

# NAVIGATING DIGITAL DISRUPTION

## INNOVATION MANAGEMENT IN THE NEW ECONOMY

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*The Wharton School, University of Pennsylvania*

*Wharton Mack Institute & SBI*  
*Corporate Innovation Workshop*

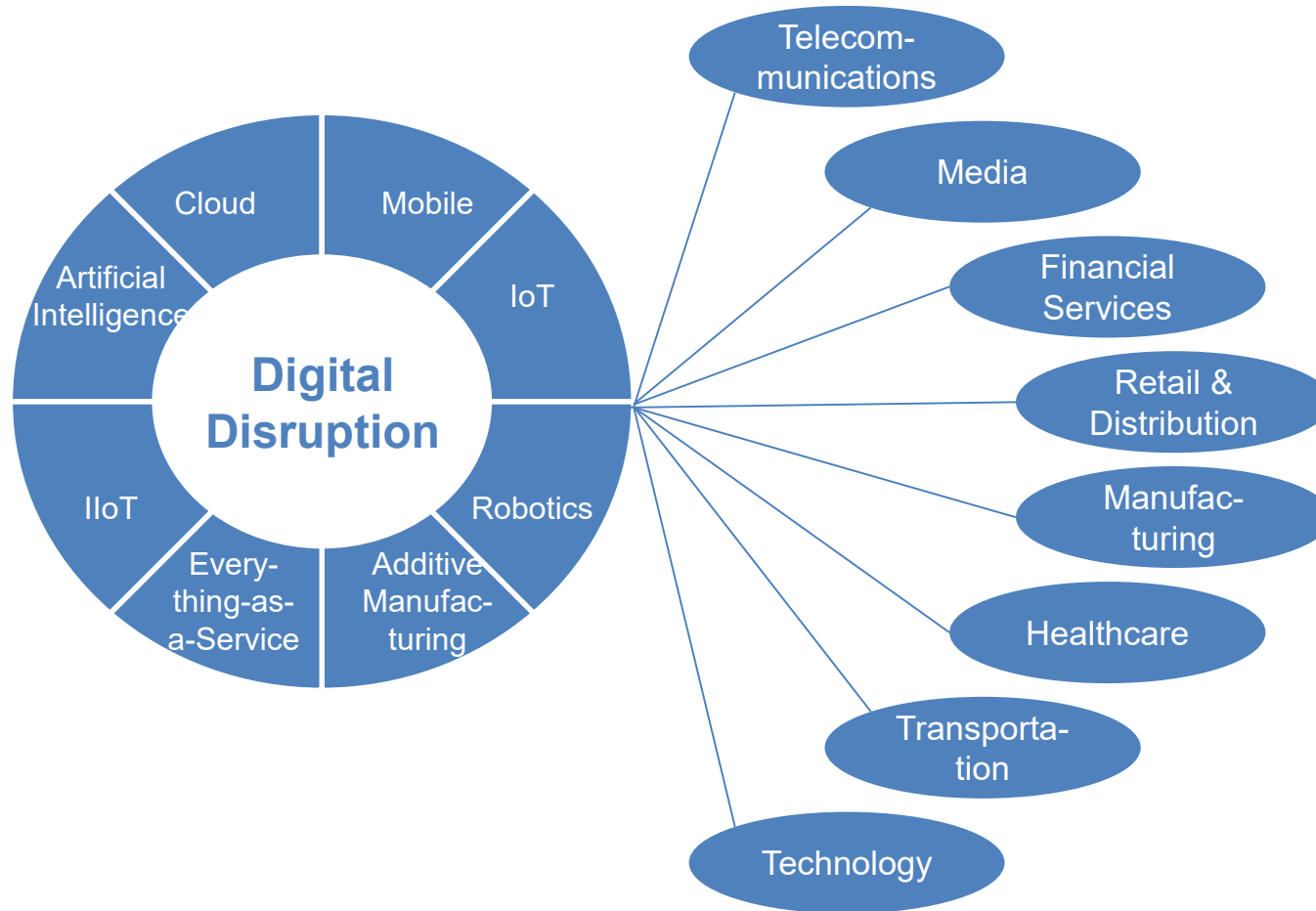
*Kolkata, January 8, 2019*



# Structure



# Digital technologies are disrupting products, processes, and business models and creating new capabilities



- ✓ Accessible and affordable digitization
- ✓ Data tracking
- ✓ Big data analytics
- ✓ Consumer behavior
- ✓ Operational efficiencies
- ✓ Networking and connectivity
- ✓ Faster and efficient communication

# Incumbents often fail to overcome disruption

Blockbuster retreated from online investments due to slow growth and refused to buy Netflix. Today, Blockbuster is bankrupt and Netflix is market leader



...by failing to look beyond initial setbacks

...by lacking the courage to question status quo



Blackberry's leadership was disrupted by Apple's no-keyboard iPhones

Kodak had digital capabilities ahead of its time but didn't want to cannibalize its traditional camera revenues

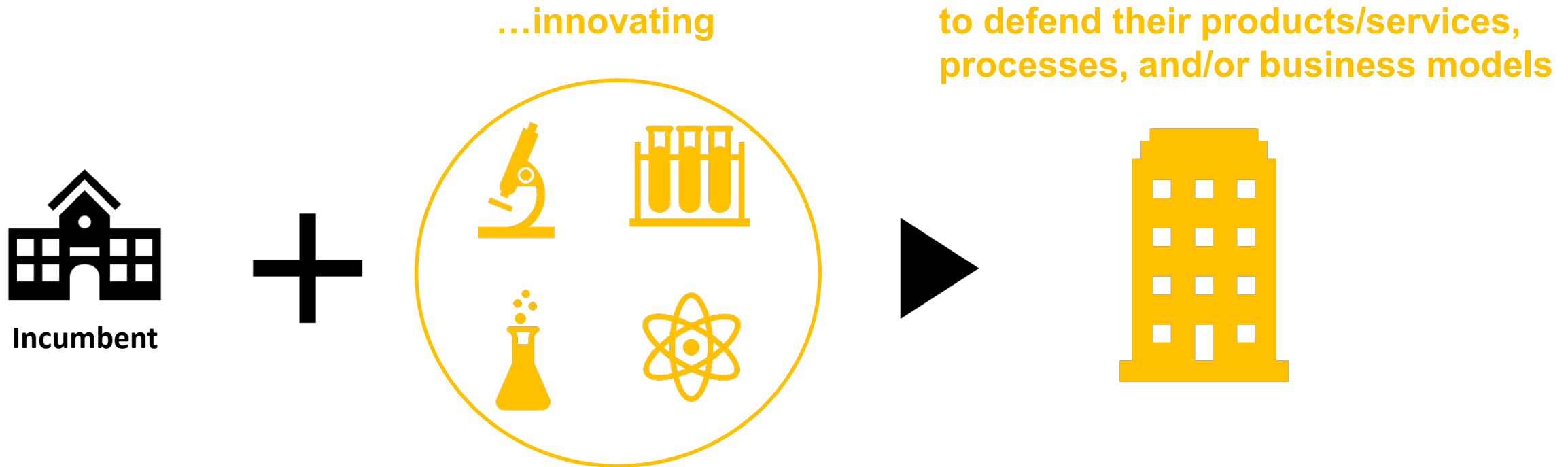


Smith Corona thought word processing was noise and irrelevant for computing



...by lacking the ability to distinguish noise from opportunities

## They can respond by...



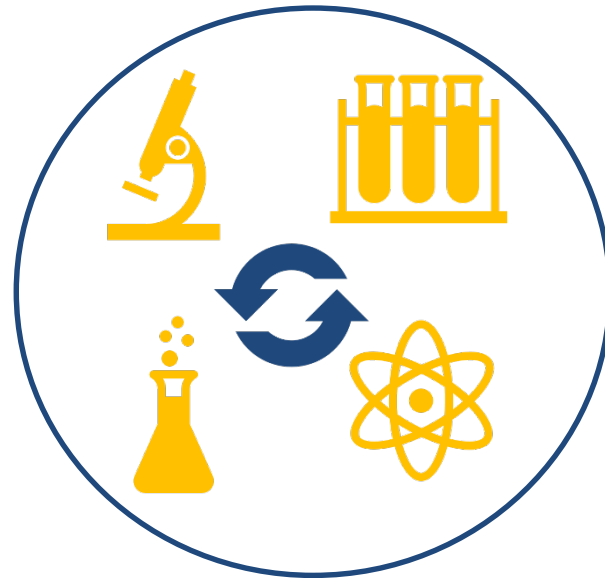
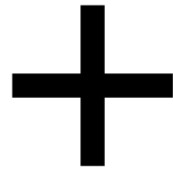
...or by

...managing innovations

to lead the market



Incumbent



# Creative incumbents have been able to overcome the challenges



From posting biggest loss in Corporate America in 1993, to earning 38% of revenues from emerging technologies alone



From failing Lisa and Apple III, and near-bankruptcy in 1997 to being the world's most admired company in 2016



