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**Michael Shamiyeh**

Strategieforum

Radikale Innovationen und  
disruptive Technologien

Siemens, Linz, 01/20/2015

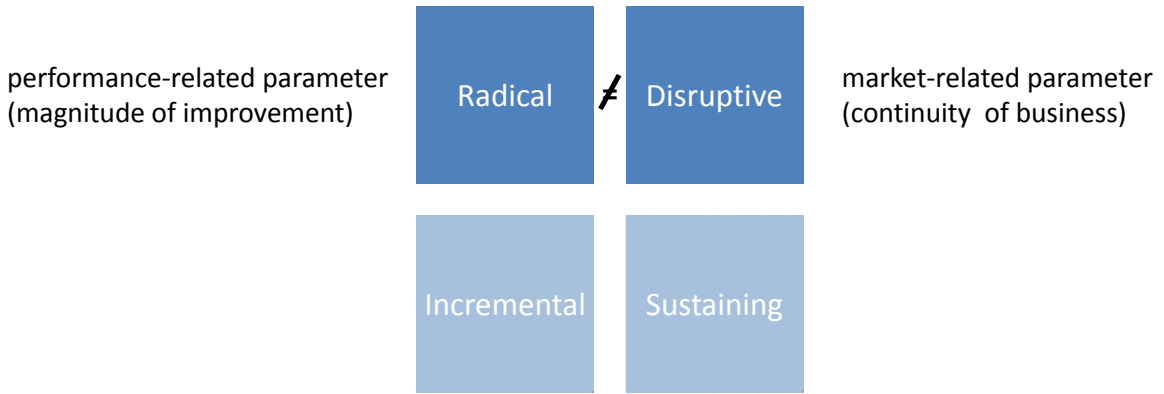
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**Structure**

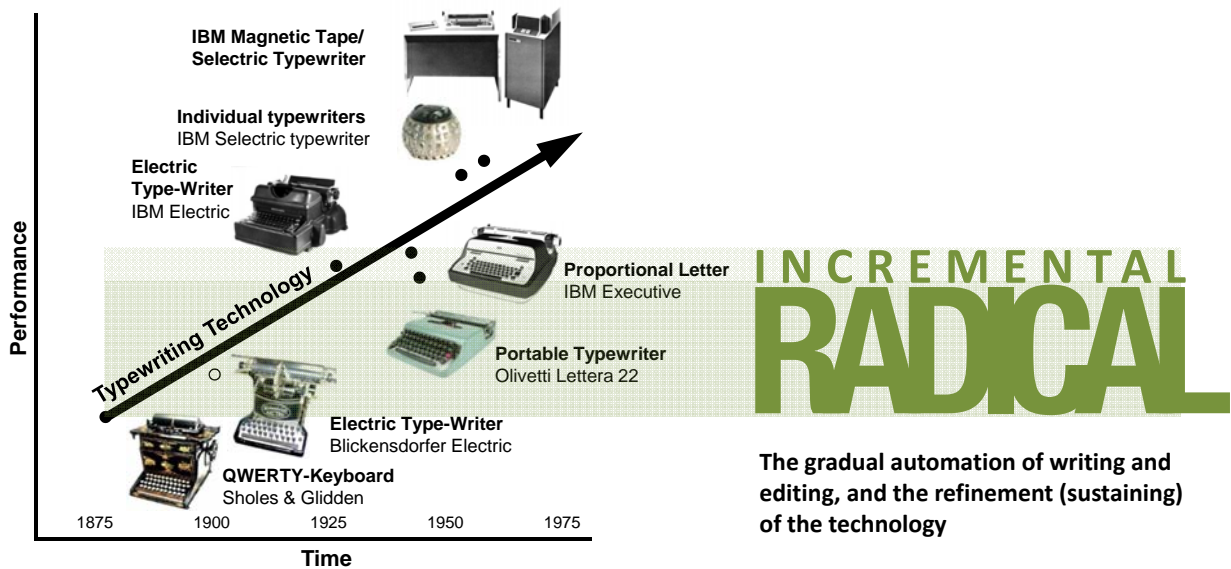
1. Types of innovation and disruption
2. Challenges in organizational response
3. Recommendations for action

