

# “The Incumbent's Dilemma: Which Disruptions Matter?”

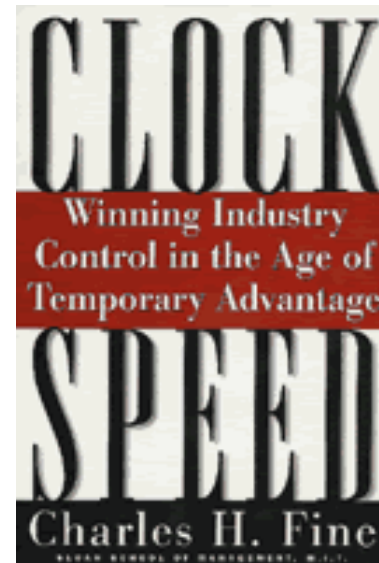
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**MIT Communications Futures Program**

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# **Telecom Incumbent's Lament:**

**“Almost every day, someone comes into my office and tells me that some new innovation in the market is going to disrupt our business model and destroy us unless we react immediately and forcefully.”**

**“We know that most of these putative disruptors will harmlessly self-destruct. However, we also believe that any given day could bring the arrival of a truly threatening force that we must counter at all costs or risk annihilation.”**

**“How do we tell the difference?  
Can you give us a model or framework to help?”**