Unlike Kodak, diversified into cosmetics, medical-imaging ,and films for LCD screens



From Blockbuster's refusal to buy in 2000 to be the no.1 tech turnaround story by Forbes in 2012

## Notable digital disruption trends today (1 of 4)



# RADIONICS



GE 3D-prints aircraft engine parts instead of casting and welding the metal

**CyberKnife®**  
ACCURAY®

Tomorrow's Radiation  
Oncology Practice  
IS HERE TODAY



Accuray's advanced robotic radiosurgery uses shaped beams to conform to the specific contours of a tumor in the body



Touch Bionics 3D-prints i-limbs that users can self-configure grip patterns and control via a computer chip in the arm and an Apple watch

**TomoTherapy®**  
ACCURAY®

The TomoTherapy H Series  
Treats the ENTIRE SPECTRUM  
of Radiation Therapy Patients

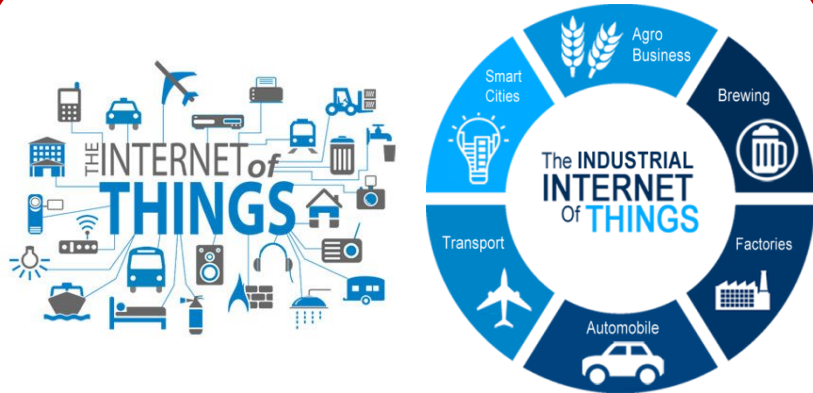


Integrated approach to radiation therapy, combining imaging and treatment delivery to precisely target a wide variety of cancers





## Notable digital disruption trends today (2 of 4)



SMART DRONE

klöckner & co

The German metals trader created a platform to connect steelmakers with construction firms and other customers



Dundee uses fiber-optic technology for underground Wi-fi network to conduct assay and gain more sophisticated understanding of metal ores



Apache is using Big Data prescriptive analytics to reduce pump failures, and IIoT dataflow automation for demand based surveillance



Drones are used for pipeline inspection, surveying, safety inspections, construction, cargo transport, storm tracking, and more



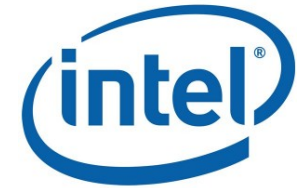
## Notable digital disruption trends today (3 of 4)



Prescriptive  
Analytics



Forming a collective of health systems  
that speed up development of products  
for improved accuracy in diagnosis



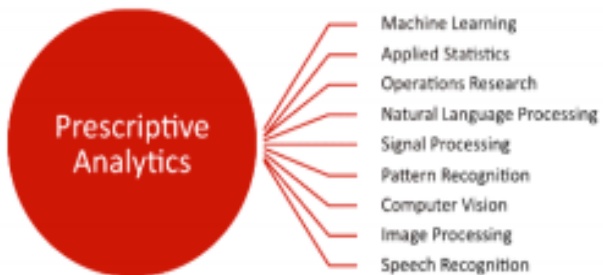
Deep learning and AI solutions for health  
diagnostics, unmanned transportation,  
cyber security, retail, and more



Data tracking and analytics to connect  
healthcare services and users via mobile  
for improved healthcare delivery



## Notable digital disruption trends today (4 of 4)



Connected mobility network is enabling lean business models that use IoT, big data, predictive and prescriptive analytics to disrupt incumbent business models

## Exercise 1: What are the major disruptions your firm faces?

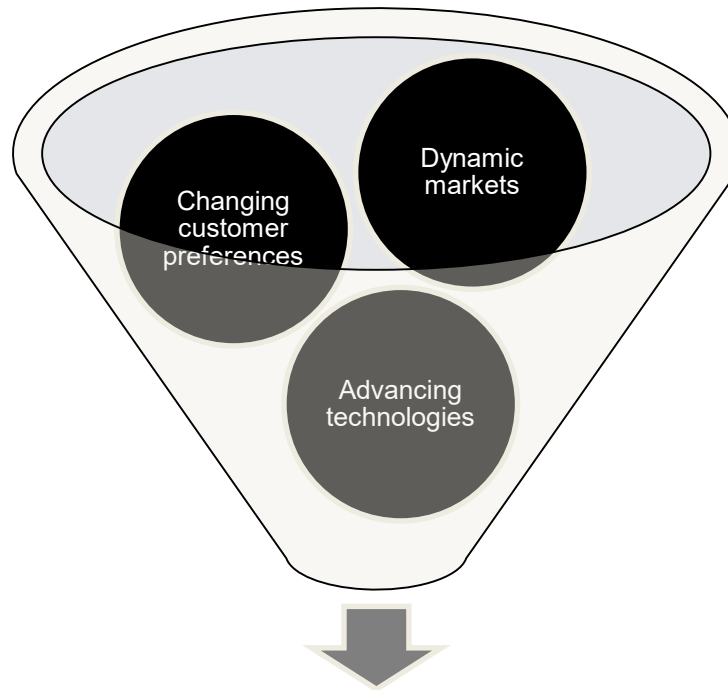
	(Potential) Disruptions	Challenges (Products/Processes/Business Models)	Opportunities (Products/Processes/Business Models)
1			
2			
3			

# Five principles for incumbents to thrive

## Principle #1: Rethinking the mission



Now provides work-out recommendations through wearable technology  
(best weather conditions, locations, time, and even garments)



Recalibration opportunity



Now is an intelligent integration of transportation ecosystem  
(connects cars to roads, information, and electric power networks)



# Five principles for incumbents to thrive

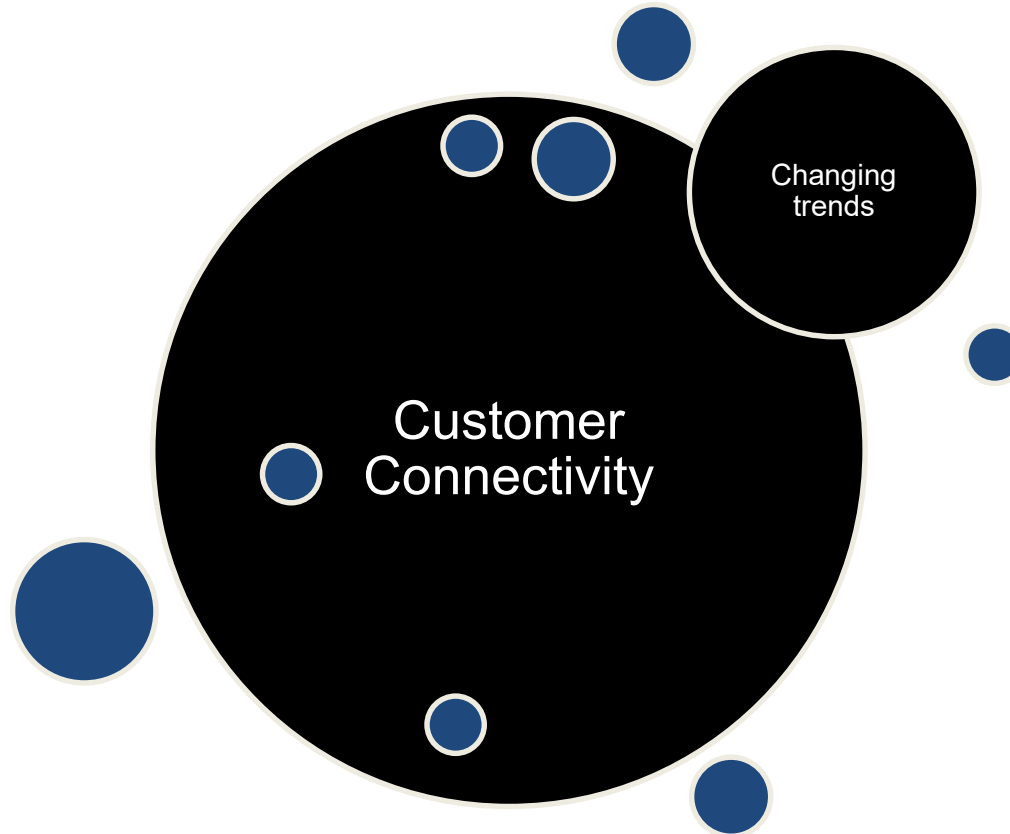
## Principle #2: Listening to the customer

*John Hancock*

THE  
**vitality**  
GROUP

Uses nudge techniques via mobile to make customers develop healthy habits.

