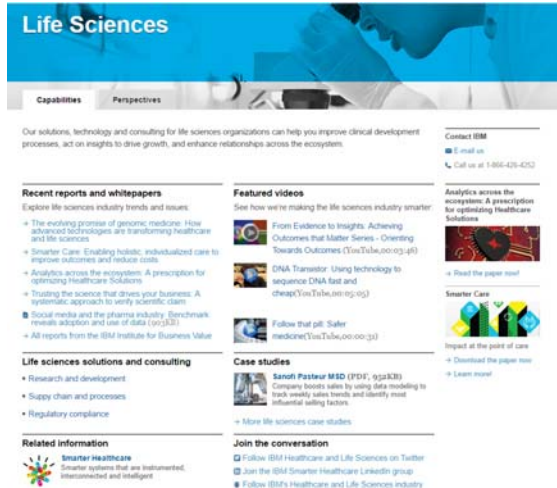
O'Reilly, Charles A., III, and Michael L. Tushman. "Organizational Ambidexterity in Action: How Managers Explore and Exploit." *California Management Review* 53, no. 4 (Summer 2011): 5-21.

Case Studies from 15 companies managing transformational innovations



O'Reilly, Charles A., III, and Michael L. Tushman. "Organizational Ambidexterity in Action: How Managers Explore and Exploit." *California Management Review* 53, no. 4 (Summer 2011): 5-21.

# IBM Life Sciences



The screenshot shows the IBM Life Sciences website. At the top, there is a blue header with the text "Life Sciences" and a background image of a person's profile. Below the header, there are two tabs: "Capabilities" and "Perspectives". A main text block reads: "Our solutions, technology and consulting for life sciences organizations can help you improve clinical development processes, act on insights to drive growth, and enhance relationships across the ecosystem." To the right, there is a "Contact IBM" section with "E-mail us" and "Call us at 1-866-426-4262".

**Recent reports and whitepapers**  
Explore life sciences industry trends and issues.

- The evolving promise of genomic medicine: How advanced biotechnologies are transforming healthcare and life sciences
- Smarter Care: Enabling holistic, individualized care to improve outcomes and reduce costs
- Analytics across the ecosystem: A prescription for optimizing Healthcare Solutions
- Trusting the science that drives your business: A systematic approach to verify scientific claims
- Social media and the pharma industry: Benchmark reveals adoption and use of data (enr.com)
- All reports from the IBM Institute for Business Value

**Life sciences solutions and consulting**

- Research and development
- Supply chain and processes
- Regulatory compliance

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**Smarter Healthcare**  
Smarter systems that are instrumented, interconnected and intelligent

**Featured videos**  
See how we're making the life sciences industry smarter

- From Evidence to Insights: Advancing Outcomes that Matter Series - Orienting Towards Outcomes (YouTube.com/03-01)
- DNA Translator: Using technology to sequence DNA fast and cheap (YouTube.com/03-02)
- Follow that pill: Safer medicines (YouTube.com/00-32)

**Case studies**

- Sanoft Pasteur MSD (PDF, 03/2013)**  
Company boosts sales by using data modeling to track weekly sales trends and identify most influential selling factors
- More life sciences case studies

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**Analytics across the ecosystem: A prescription for optimizing Healthcare Solutions**

→ Read the paper now

**Smarter Care**

Impact at the point of care

→ Download the paper now

→ Learn more!

Started with 2 people in 2000 and was a \$5 billion business in 2006

# Ciba Vision



Q4 – What is the **BEST** way to understand customer needs for transformational innovations?

- 1. Market Analysis**
- 2. Preference Testing**
- 3. Deep dives**

57

Q4 – What is the **BEST** way to understand customer needs for transformational innovations?

