



# Technology-based Business Transformation

ESD.57 – Fall 2007

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Society

Business

Technology

# Overriding Class Objective

*Develop or enhance the leadership skills for dealing with:*

- Complex Systems → Technical Skills
- Complex Markets → Business Skills
- Complex Organizations → People Skills

# Overriding Class Objective

*What skills do you need to be an effective transformational leader – that is – a leader that is comfortable dealing with disruptive innovations and complex systems, markets and organizations?*

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*What skills do you need to be an effective transformational leader – that is – a leader that is comfortable dealing with disruptive innovations and complex systems, markets and organizations?*

- Problem solving
- Analysis
- Creativity
- Design
- Development
- Holistic thinking
- . . .

## Class Project

*Organize into groups, of 3, 2 or 1 (2 or 3 preferred).*

*Each group will select an industry with which they are familiar, identify a major new technology that can significantly transform a businesses within that industry, and put together a plan for how to transform such a business, including technical and market strategies, organization and culture.*

*October 18 – Submit 1 – 2 page draft overview of project, which we will review and discuss in class.*

*November 29, December 6: Submit 4 – 5 page written strategy and plans document, including key issues and ways of addressing them. Each group will give 15 – 20 minutes class presentation.*

By October 18 – Submit 1 -2 page

- Analysis
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- Design
- Development
- Holistic thinking
- . . .

# Class Overview

- Technology-based innovation and business survival
- Formulating a market strategy around a new, disruptive, complex technology
- Executing a multi-faceted strategy in the marketplace
- Organizational and cultural Issues
- Class project presentation and discussion

# IBM at the Top - 1984

Image removed due to copyright restrictions.  
Cover of Fortune Magazine; "America's Most Admired Corporations."

# The Fall – Reversal of Fortune

Image removed due to copyright restrictions.

Cover of Fortune Magazine; “America’s Most Admired Corporations.”

**1984**

Image removed due to copyright restrictions.

Cover of Fortune Magazine; “Dinosaurs? The decline of these three giants is the biggest what-went-wrong story in U.S. business history.”

**1992**

# The Re-Birth: New Technology-based Market Initiatives

- Internet, Web and e-business

plus

- Supercomputing
- Linux and Open Source
- Social Networks/Web 2.0 and Virtual Worlds
- On Demand, Business Architecture
- Services and Services Sciences

# The Re-Birth: The Internet, Web and e-business...



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# Formulating a Disruptive, Technology-based Strategy

- Sustained vs disruptive innovations
- Different kinds of disruptive innovations
- Strategy formulation for disruptive innovations
- The Internet as a major disruptive innovation



# Two Major Kinds of Innovation

## ■ Sustained

- Better products that can be sold for more money to demanding customers
- Performance improvements in attributes most valued by most demanding customers
- Incremental or breakthrough improvements
- Incumbents almost always prevail

## ■ Disruptive

- Simpler, more convenient, less expensive “good enough” products that appeal to new or less-demanding customers
- Once disruptive products or services gain a market foothold, the sustained, improvement cycle begins
- Disruptive products and services typically crush the incumbents over time and replace them as leaders

## *The Innovators Solution – Chapter 2*

# Disruptive Innovation

... *become the Disruptor rather than the Disruptee*



# What must a business do in order to not just survive but thrive when facing a disruptive innovation?

Text removed due to copyright restrictions.

Quote from book below, advising businesses to become the disruptor, rather than the disruptee, of current business and technology status quo. To do so successfully, one must tailor each decision and process in the business to fit the disruptive circumstances.

*The Innovator's Solution: Creating and Sustaining Successful Growth – Clay Christensen and Michael Raynor*

# Different kinds of disruptive innovations

- Low end disruption
- New market disruption
- Disruption to incumbents

# Different kinds of disruptive innovations

## ■ Low end disruption

- Are there customers at the low end of the market who would be happy to purchase a “good enough” product with less performance at a lower price?
- Can you create a business model to earn attractive profits at the discounts required to win the business of the low end customers?

## ■ New market disruption

- Is there a large population of people who have not had the money, equipment or skill to use the existing products?
- Do customers need to go to an inconvenient, centralized location or deal with an unresponsive central group to use the product or service?

## ■ Disruption to incumbents

- Is the innovation disruptive to all or the major incumbents in the industry, or can it be?
- Could innovation be sustaining to one or more significant major incumbents?

# Another view of disruptive innovations

## *Products/Components vs Systems/Architecture*

### ■ Components

- Continuous improvements to existing components and their underlying technologies – increased performance, higher quality, lower costs, . . .
- New components, usually based on new technologies – e.g, analog to digital

### ■ Architecture and Design

- Stable, dominant architecture or design
- New architectures and design, based on new ways of framing the product or system and different ways of linking the various components

*Architectural Innovation – Henderson and Clark*

# Products and Systems: Framework for Innovation

- **Incremental**
  - Existing components and technologies
  - Existing architecture and designs
  
- **Modular**
  - New components and technologies
  - Existing architecture and designs
  
- **Architectural**
  - Existing components and technologies
  - New architectures and designs
  
- **Radical**
  - New components and technologies
  - New architectures and designs

*Architectural Innovation – Henderson and Clark*

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- **Radical – Disruptive, favors new entrants**
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# Strategy Formulation – Management and Processes