# Drivers of Possible Outcomes

**Disruption**

**Co-existence**

**No Disruption**

***Firm  
Factors***

***Product/  
Service  
Factors***

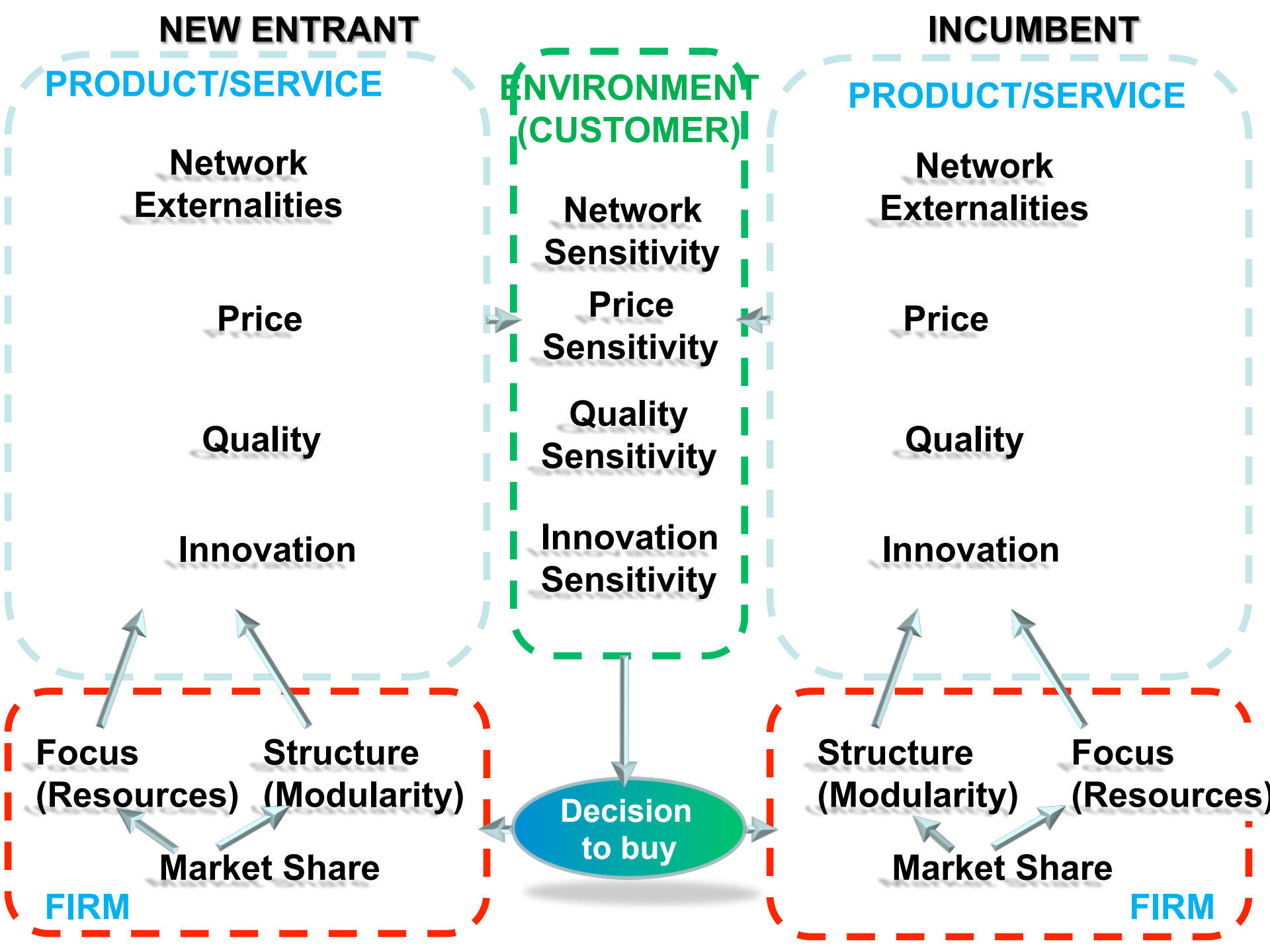
***Environ-  
mental  
Factors***

# “Disruptive Technology” announcements by *The New York Times*, 1999-2008

1999	Organic LED Nano Science in Chip Manufacturing	2003	WiFi Mesh Networks Alternative Energy
2000	Open Source Software Online Book Stores Internet Advertising Digital Photography Gigabit Ethernet Online Investment Firms	2004	P2P Service Providers
2001	Online Journals	2005	P2P File Sharing Online Shopping
2002	WiFi Mesh Networks Segway Scooter	2006	Online Book Content Online Commodity Futures Exchange YouTube (Political Advertising) You Tube (Video Content Distribution)
		2007	Paint Films
		2008	Advertising using Social Networks