# 1 TYPES OF INNOVATION AND DISRUPTION

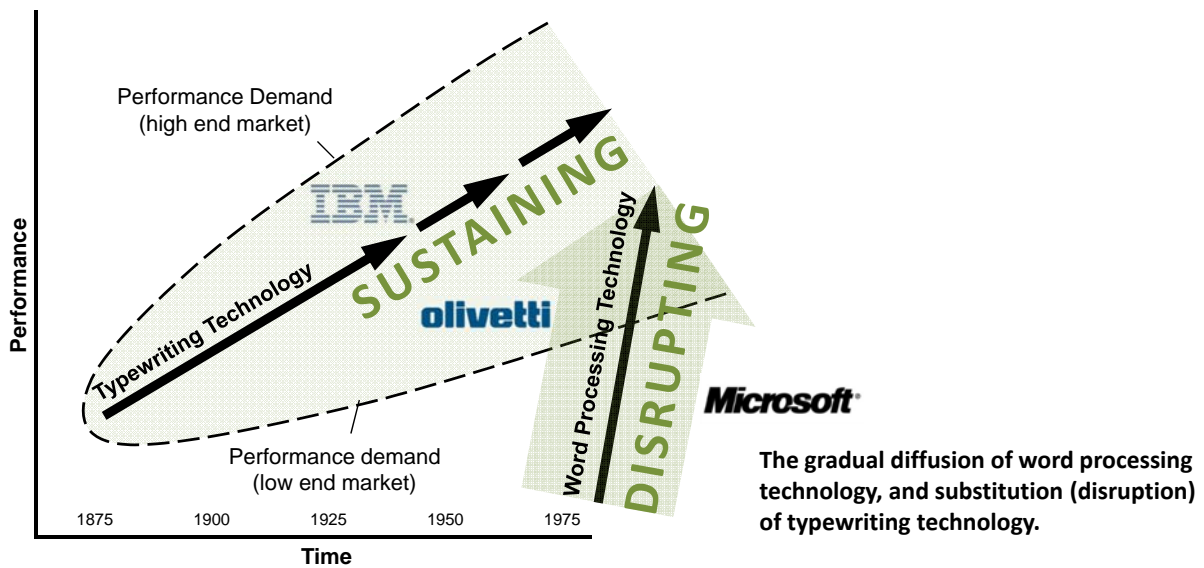
Common (but false) assumption:



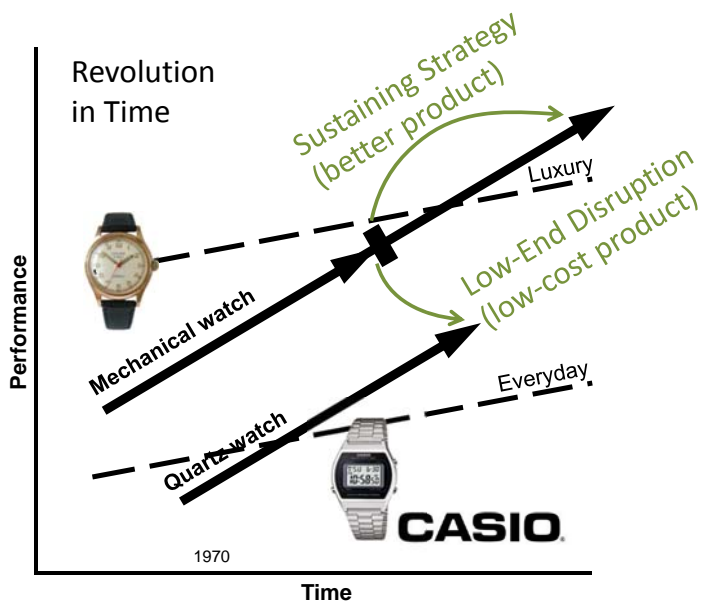
## Magnitude of Improvement



## Continuity of Business



## The Case of Quartz Watches in the late 1970s



Swiss Watchmaker:

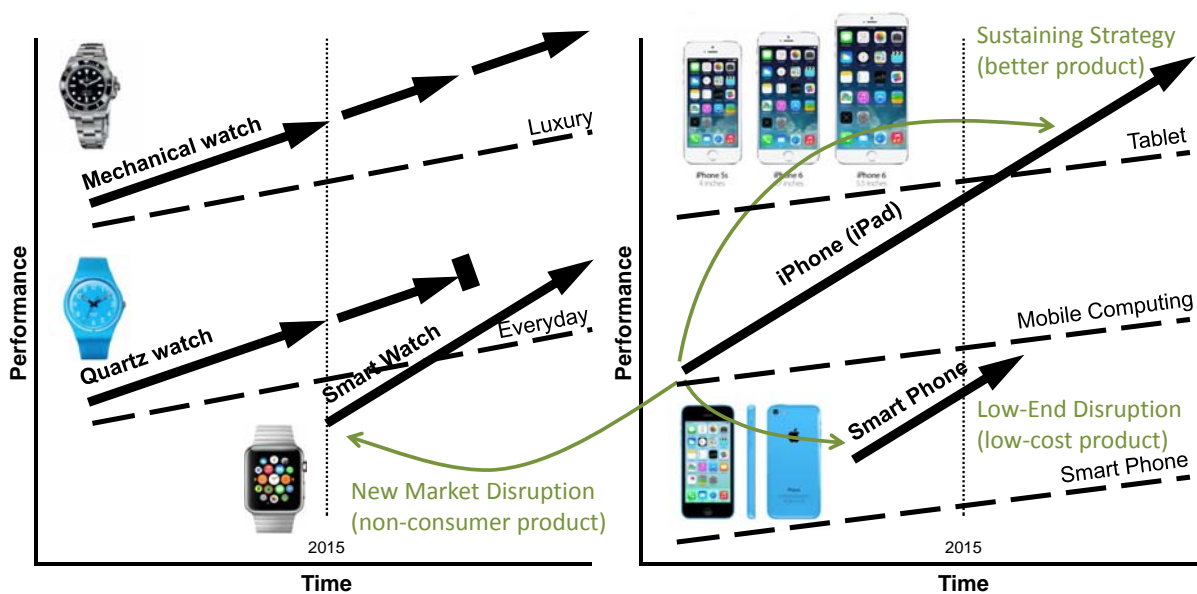


1. Disruptors enter a market incumbents don't care about
2. Entrants grow as incumbents flee
3. The incumbent hits a ceiling

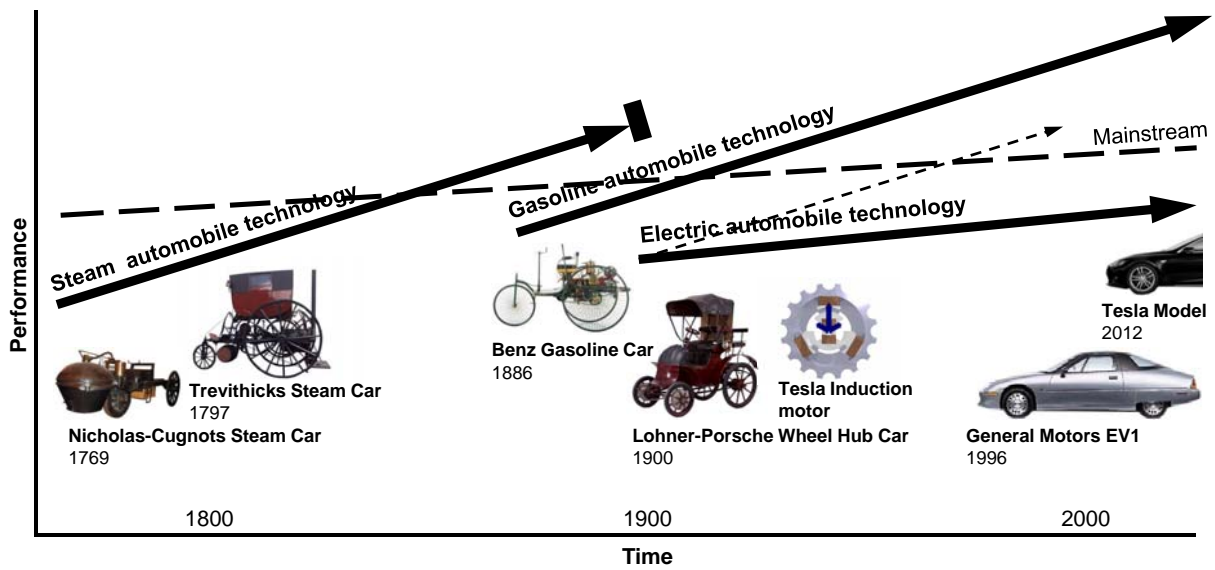
**Case:** The Swiss Watchmakers and Apple's iWatch