Establishes a closer relationship with customers and insurance firms, reducing costs to both



**NETFLIX**



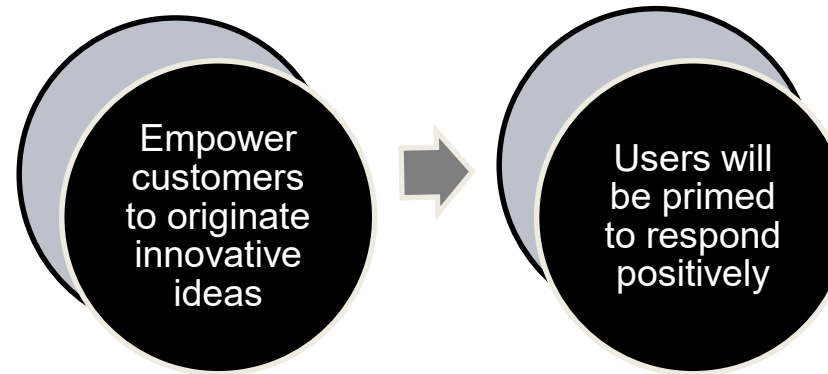
Built processes to stay constantly connected with customers, note behaviors and preferences, and tweak offerings accordingly

# Five principles for incumbents to thrive

## Principle #3: Encouraging user-led innovations



Encourages customers to propose designs



Broaden strategic peripheral vision to actively scope and scan the environment and monitor market dynamics



Encourages customer innovations for product, packaging, and marketing inventions



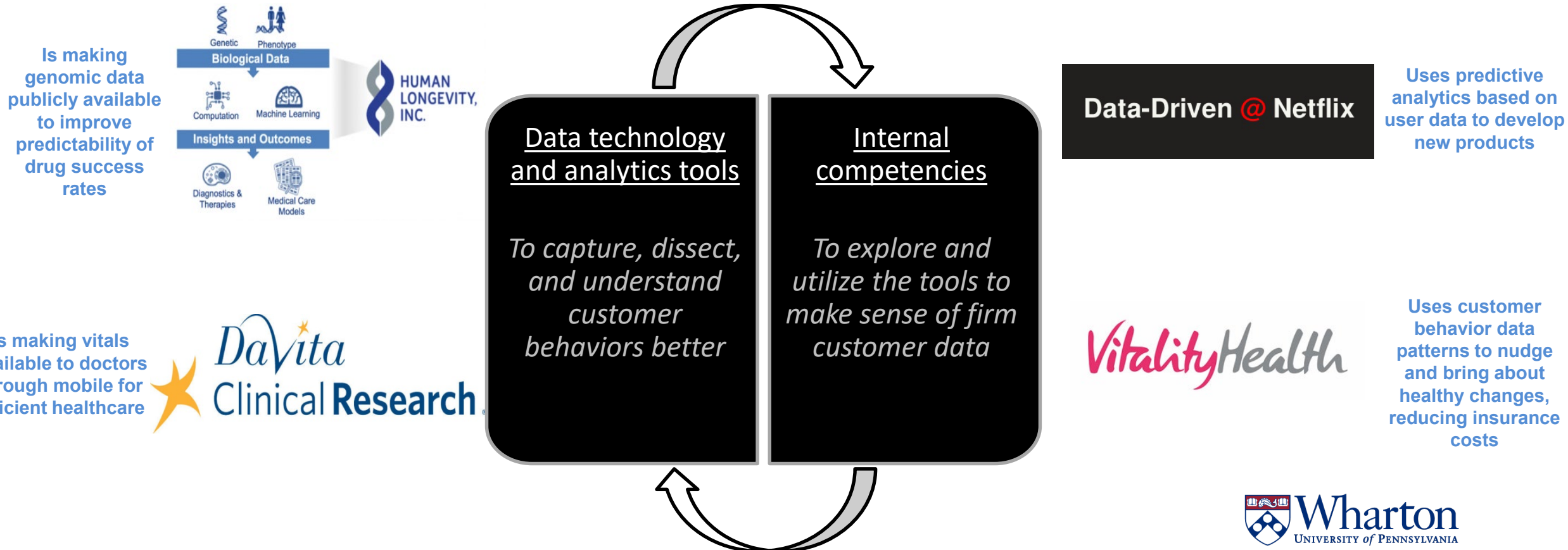
Encourages customer reviews for product and service innovations





# Five principles for incumbents to thrive

## Principle #4: Leveraging big data and analytics





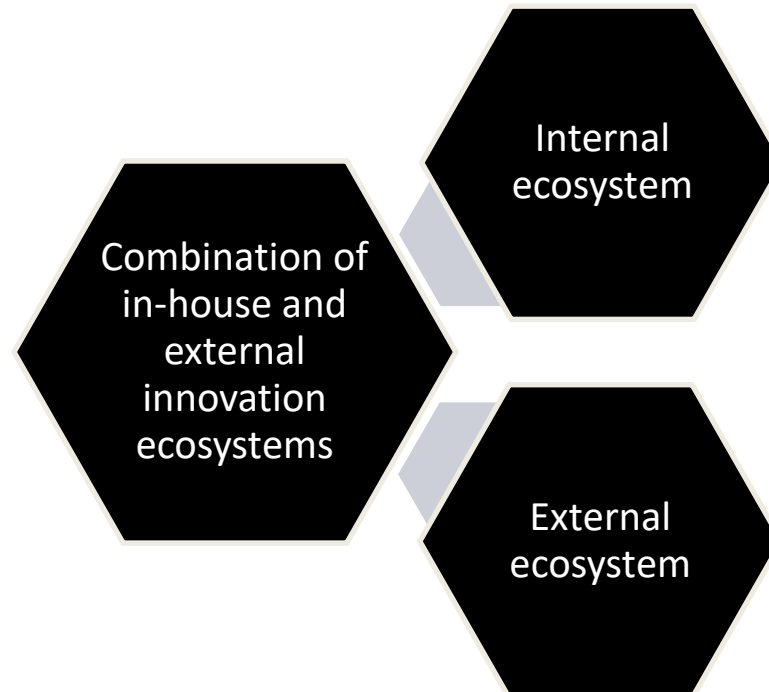
# Five principles for incumbents to thrive

## Principle #5: Fostering open innovation ecosystems

Co-creating with stakeholders beyond the traditional boundaries of R&D



Both acquire externally, as well as grow in-house innovation portfolio via start-up investments, spin-ins, as well as internal innovation labs



Engages employees from across functions to contribute product ideas



Taps product innovations through collaborations from across the world



## Exercise 2: What strategic initiatives should you take?

	Five Principles	Current Initiatives and Impact	New/Future Initiatives
1	Rethinking the mission		
2	Listening to the customer		
3	Encouraging user-led innovations		
4	Leveraging big data and analytics		
5	Fostering open innovation ecosystems		

# Three characteristics of firms that ensure greater success rates

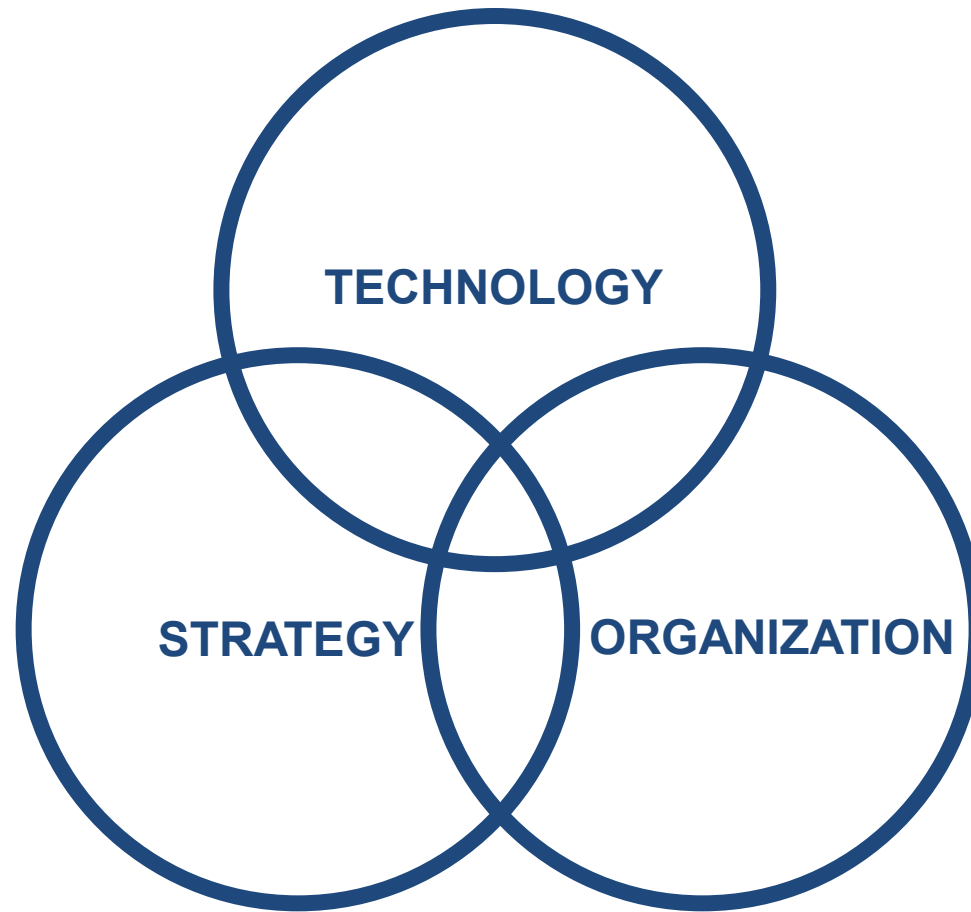


## Exercise 3: Where does your organization stand?

	Three Characteristics	Does your org./team have this? (Yes/No)	Ideas for Improvement	Potential Barriers/Challenges for Implementation and Proposed Solutions
1	Clearly defined strategic vision			
2	Good peripheral vision			
3	Series of well-defined processes			