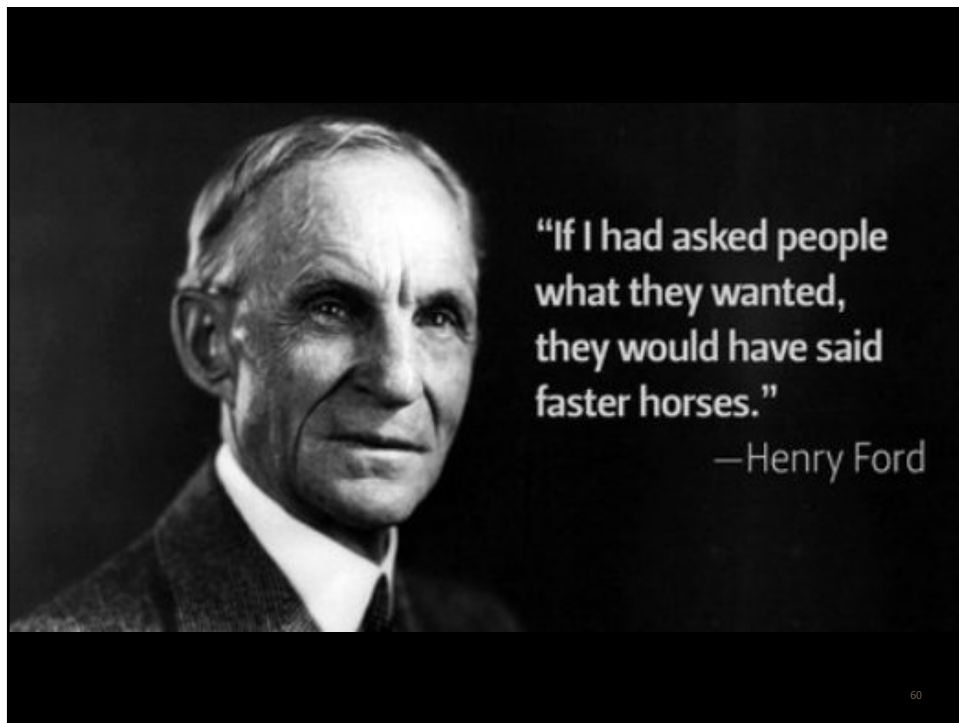
- 1. Market Analysis**
- 2. Preference Testing**
- 3. Deep dives**

Kelly, Tom, "The Art of Innovation," Crown Business, 2001.  
Kelly, Tom, "The Ten Faces of Innovation," Currency Doubleday, 2005.

58



# Asking your customer does NOT work



Look for  
"compensatory"  
actions in deep dives





# Tide Pods

**Biggest innovation in Tide in  
3 decades**



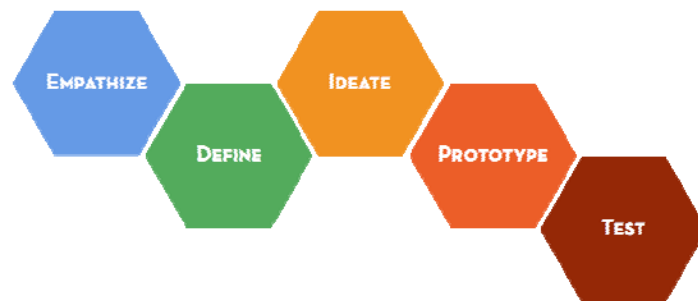
Try it yourself

**Researchers wore and  
**USED** adult-sized  
versions of baby diapers**



# Human Centered Design

**All of the successful companies use Human Centered Design and have graduates who support transformational innovation efforts**



69

Q5 – What is the **most important part** of Human Centered Design process?

- 1. Understanding unmet customer needs**
- 2. Defining the problem**
- 3. Ideating on multiple solutions**
- 4. Developing Prototypes**
- 5. Testing the solutions**

70

Q5 – What is the **most important part** of Human Centered Design process?

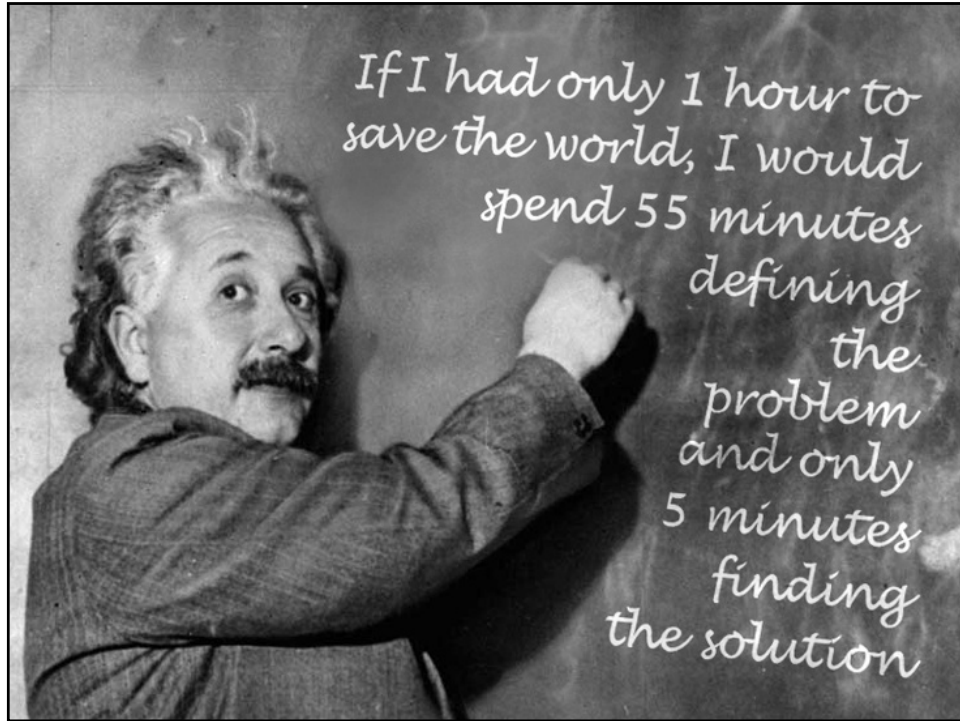
1. Understanding unmet customer needs
2. **Defining the problem**
3. Ideating on multiple solutions
4. Developing Prototypes
5. Testing the solutions