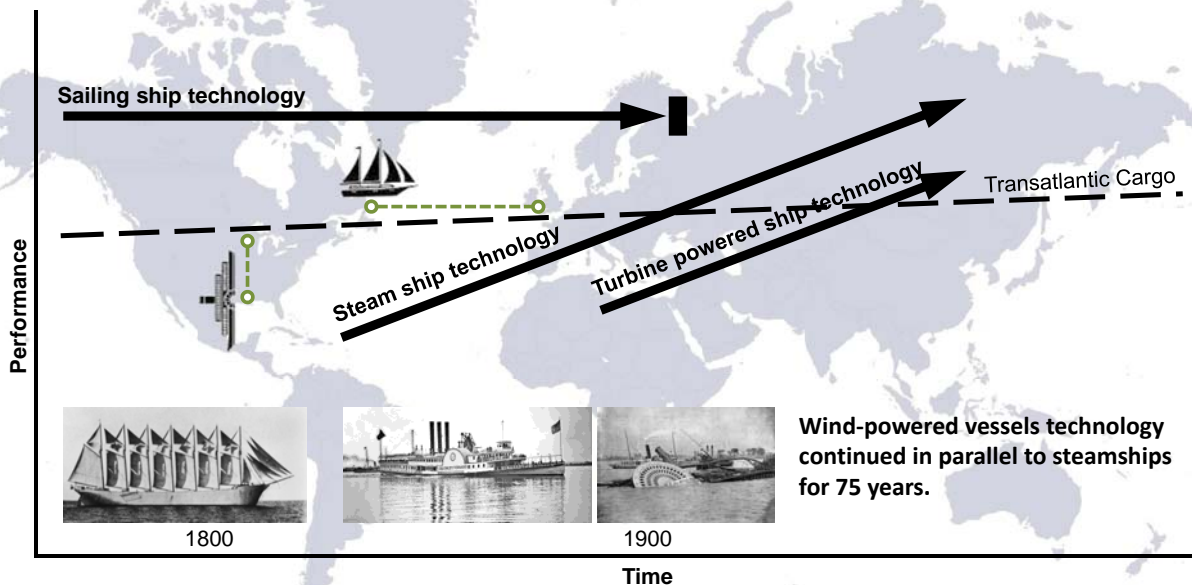
**Case:** The Swiss Watchmakers and Apple's iWatch



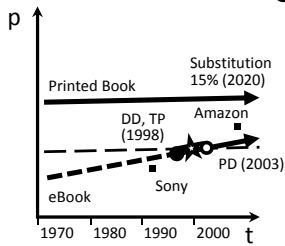
## Radical Innovation: Uncertain in Terms of Substitution Rate



## Radical Innovation: Can Coexist with Prevailing Innovations



## Radical Technological Progress and Substitution (1)



33Y → ?Y

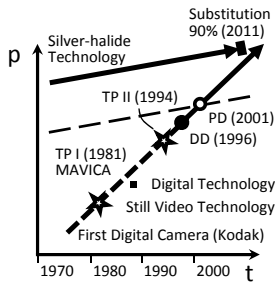


eBook

Substitution  
15% (2020)



Printed Books



26Y → 10Y



Digital Camera

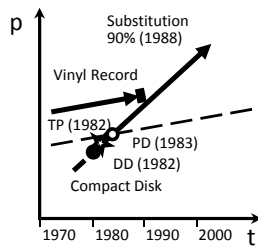
Substitution  
90% (2011)



Silver-halide Film

★ TP...Threat Perception  
○ PD...Point of Disruption  
● DD...Dominant Design

## Radical Technological Progress and Substitution (2)



6Y → 5Y

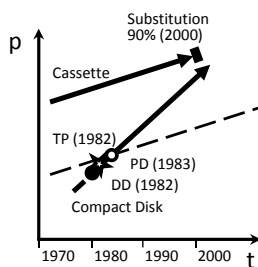


Compact Disk

Substitution  
90% (1988)