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# Managing Technology and Innovation



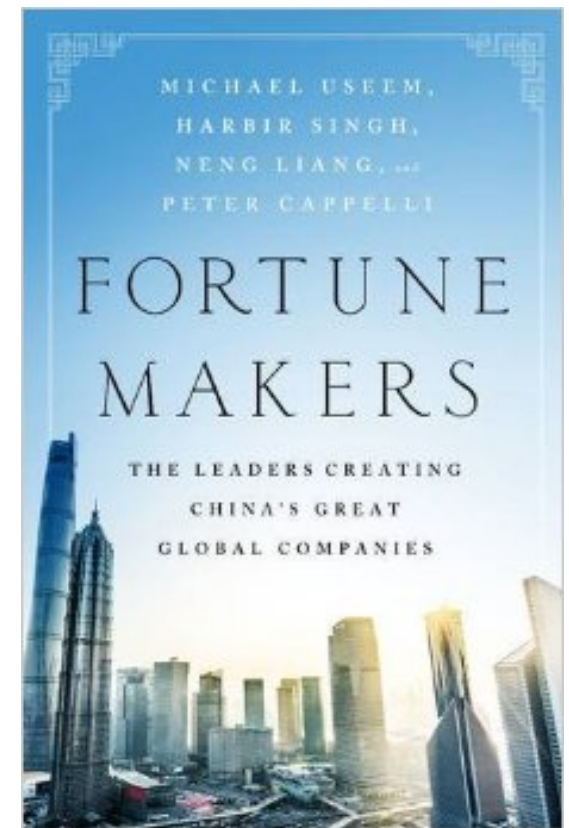
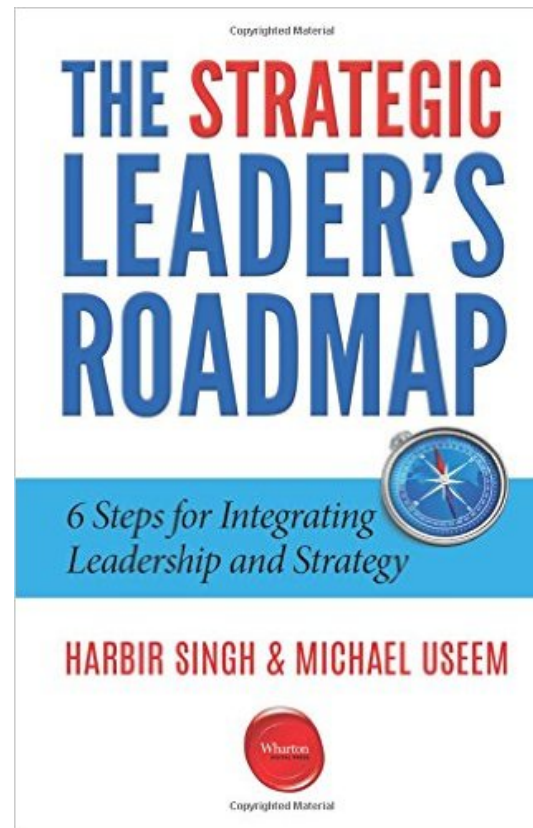
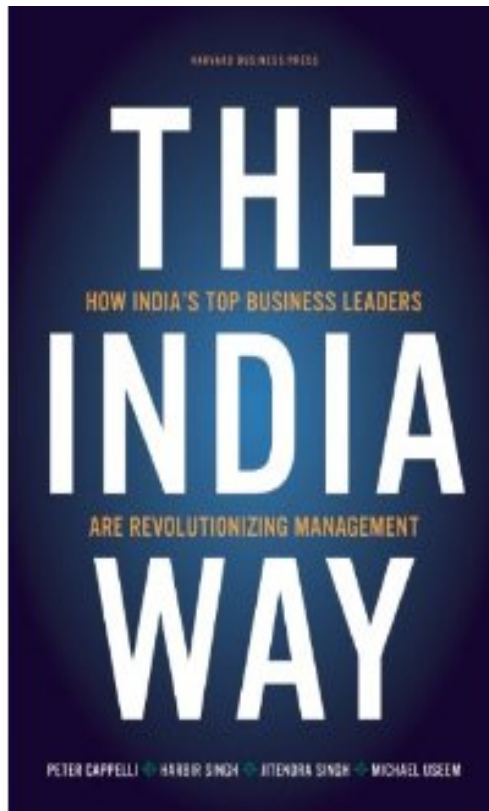
Read the full paper here:

<https://mackinstitute.wharton.upenn.edu/2018/digital-disruption/>

# STRATEGIC LEADERSHIP AND INNOVATION

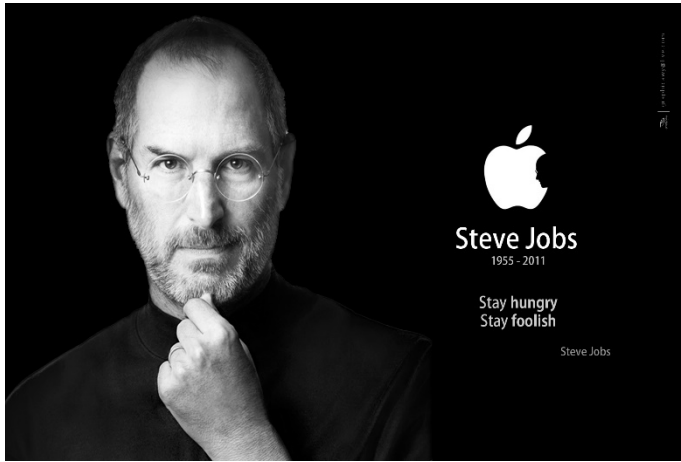
HARBIR SINGH AND  
SAIKAT CHAUDHURI







# Images of Global Corporate Leaders



Steve Jobs, Apple Inc.



Narayana Murthy, Infosys



Liu Chaunzhi and John Joyce, IBM PC Acquisition, 2004

# The Strategic Leader's Roadmap

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- ✓ Integrate strategy and leadership
- ✓ Learn to lead strategically
- ✓ Ensure strategic fit
- ✓ Convey strategic intent
- ✓ Layer leadership
- ✓ Decide deliberatively

# Sustaining Success Appears to be Difficult

<b>INDUSTRY</b>	<b>1970s Leaders</b>	<b>1980s/1990s Challengers</b>	<b>2000-2018 Winners</b>
<b>Automotive</b>	<b>GM, Ford</b>	<b>Toyota, Honda</b>	<b>?</b>
<b>Telecom</b>	<b>AT&amp;T, ITT</b>	<b>MCI, Alcatel, NEC</b>	<b>?</b>
<b>Computer related industries</b>	<b>IBM, Burroughs</b>	<b>Microsoft, Sun, Compaq</b>	<b>?</b>
<b>Photo Film</b>	<b>Kodak</b>	<b>Fuji</b>	<b>?</b>
<b>Photocopiers</b>	<b>Xerox</b>	<b>Canon</b>	<b>?</b>
<b>Consumer Electronics</b>	<b>GE, Philips</b>	<b>Sony, Matsushita</b>	<b>?</b>
<b>Semiconductors</b>	<b>TI, Motorola</b>	<b>NEC, Fujitsu, Intel, Samsung</b>	<b>?</b>

**What factors explain these changes?**

# The Challenge: Established firms have many strengths, but often struggle to sustain their innovative edge over time

Some have succumbed...

**BORDERS**



BlackBerry



Some have reinvented themselves...



**IBM**



amazon.com

**3M**

Many face the challenge now...