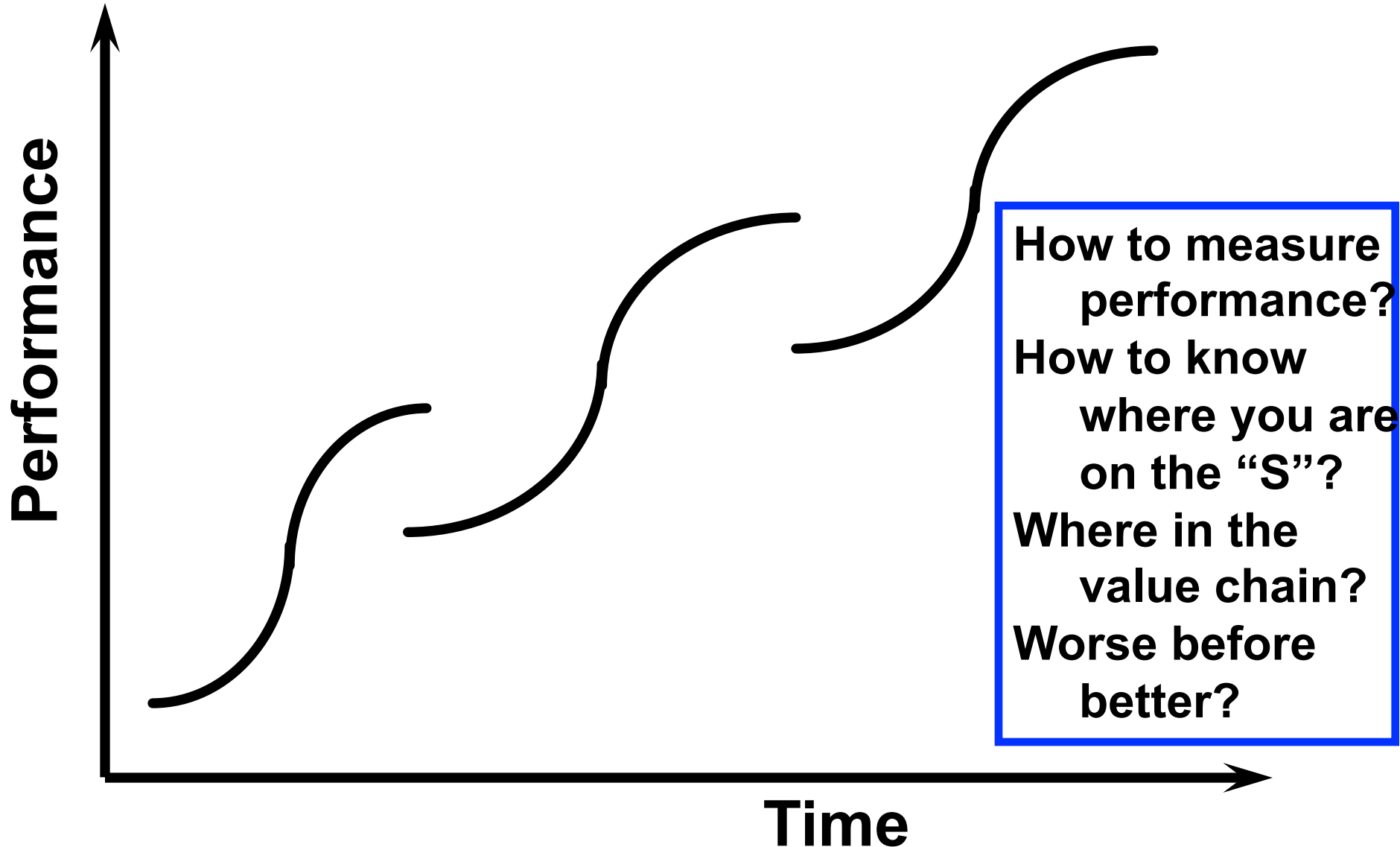
## Christensen’s Conditions for Disruptive Technology

Firm	Price	Primary Performance	Ancillary Performance
Incumbent	High	High	Low
Entrant	Low	Low	High