Vinyl



6Y → 17Y



Compact Disk

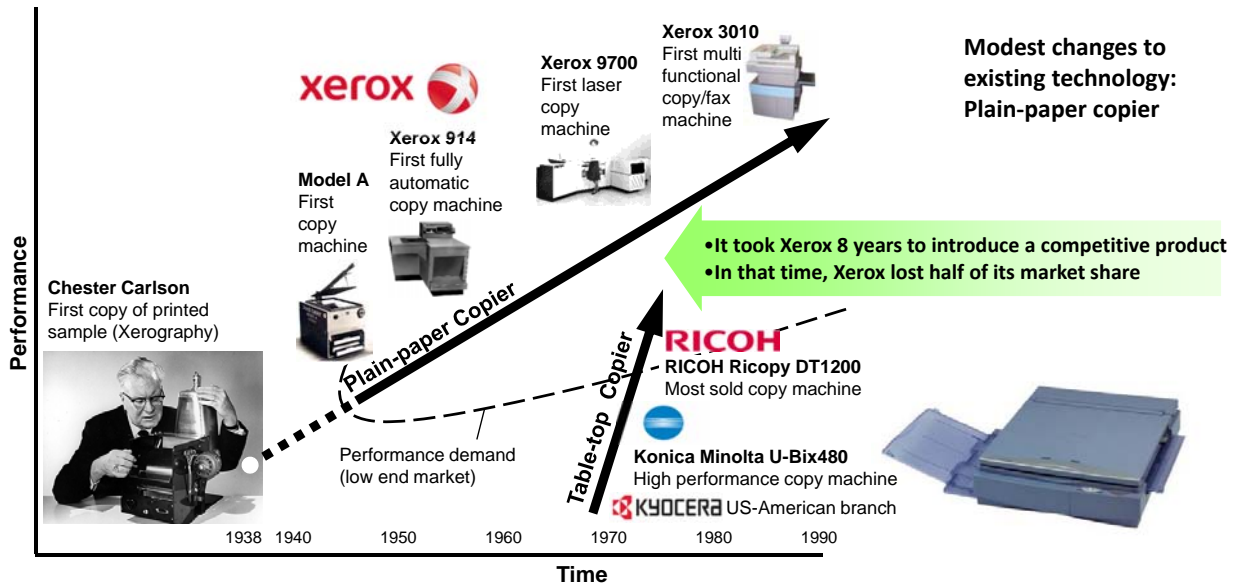
Substitution  
90% (2000)