Microsoft



facebook

Google



CISCO



**ExxonMobil**  
**YAHOO!**

# Business ecosystems based on alliance networks are prevalent today



## Android GDP: an ecosystem valued at \$260B

Enormous defensive value for Google's core business, but little direct value capture



## Apple GDP: The iOS ecosystem has grown to \$180B

Apple captured most of this revenue in 2013



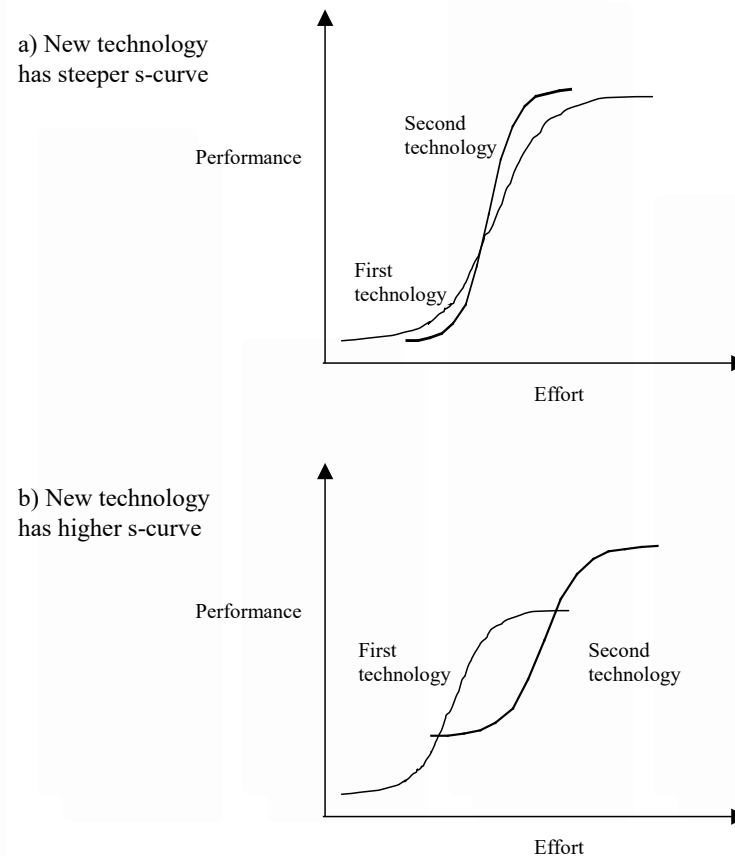
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# Alliances and Ecosystems

- Extending capabilities
- Exploration
- Exploitation

# S-Curves and New Discontinuous Technologies

Figure 3-5: Technology S-Curves -- Introduction of discontinuous technology



*Source: Schilling*



# The Apple Story – in Pictures

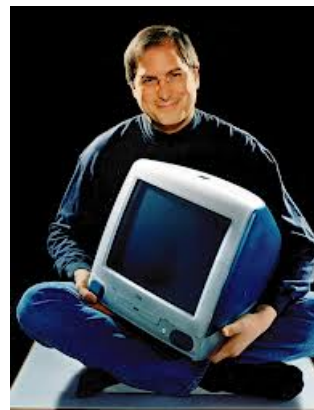


The Boom Years☺  
(1982-1990)



The Bust☹  
(1991-1998)

The Comeback?  
(1998-2007)





# The Apple Story (2003-2013)



Winning Big Time!!

Can Apple Sustain its Success??



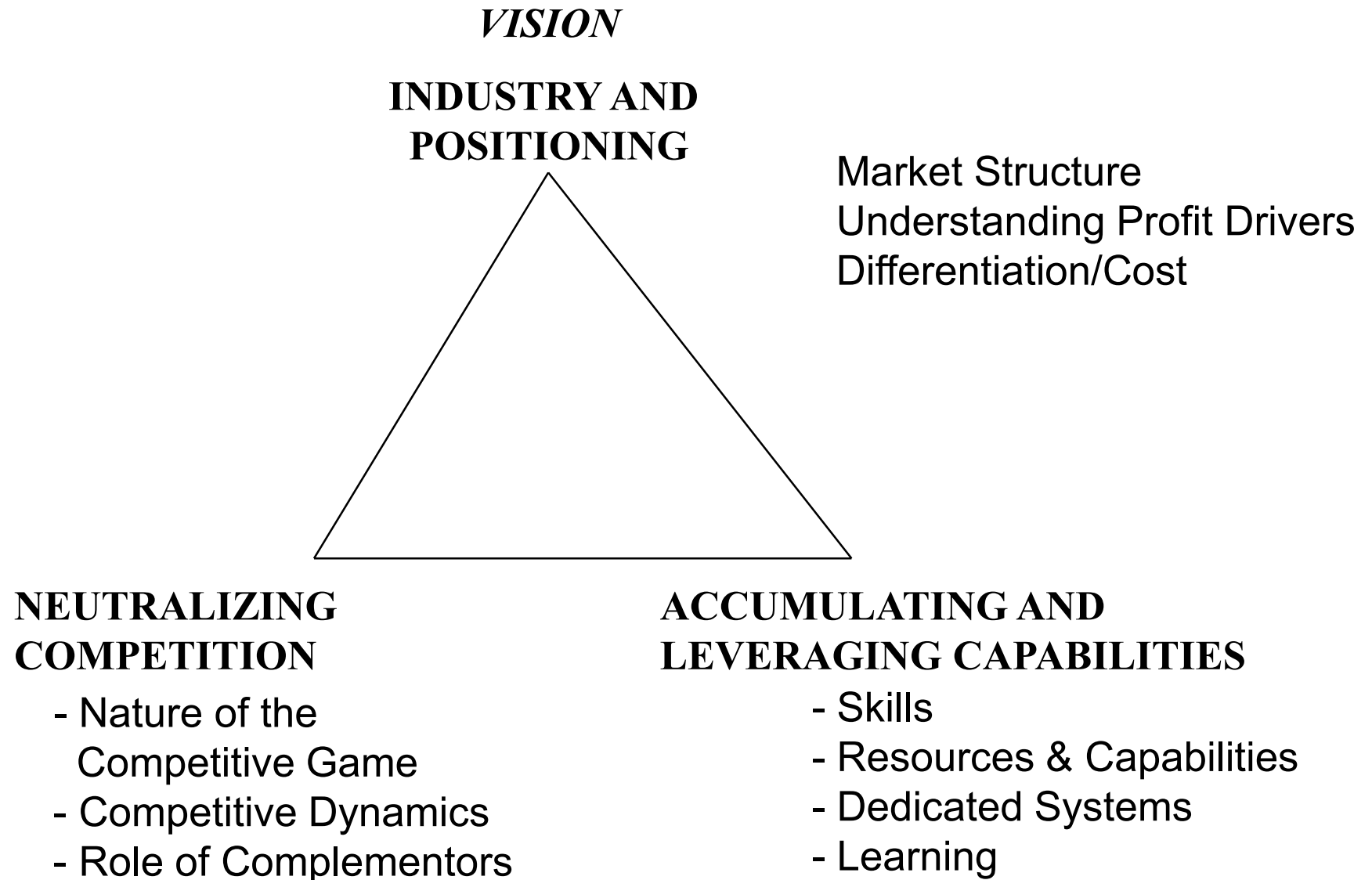
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# Questions: Apple

- What made Apple successful initially?
- How did they lose their way?
- How did they come back?