# Innovation Dynamics can be

**RADICAL** (*disruptive*) or **INCREMENTAL** (*sustaining*)



# ALL COMPETITIVE ADVANTAGE IS TEMPORARY

## ***Autos:***

***Ford*** in 1920, ***GM*** in 1955, ***Toyota*** in 2000

## ***Computing:***

***IBM*** in 1970, ***Wintel*** in 1990, ***Apple*** in 2010,

## ***World Dominion:***

***Greece*** in 500 BC, ***Rome*** in 100AD, ***G.B.*** in 1800

## ***Sports:***

***Red Sox*** in 2007, ***Celtics*** in 2008, ***Yankees*** in 2009

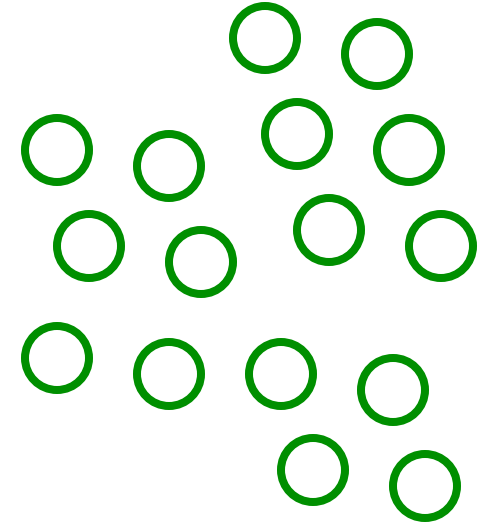
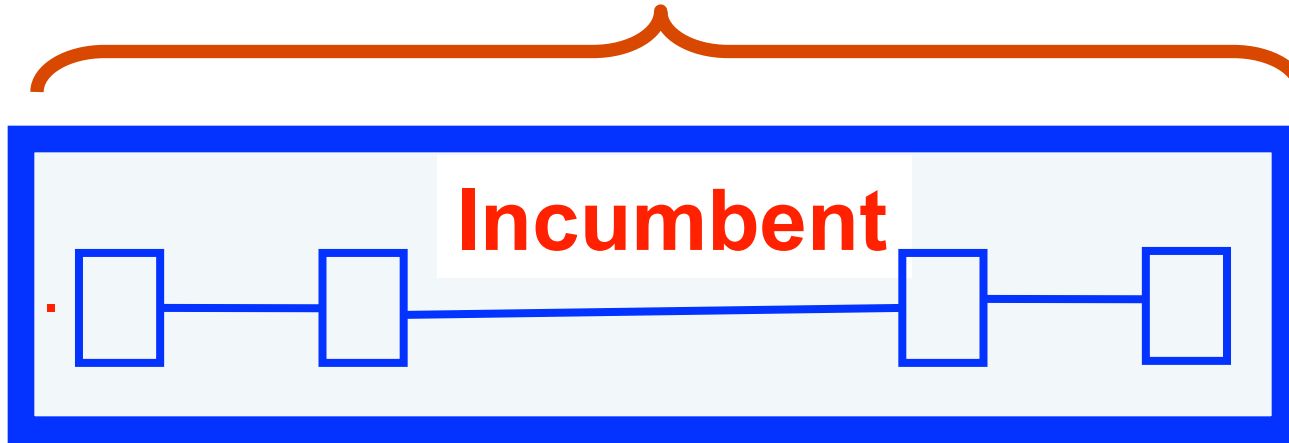
***The faster the clockspeed, the shorter the reign***

# Model to Assess Disruptive Power (ex: Skype vs. Verizon; Tesla vs. Toyota)

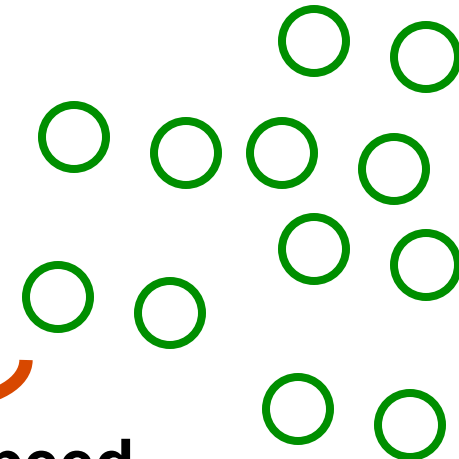
1. Consumers care about price, primary performance (transport or communication) and ancillary performance (carbon footprint, extra features) of a product/service.
2. Incumbent has integral value chain, good at product quality and primary performance.  
*Rich in complementary assets.*
3. Entrant has modular value chain, good at innovative services/features and ancillary performance. *Quick at adding features.*
4. Each firm's product/service has some degree of positive network externalities (e.g., the larger the user base for Skype or electric vehicles, the more attractive to new users).
5. Each firm's product/service has some degree of switching costs.



## Integrated Value Chain: Good at Quality



**Customers**  
(care about  
quality, innovation)



**Modular Value Chain: Good at Innovation, Speed**

# Technology and Industry Disruptions

## Industry Disruption

## No Industry Disruption

**Digital music**

**Electric vehicles**

**Linux vs. Windows**

- Weak Incumbent Network Effect
- Strong Entrant Network Effect
- Consumer highly price sensitive and willing to risk adopting innovative service with low quality and compatibility

- Incumbents can affect switching behavior
- Incumbents innovate while maintaining quality
- Incumbents control complementary assets
- Entrants struggle to offer quality due to lack of functional control or market power

Quadrant Not Relevant

- Strong Incumbent Network Effect
- Consumers value quality and compatibility over innovation and low price

**No**

**Technology Disruption**

# DISRUPTION IN COMPUTING: THE COMPUTER IS PERSONAL

PERSONAL COMPUTERS DISRUPT MAINFRAMES & MINICOMPUTERS



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Technology  
Disruption

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**IBM PC's beat  
back Apple &  
Tandy.**