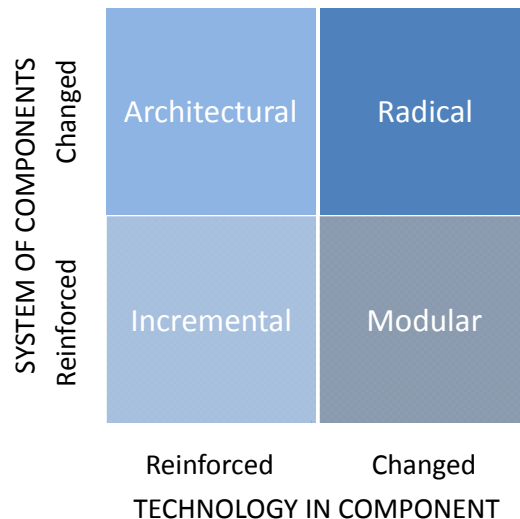
Cassette

★ TP...Threat Perception  
○ PD...Point of Disruption  
● DD...Dominant Design

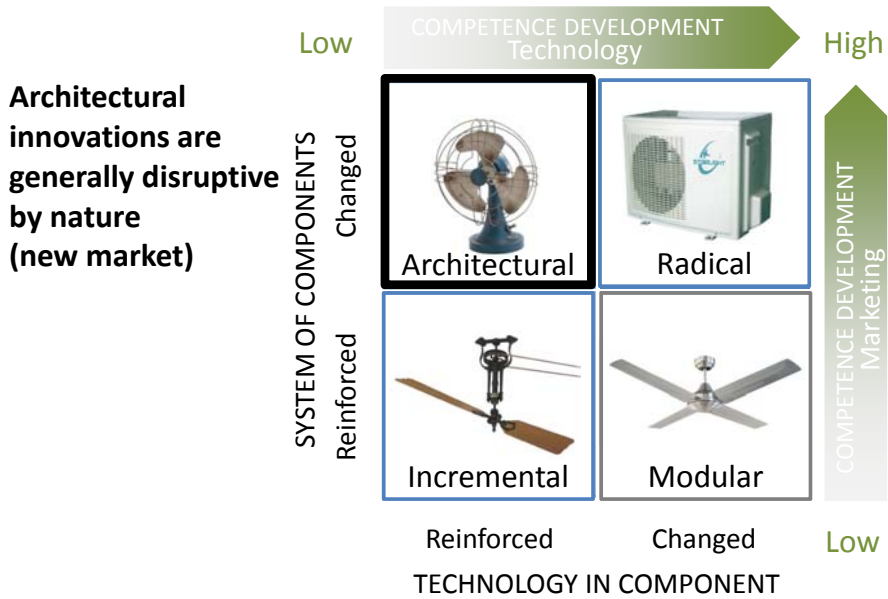
# Disruptive Innovation: Case Xerox and Table-top Copiers



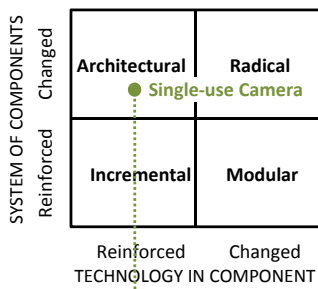
# Types of Innovation: Magnitude of Improvement



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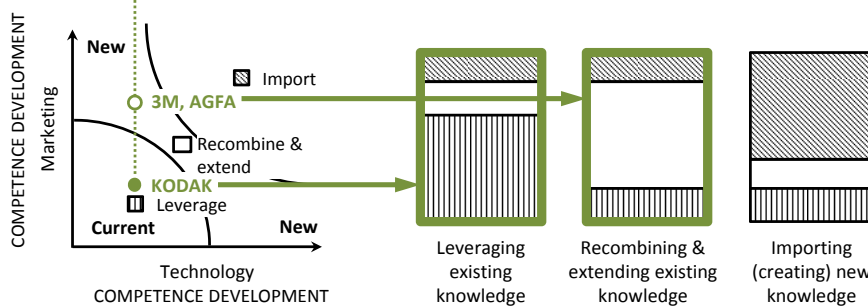
# Architectural Innovation: Case Kodak FunSaver



Kodak Film



Kodak FunSaver (Film with a lens)

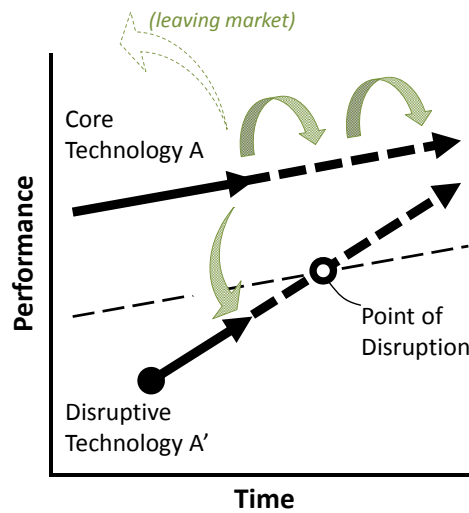


\* an exception to the general rule



## 2 CHALLENGES IN ORGANIZATIONAL RESPONSE

**Two (Three) choices:**  
Firms usually fail in going down-market



**going up-market**  
=sustaining technologies and enter market segments whose profit margins are alluringly high

**going down-market** =  
accepting the lower profit margins of the emerging markets that the disruptive technologies will initially serve

## Research shows that incumbents usually succeed in...

developing new technologies - **even radical ones** - whenever the technologies addresses the need of existing customers within the value network in which they compete.



**1970s: National Cash Register (NCR)**  
Threat by easier to use electronic machines (GE)



**1980s: Swiss watch manufacturers**  
Threat by Japanese quartz watch makers (Casio)



## Can Entrant Google Succeed in the Automobile Market?



2010s: Mercedes Benz  
Threat by driverless cars (Google)

## Research shows that incumbents usually fail in...

developing technologies for customers in **emerging markets**, because of a lack of impetus to invest in ventures for which no customer yet exists.