# Competitive Advantage: Key Drivers

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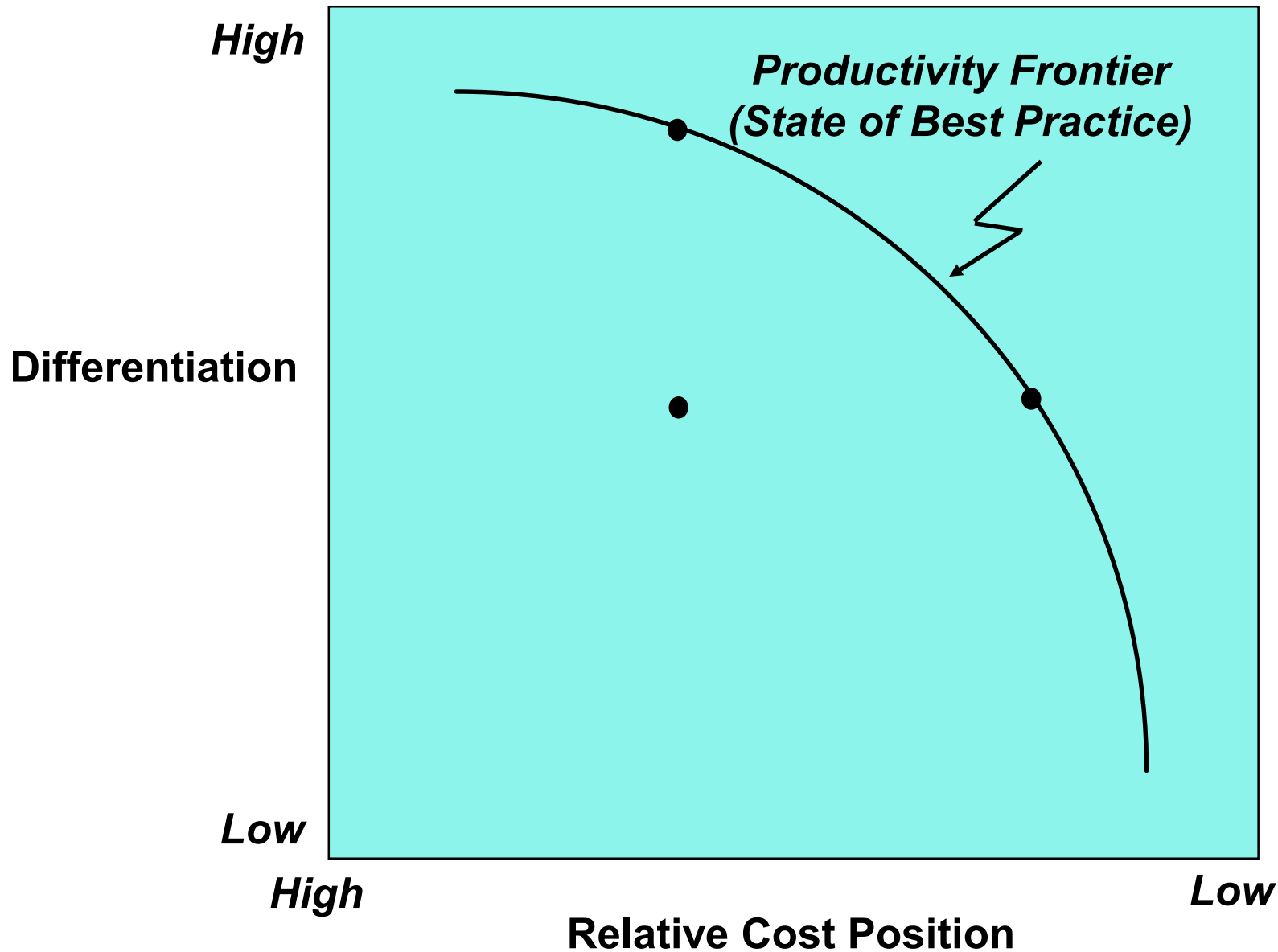


# What is Strategy?

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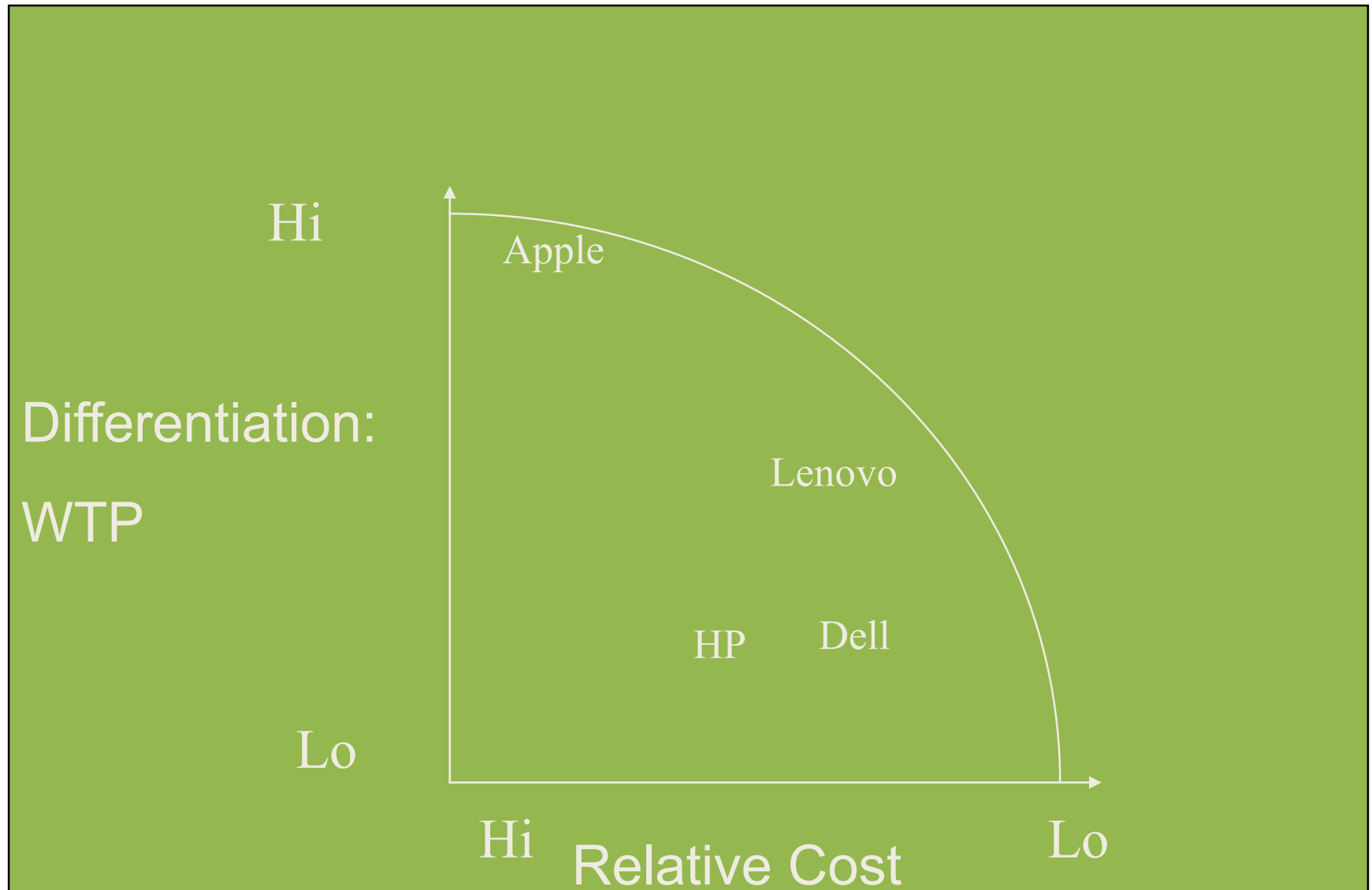
- Strategy is a plan to 'win'
- Strategy is a plan to 'gain and sustain competitive advantage' over rivals
- Strategy involves creating a unique competitive position and possessing and developing unique resources and capabilities
- Strategy is about making 'choices' and 'trade-offs' in competing
  - Being 'something to somebody' instead of 'everything to everybody'
- Strategy is not 'simply doing what others do and do it better' – BUT – 'its about doing it differently'.

# Cost vs. Differentiation in an Individual Market



Source: Porter (1996)

# Strategic Positioning and Value Propositions in the PC Industry



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# Questions: Strategy and Execution

- What are the hallmarks of a good strategy?
- What are the hallmarks of good execution?
- What does it mean to effectively link strategy and execution?

# Thinking and Acting Strategically

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1. Scan wider, see sooner.
2. Separate signal from noise, identify weak signals.
3. Stand in customer shoes and on competitor parapets.
4. Build networks, track markets, listen to customers.



# 1. Integrate Strategy and Leadership

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**Integrate Strategy and Leadership.** Master the elements of strategy and leadership both separately as a combined whole. Management questions:

## **Product Differentiation**

*Strategy:* How is the enterprise positioned in its markets, and how should managers respond to competitors, suppliers, and new entrants?

*Leadership:* Are the right people and architecture in place to implement that market positioning?

## **Production Cost**

*Strategy:* What factors create or destroy value in the enterprise?

*Leadership:* What people and architectural steps can be taken to increase value at the enterprise and reduce its loss?

## **Superior Value Proposition**

*Strategy:* What are the optimal decisions for strengthening a firm's position and competitive advantage in the market?

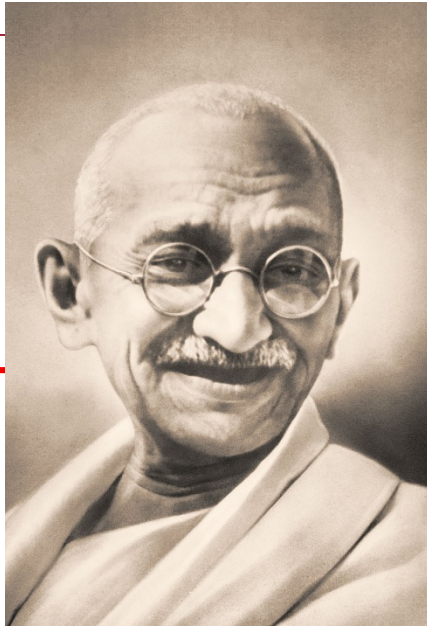
*Leadership:* What are the most effective people and architectural choices for achieving that position and realizing that strategy?

## **Sustained Value Proposition**

*Strategy:* Is a different strategic direction required given changes in the market?

*Leadership:* How should the firm's people and architecture be redeployed and restructured to achieve that new direction?