Brown, Tim, "Change by Design," Harper Business, 2009.

71

**Getting to the right problem from the point of view from the insights and needs of the customer**





**Segway: a transportation device for everyone. 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



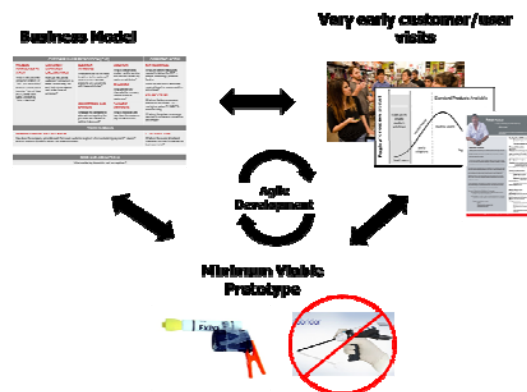
**“....Google didn’t improve Glass in specific ways for an application to attract users from a target market to buy Glass. In the end, by trying to be a “cool tool” for everyone Glass ended up being something nobody really needed”**

-Forbes, Feb 12, 2015, Adam Hartung

77

## Lean Startup

**All** of the successful companies use Lean Startup methodologies in their transformational innovation efforts



78

Q6 – Why is **LEAN Startup** valuable to manage transformational innovations?

1. Large enterprises need a learning process
2. Uses the business model as a converging tool
3. Allows teams to rapidly iterate and pivot using an MVP

Which one is the **MOST** important?

79

Q6 – Why is **LEAN Startup** valuable to manage transformational innovations?

1. Large enterprises need a learning process
2. **Uses the business model as a converging tool**
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Which one is the **MOST** important?

Blank, S. 2013b. The Four Steps to the Epiphany, 5<sup>th</sup> edition, Quad/Graphics.  
Koen, P.A. "Lean Start-Up For Large Corporations Using Human Centered Design Thinking: A New Approach for Developing Transformational and Disruptive Innovations, eds. In M. Luchs, S. Swann and A. Griffin, Design Thinking: New Product Development Essentials from the PDMA. New York: John Wiley and Sons, pg. 281 – 300, 2015.

80

**The business model is often  
the difference between  
success and failure for the  
same product**

81

**Many transformational innovations fail  
not because of a fatal flaw in the  
solution, but because the company fails  
to understand key aspects of the  
business model that the innovation is  
embedded in**

**Newton**

Enamored by technology.  
PC in your pocket. Not the  
functions needed by the  
mobile user



**Segway**

Transportation for EVERYONE  
not for SOMEONE. Did not  
determine which users have a  
problem



**Beta**

Superior quality. Did not  
understand that the early  
adopters needed to record  
a 2 hr. football game





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

90% of transformational 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 a  
transformational  
innovation effort is the  
business model NOT the  
solution

Are you wasting your  
time attending this  
conference?

2000

2001

2015

2016

2017

87

**FEI conference has focused on evidenced based speakers**

**Everyone of the authors cited were speakers at the FEI conference**

*you heard it here first!*

88

**IT'S NOT  
ENOUGH**

89

## **Student of Innovation**



90





## What's wrong with Academia

**Excellent research in high quality  
journals in very narrow fields with no  
practical value to industry is rewarded**



TENURE

# Exceptions



93

Need to develop you OWN  
in house training program



94



2003



# Student of Innovation





Have Fun!

