MGMT 6621

- ***Operations Strategy***
- ***Professor: Glen Schmidt***
- **Class #1: *The Dynamics of Innovation***
  - Discuss historical patterns of innovations.
  - Review the course syllabus and expectations.

Why has Apple been so successful?

http://money.cnn.com/2008/11/09/technology/cook_apple.fortune/index.htm

The genius behind [Apple's] Steve [Jobs]

Could operations whiz Tim Cook run the company someday?

By Adam Lashinsky, senior writer

Last Updated: November 10, 2008: 10:25 AM ET

Almost from the time he showed up at Apple, Cook knew he had to pull the company out of manufacturing. He closed factories and warehouses around the world and instead established relationships with contract manufacturers. As a result, Apple's inventory, measured by the amount of time it sat on the company's balance sheet, quickly fell from months to days. Inventory, Cook has said, is "fundamentally evil," and he has been known to observe that it declines in value by 1% to 2% a week in normal times, faster in tough times like the present.

"You kind of want to manage it like you're in the dairy business," he has said. "If it gets past its freshness date, you have a problem." This logistical discipline has given Apple inventory management comparable with Dell's, then as now the gold standard for computer-manufacturing efficiency.

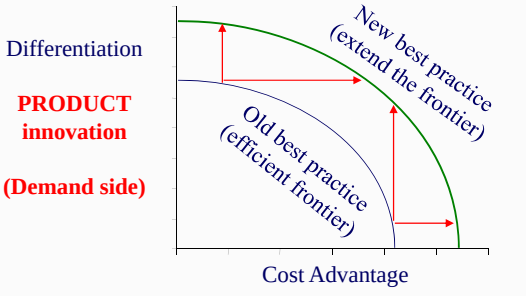
We know what you're thinking: Why dwell on the backroom aspects of such a sexy company? Because that seemingly dull stuff is as important to Apple's success as the gorgeous designs and ultracool marketing. Forecasting demand, for example, and executing against that forecast, are critical in the computer industry, especially when new products quickly cannibalize the old.

Consider what befell Palm (PALM) in 2001. The company torpedoed an entire quarter's performance by announcing a new version of its mainstay PDA - which helped dry up sales of the old version - and then failing to deliver the new product when the company said it would.

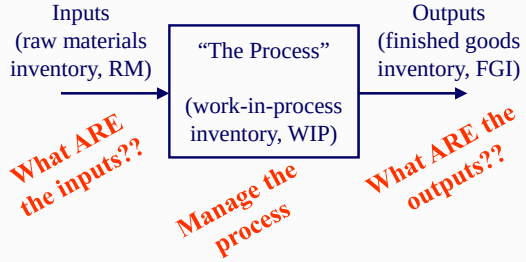
Those kinds of flubs just don't happen at Apple, which routinely pulls off the miraculous: unveiling revolutionary products that have been kept completely secret until they magically appear in stores all over the world. The iPhone, the iPod, any number of iMacs and MacBooks - the consistently seamless orchestration of Apple's product introductions and delivery is nothing short of remarkable.

Why has Amazon.com been so successful?

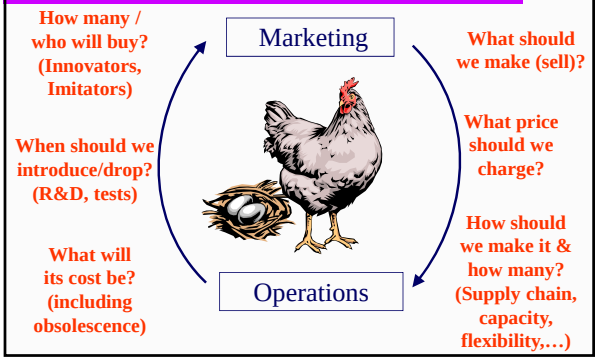
Differentiation and/or Cost Reduction



Operations Management: Transformation of Inputs into Outputs



A Joint Operations & Marketing Task



Was it predictable?

Management Scientists:

- **Describe past "weather" patterns**
- **Predict the "weather" of the future**
- **Change the weather of the future to our benefit (e.g., reverse "global warming?")**

Managing in a world of uncertainty

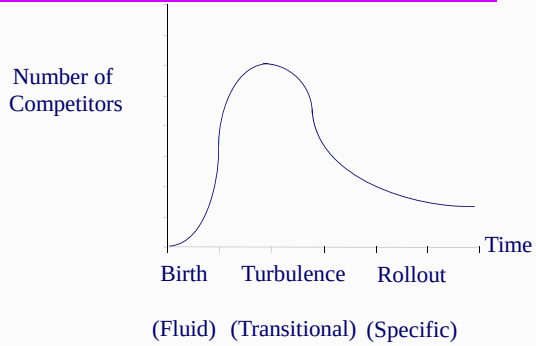
"Last night Charlie Rose interviewed Lee Raymond, Chairman & CEO of Exxon Mobile - a brilliant and practical man who calls it like he sees it. He said that, in laying strategies for the future, they used to rely on elaborately calculated predictions of the price of oil. Eventually, they faced up to the fact that they were almost always wrong about the price projected. So they said, the real question is not what to do if we know what the price will be. We should be concentrating on what we should be doing when we don't know the price."