# **DISRUPTION IN COMPUTER DISTRIBUTION: CAN PERSONALIZED DESIGN & DELIVERY OF PC'S DISRUPT TRADITIONAL CHANNELS?**



**Technology  
Disruption**

**No Technology  
Disruption**

**Industry  
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**No Industry  
Disruption**

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# ***DISRUPTION IN COMPUTER DISTRIBUTION: THE DESIGN & DELIVERY IS PERSONAL***

**Dell offers clones with lower prices and personalization. IBM Retail channels are millstone; no longer complementary.**

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**Technology Disruption**

**No Technology Disruption**



# Disruption in News Delivery:

News from GoogleNews & Blogs; Ads by Google  
Video clips on YouTube; Ads by Google  
Classified ads on Craigslist.



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## No Industry Disruption

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# Disruption in News Delivery:

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Consumers like free news; Google disintermediates content producers from advertisers.

Technology Disruption

No Technology Disruption

Industry Disruption

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# Disruption in Software & Content Distribution?

## "There's An App For That"



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Technology Disruption

No Technology Disruption



# Disruption in Software & Content Distribution?

## "There's An App For That"

App innovation is Fast & Flexible; New Platforms (e.g., iPhone + iTunes) form new Complementary Assets.



Technology Disruption

No Technology Disruption

Industry Disruption

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# **Disruption in Social Networking;**

## **Facebook TV:**

**Friends don't let friends watch alone.**

**Social network threatens content aggregators**

**facebook**

**Industry  
Disruption**

**No Industry  
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**Technology  
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Disruption

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Technology  
Disruption

Still up for grabs?  
Price & Entrant  
Network  
vs.  
Quality &  
Control of  
complementary  
Assets (content)

No Industry  
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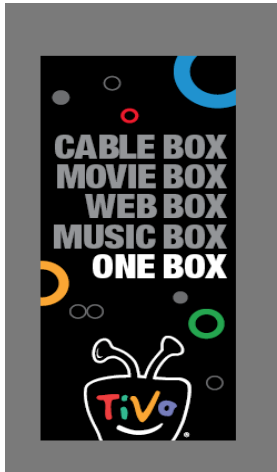
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# Disruption in Storage & Time Shifting;

## *what I want; when I want; where I want.*

### Tivo threatens traditional content aggregators?



Technology  
Disruption

No Technology  
Disruption

Industry  
Disruption

No Industry  
Disruption

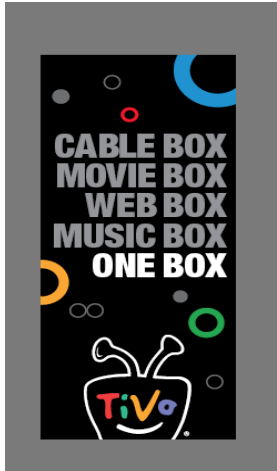
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Cable Company can offer DVR; Content control also key as a complementary asset.

# Theoretical Results

## Disruption

- Entrants have far superior cost structure

## Co-existence

- Incumbents innovate, restructure while maintaining quality
- Entrants struggle to offer quality due to lack of complementary assets or market power

## No Disruption

- Incumbents have far superior cost structure

### *Firm Factors*

### *Product/Service Factors*

### *Environment Factors*

- Weak Network Effect

- No Network Effect
- Incumbents can affect switching behavior heavily

- Strong Network Effect

- Consumers highly price sensitive and willing to adopt innovations with low quality and compatibility
- (Alternatively) consumers value quality, but entrants introduce a product with strong network effect

- Consumers value availability over quality/innovation, or are willing to tradeoff quality and innovation

- Consumers value quality and compatibility over innovation and low price
- (Alternatively) consumers value innovation, but incumbent's product has strong network effect

# All Conclusions are *Temporary*

Clockspeeds are increasing almost everywhere  
Value Chains are changing rapidly