Attractive film-based photography business with big market and low-cost equipment



Analog

\$9,5 billion



Digital

\$200 million

MARKET SIZE



Analog

\$500



Digital

\$15,000

CAMERA PRIZE

There is no incentive to invest in small digital imaging market with expensive equipment prizes

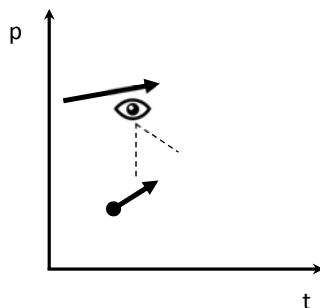
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### 3 RECOMMENDATIONS FOR ACTION (3Ds)

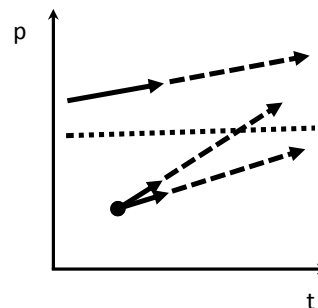
- Determine whether the technology is disruptive or sustaining
- Define the strategic significance and market of new technology
- Develop new technology in proper organizational structures

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### Determine Whether the Technology is Disruptive or Sustaining

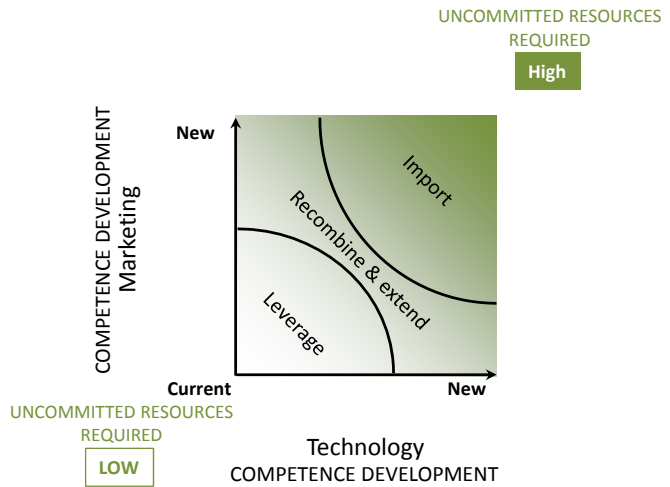
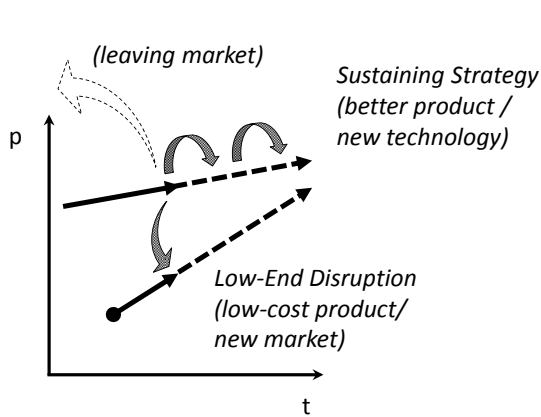


❶ Spot new and potentially disruptive technologies



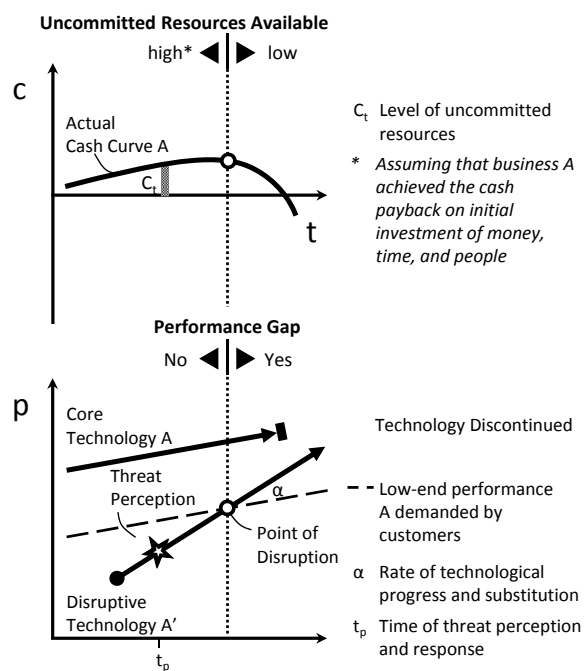
❷ Assess rate of technological progress and substitution