The Worden Report, Dec. 8, 2004

Intel's 2001 Annual Report

1. ***Birth****…enabling technologies emerge… revolutionary… pioneers crowd into the field… extraordinary profits… mania*
2. ***Turbulence…*** *Overinvestment… overcapacity… burst the bubble… slowing economy… stock… crash… companies fold… may declare the technology dead.*
3. ***Build-out …*** *Real value… full implementation… penetrates the economy… industries organize around it… businesses adjust to take full advantage… sustained investment… robust returns… driving engine of the economy.*

The Evolution of a Drastic Innovation



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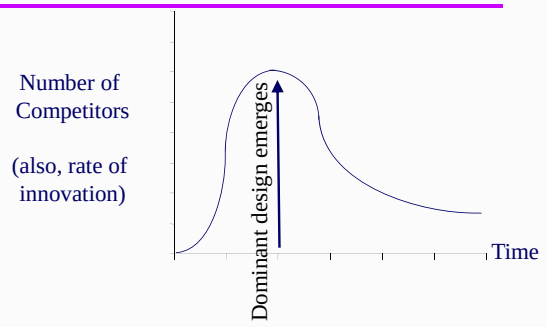
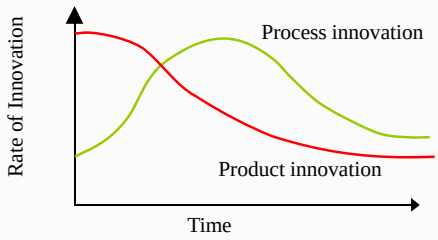
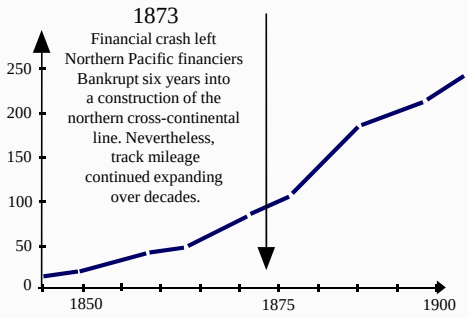


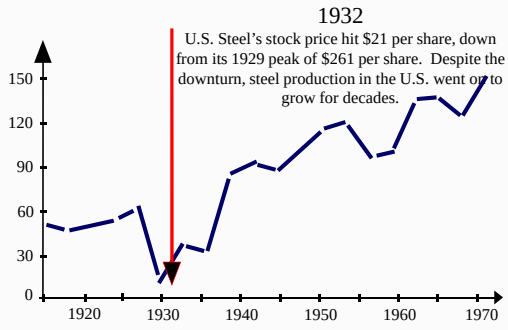
Product Innovation Gives Way to Process



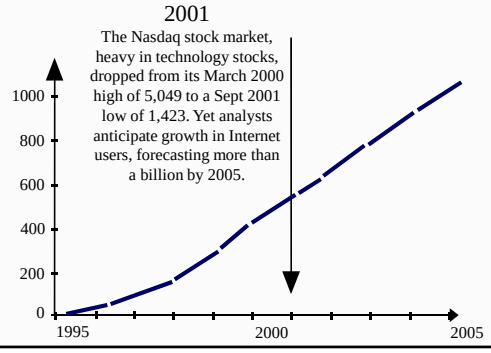
U.S. railroad track miles (thousands)



U.S. production of steel (million tons)



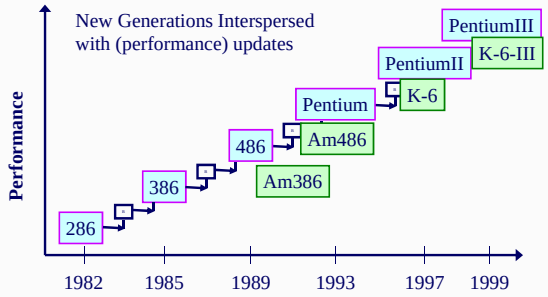
Worldwide internet users (millions)



The Process of Innovation (IDEO)

2a – The Learning Curve: A Driver of Innovation in High-Tech

Intel: Historically a step ahead



If GM had kept up with technology like the computer industry has, cars would cost $25 & get 1000 mpg.

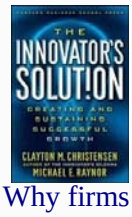
- A retort to Bill Gates, who reportedly made the above comment at COMDEX:
- Yes, but would you want your car to crash twice a day?
- Every time they repainted the roads, you would have to get a new car.
- Occasionally your car would die on the freeway for no reason. You would just accept this, restart, and drive on.
- Occasionally, you would have to re-install the engine. For some strange reason, you would accept this too.
- The airbag system would say “are you sure?” before going off.