# What Leadership Capacities Make the Difference? Role of Vision



Clockwise: Mahatma Gandhi, Mother Teresa, Margaret Thatcher, Martin Luther King, Nelson Mandela



Source: Michael Useem





Clockwise: Jeff Bezos, Amazon; Elon Musk, Tesla; Ursula Burns, Xerox; Indra Nooyi, PepsiCo; Liu Chuanzhi, Lenovo; Meg Whitman, Hewlett Packard Enterprise



## 2. Learn to Lead Strategically

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An insight in work on strategic leadership is that leadership skills can be developed through three steps:

1. **Formal study of leadership from courses, concepts and programs. Historical perspectives on leaders, as well as insight into strategic challenges.**

**Top business schools have many courses emphasizing leadership, but also teamwork, which is often the missing ingredient effective groups.**

### **2. Mentoring**

**Mentoring is a critical component for developing strategic leadership skills. Thomas and Gabbaro found that executives gained substantial leadership skills through effective mentor networks**

3. **Exposure to situations that take participants beyond their comfort zone, challenging their innovativeness and developing new capabilities**

**Increasingly, corporations use challenging experiences – mountain climbing, camping or volunteer based construction projects to move executives beyond their comfort zones.**

### 3. Ensure Strategic Fit

- Elon Musk example with Tesla, SpaceX and Lithium Battery project
- Recent delivery of largest ever lithium battery (129 megawatt) built within 100 days to get a \$50 million dollar bonus from co-founder of Atlassian (an enterprise software company) for use in South Australia.
- Fitting strategy (delivery of the 129 MW lithium battery under severe time constraints) to underscore a zero emissions aspiration for the world (strategic intent).



## 4. Convey Strategic Intent

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### Eyes On, Hands Off

Hierarchy can slow rather than hasten decision making.

Ritz Carlton: “Use good judgement in all situations.”

U.S. Chairman of the Joint Chiefs of Staff: Commanders “must understand the problem, envision the end state, and visualize the nature and design of the operation”—but then delegate its execution to their “agile and adaptive” subordinates in the conduct of “their duties.

Sources: Stanley McChrystal with Tantum Collins, David Silverman, and Chris Fussell, *Team of Teams: New Rules of Engagement for a Complex World*; U.S. Army, 2012, and Dempsey, 2012.



# 5. Layer Leadership

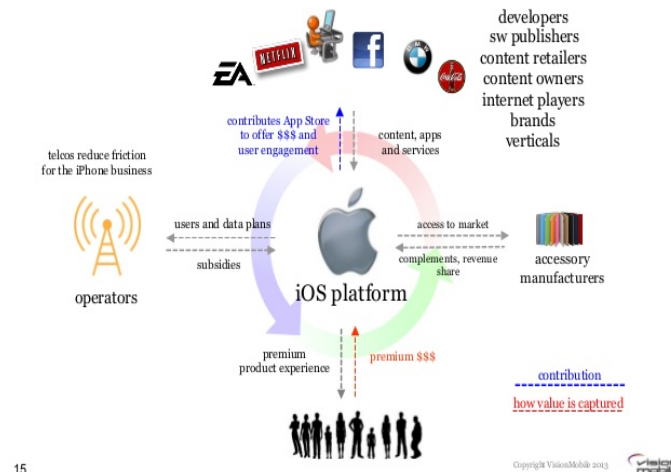
Strategy is implemented through visible initiatives:  
the launch of the iPhone as a way of new  
business development

Each initiative requires leadership – and in the case of  
Apple, the innovation in a new type of glass –  
“gorilla glass”, was a key element of  
leadership to implement the new strategy

Bringing in technological leaders who would  
inspire innovators in the Apple ecosystem  
of Apps proved crucial to the dominance  
of the iPhone for the next decade

## The mechanics of Apple iOS ecosystem

ecosystem around iOS platform is designed to drive hardware sales



15

*Implication: leadership is layered through the organization  
As key employees are inspired by the vision and can identify  
Initiatives as a path to achievement*

## 6. Investors as Drivers of Strategic Leadership



**Abigail Johnson, Chief Executive, Fidelity Investments:** 25 individual clients, 344 equity mutual funds, \$1.7 trillion assets under management in mutual funds.

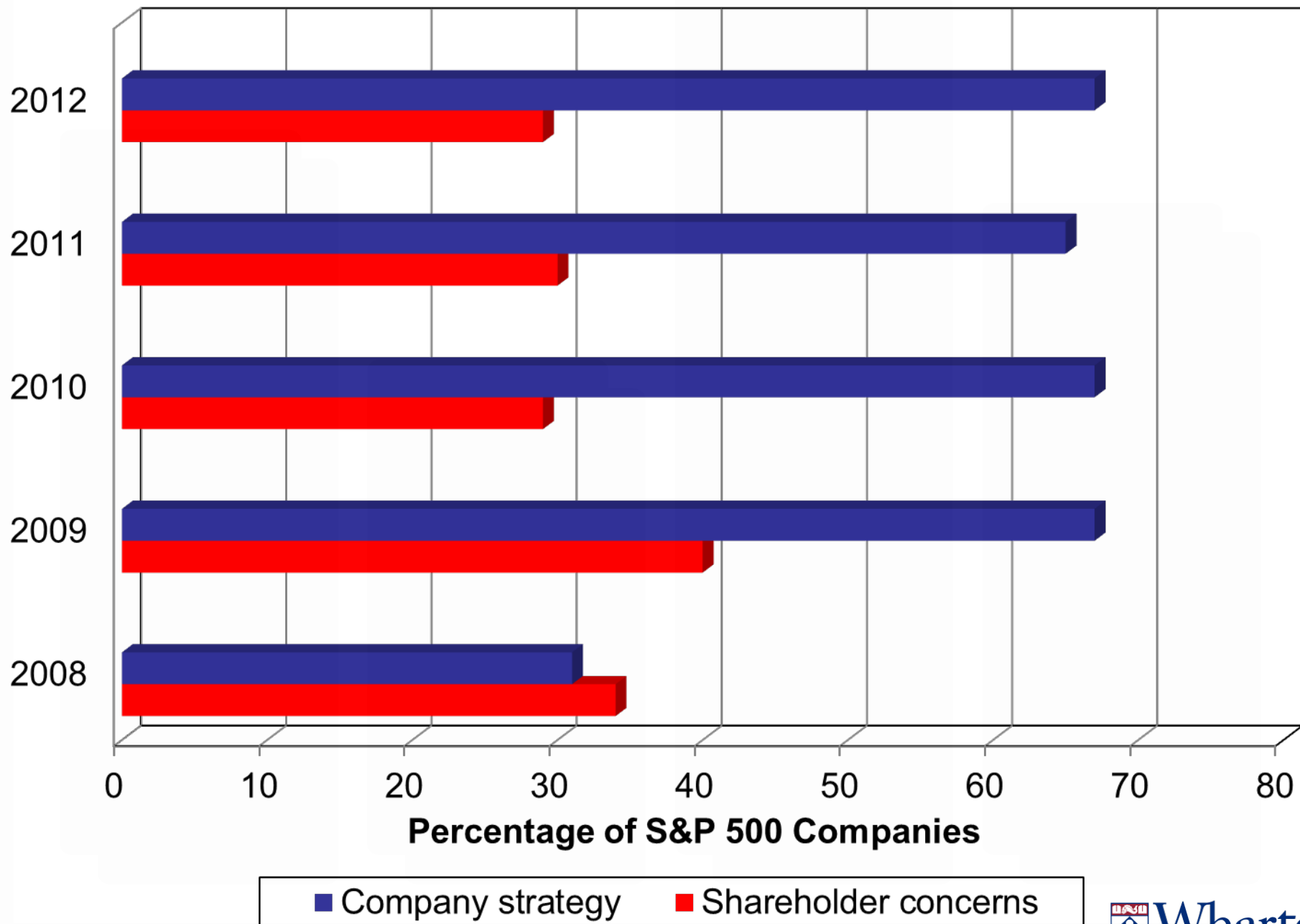
**John C. Bogle, Founder and former CEO and Chairman, Vanguard:** Created world's first index fund in 1975. Had the idea of lower cost of fund management plus highly diversified portfolio for long run performance. Vanguard now has \$4.4 trillion under management, more than GDP of many nations.

**Anne Yeager, Director, Council of Institutional Investors,** an association of 125+ pension funds, endowments and foundations with assets of \$3 trillion+. "We are the leading voice for effective corporate governance and strong shareholder rights."

**Nelson Peltz, Founding and CEO, Trian Fund Management,** an activist investment management fund with \$10 billion, ran activist campaigns for radical strategy change at DuPont (1915), GE (2015) and Procter and Gamble (2017).