# Define the Strategic Significance of New Technology

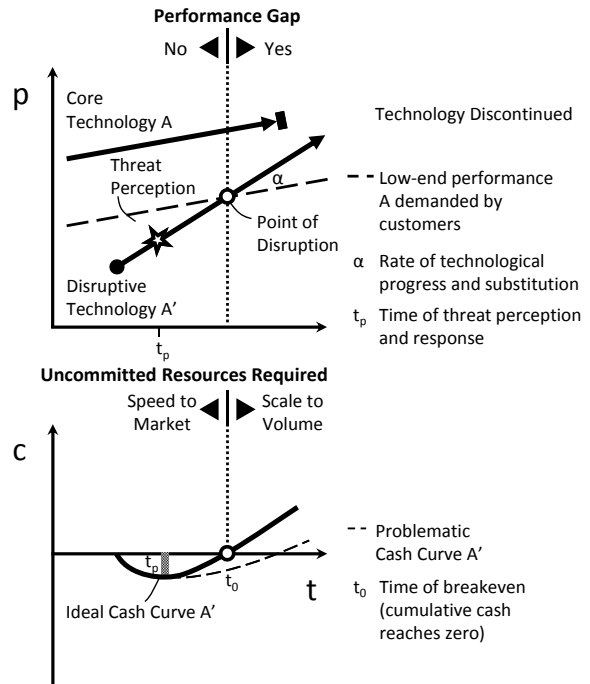


3 Assess resource relatedness between core and targeted business

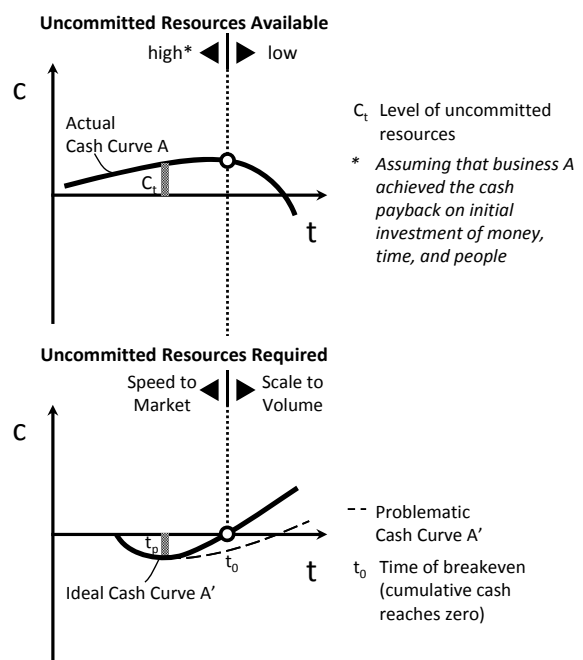
# Resource Allocation Process



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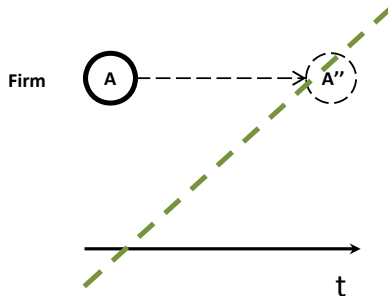
# Resource Allocation Process



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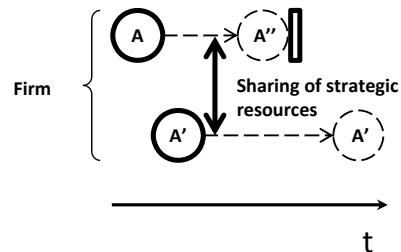
## Develop Disruptive Technologies in Proper Structures

Transformation of business A (adaptation)



Not possible course of action  
in the face of disruption!

Transformation of old business A (discontinued)  
Development of new business A' (in parallel)



Structural Differentiation and  
Sharing Strategic Resources

Thank You