A (serious) response to Bill Gates:

2b – Process Innovation: The Toyota Production System

3a– Encroachment Strategies

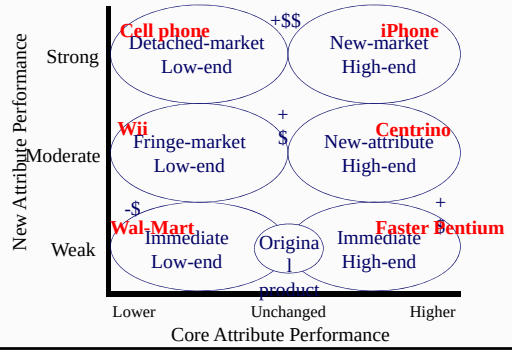
Case: *Seagate-Quantum: Encroachment Strategies*



Why firms fail

Why firms succeed

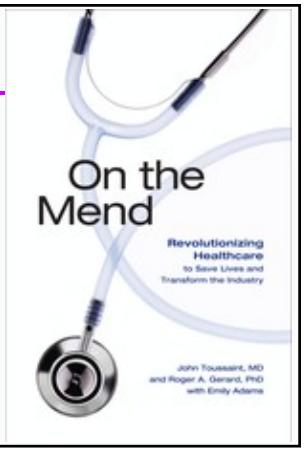
2 Main Encroachment Types, 3 sub-types of each



3b – Competing Through Mass Customization

Case: *National Bicycle Co.*

4a – Lean Op's



4b – Strategic Outsourcing of Design and Manufacturing

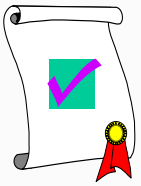
5a – Revenue Management

SkyJet

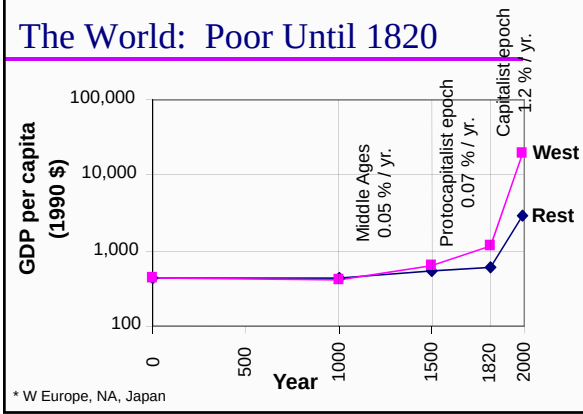
5b – Adopting Risk as a Strategy

Grading Policy

- 40 points possible from 3 assignments
- 35 possible from final exam
- 25 possible from participation
  - Quality in sufficient quantity ("mere attendance"<<100%)

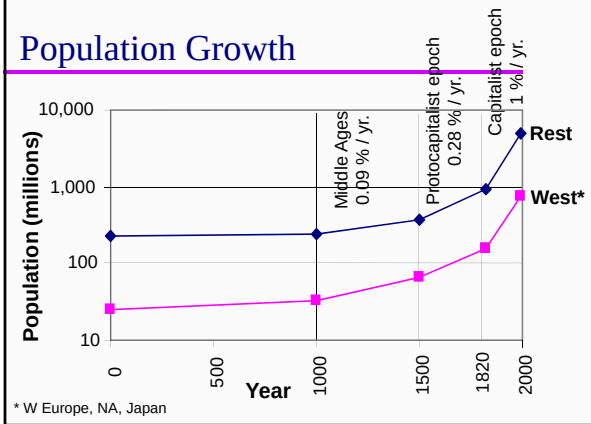


The World: Poor Until 1820



* W Europe, NA, Japan

Population Growth



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What was the Most Influential Innovation of the Past Millennium (1000 - 2000)?

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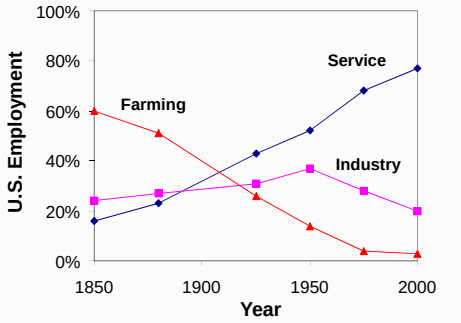
- Peter Drucker (U.S. mgt guru): Printing press.
- Lee Kuan Yew (Sr. Minister, Singapore): Air conditioning.
- Gary Becker (U.S. economist): Competition (e.g., democracy).
- Philip Dimitrov (former Prime Minister, Bulgaria): Tolerance.
- Hans Tietmeyer (Pres., Bundesbank): Liberty, nondiscrimination.
- Sagako Ogata (U.N. commissioner): Rights of refugees.
- Pascal Salin (French economist): Individual liberties.
- Hugh Thomas (English historian): Printing press.
- Robert Thurman (U.S. historian): Peaceful coexistence, as practiced by Tibetan monasticism.

And the Winner is:

- **The factory system of production**.
  - "… led to an unprecedented rise in wages and living standards. Factory-based mass production also assured that inventions such as telephones, radios, automobiles and televisions could be made at prices affordable to average buyers… 'It was a momentous transformation of society.'"

Progression from Farming to Industry to Service



The Economist, Feb 20, 1993, p. 63