## ■ Deliberate

- “Top Down”, hierarchic management style
- “Inside out”, mostly developed within business, self contained, proprietary
- Rigorous analysis of markets, customers, competitors, technologies, . . .
- Problems to be solved and approaches taken are well understood

## ■ Emergent

- “Bottom Up”, “organic”, self-organizing management style
- “Outside In”, mostly developed in the marketplace, with partners, open
- Future is hard to read, not clear how things will develop
- Usually applicable in early phases of new disruptive innovation

## *The Innovators Solution – Chapter 8*

# Strategy Formulation – Major Risk Factors

## Do not:

- Apply “deliberate strategy” management style, funding and organization to an “emergent strategy”
  - “Too Early”
  - Overly aggressive business model - too much money spent too quickly
  - Unrealistic expectations will result in disappointment and loss of patience
  - Management style too rigid based on how little is known
- Continue to apply “emergent” management style, funding and organization even when strategy becomes clear
  - “Too Late”
  - Inadequate funding for switching from “research” to “production” mode
  - “Research” or “early “stage” oriented management team not suitable to next stages involving scale-up, market presence and customer support
  - Will likely be out-marketed by more aggressive competitors

How do you decide that it is now time to begin formulating a disruptive, technology-based strategy

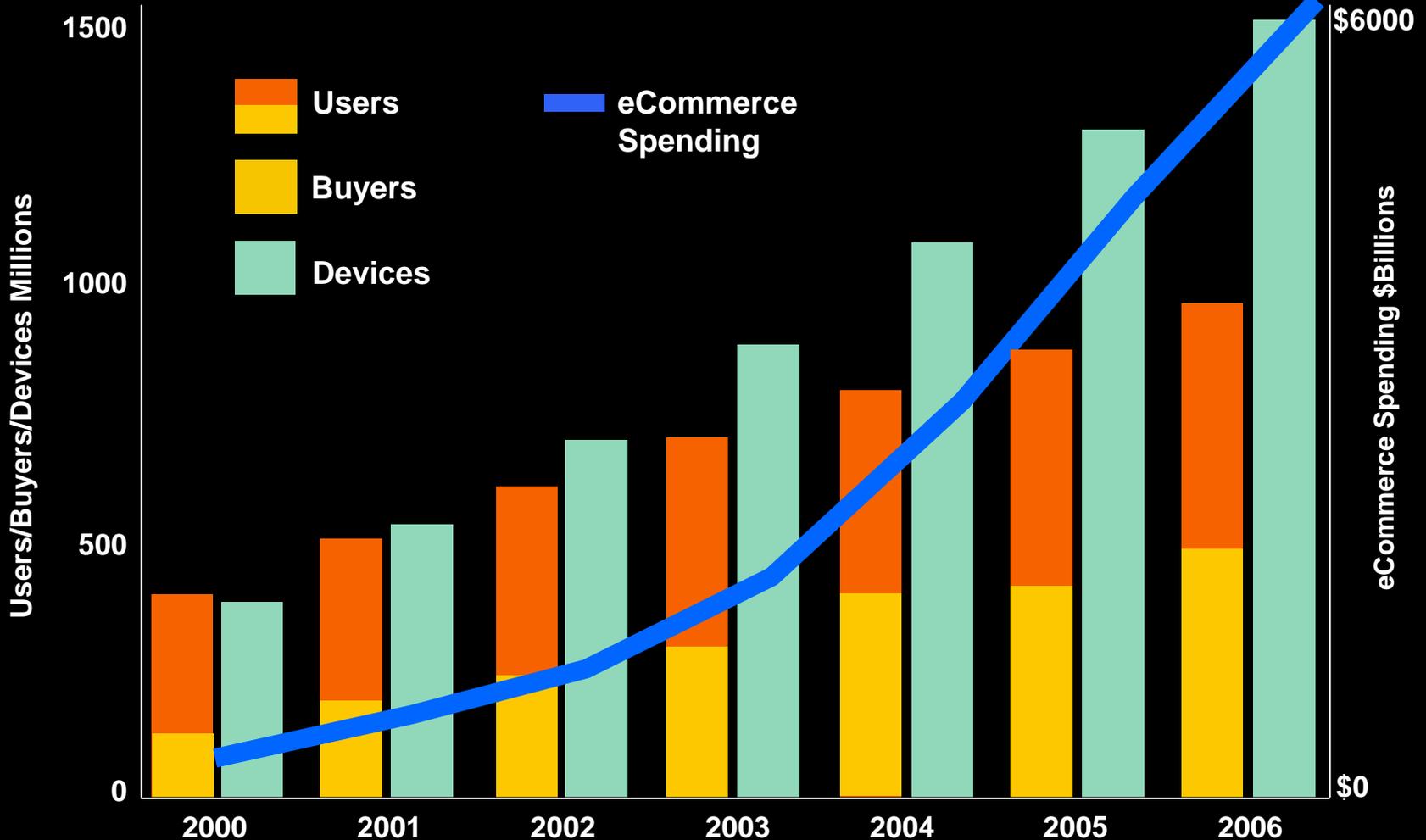
## *Key Market Factors*

- How advanced is the technology?
- What is the marketplace saying about it?
- What are competitors doing?
- How are your clients reacting?

# The Internet - mid '90's



# The Internet and World Wide Web



# Formulating an Internet-based Strategy

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- How are your clients reacting?
  - Clients were beginning to experiment with the Web – both putting up web sites, front ends to their existing systems, and developing brand new applications, ...

# The Internet, Web and e-business...





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