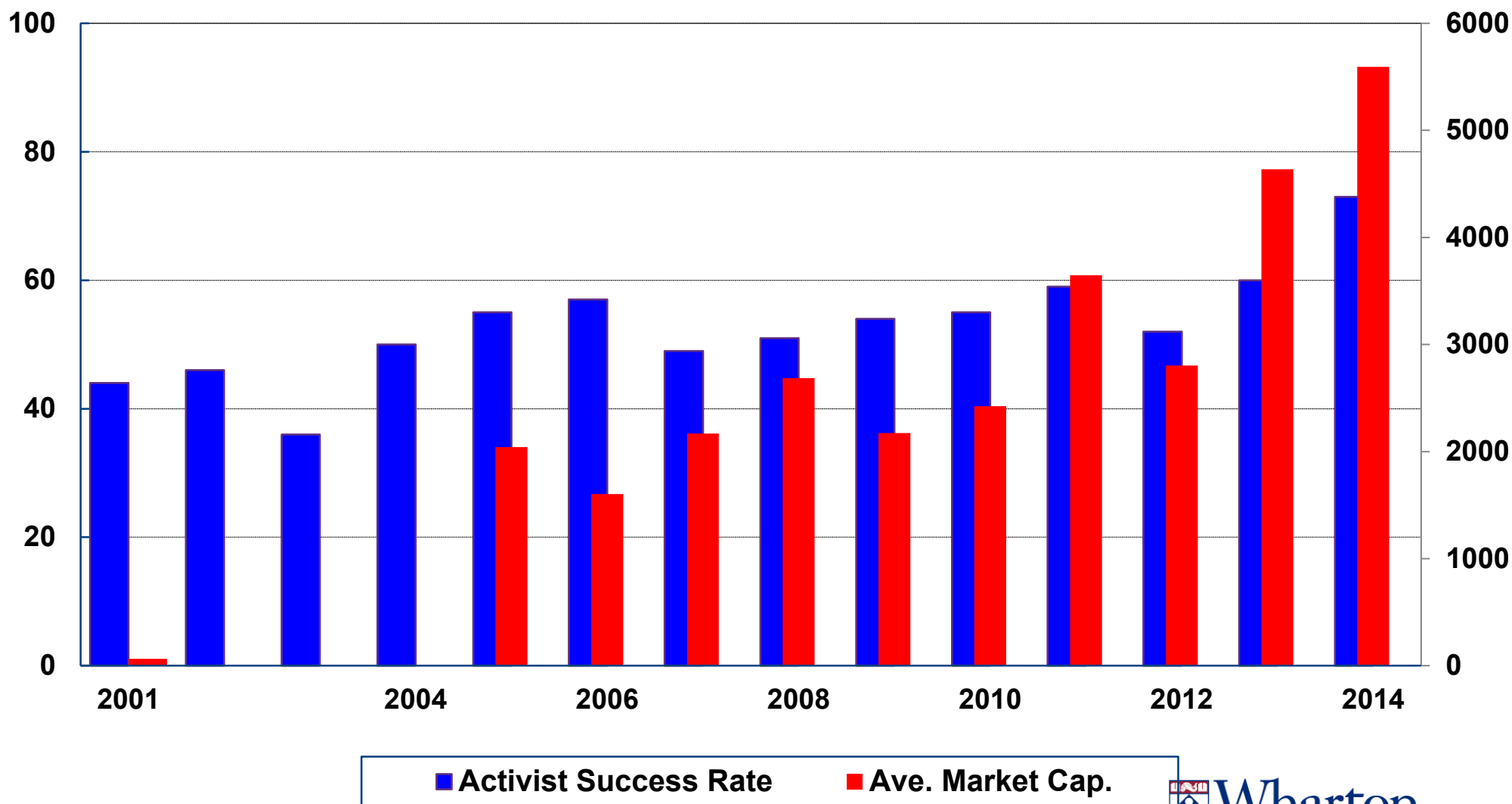


## Governance Topics Requiring Greatest Attention by S&P 500 Boards of Directors, 2008-2012

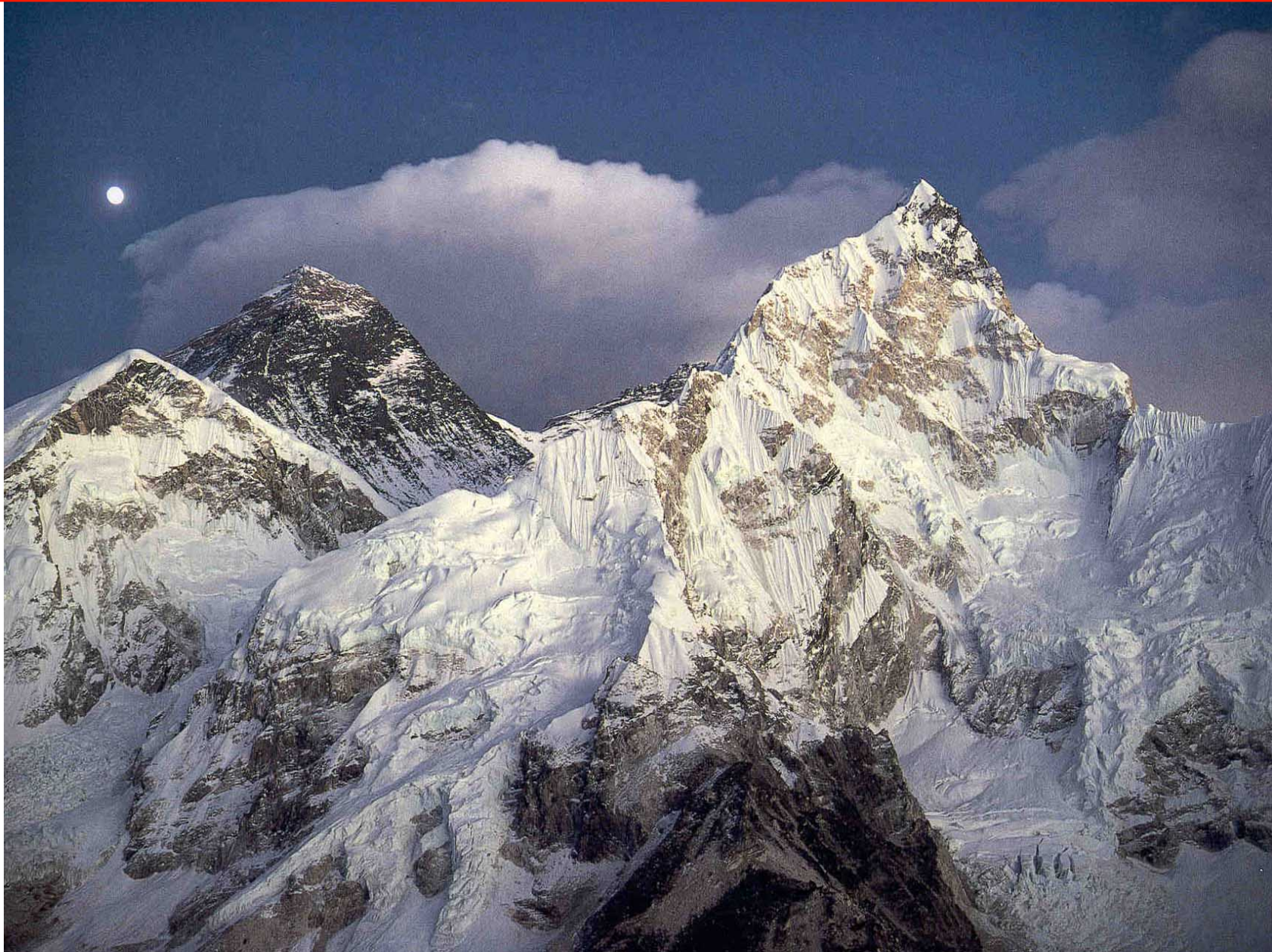


# Activist Investor Campaigns

**Activist Proxy Fight, % Success Rate, 2001-14**  
**Average Market Capitalization of Targets, \$ Millions, 2005-14**



## 7. Decide Deliberatively



Mount Everest, 29,035 ft.



# Transforming Nissan

Japanese automaker Nissan had lost global market share (from 6.6 to **4.9%**), lost money for the past 7 or 8 years, and had run up \$19 billion in debt (with an annual debt service of \$1 billion).

The Nissan CEO had set forward a turnaround plan (slashing auto “platforms, discontinuing unprofitable models, introducing SUVs, focusing on earnings and not just sales).

French auto maker Renault invests \$5.4 billion, takes 36% ownership, installs Renault executive Carlos Ghosn as chief operating officer (#2) of Nissan.

Ghosn transforms Nissan, increasing factory utilization from 53 to 77%, cut suppliers by half, reduced administrative costs by 20%.

Strategy + Leadership => Nissan global market share in September, 2016: **8.5%**.



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# Progress in Nissan 1998 - 2016



Nissan 1998 Altima



Nissan Leaf 2016 Electric Car

# The Strategic Leader's Roadmap

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# Key Questions

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- Vision
  - Long term direction; focused, actionable
- Positioning
  - Where should we play ?(industry, value chain, target segment)
  - What is our unique value proposition? Differentiation vs relative cost
  - What are the key drivers of our price-cost margins? (Differentiation vs. Cost)
- Capabilities
  - How are we leveraging current resources and capabilities and developing new ones?
- Competition
  - What are the barriers to imitation from competitors?