Wired for Innovation: How IT is Reshaping the Economy

Erik Brynjolfsson
and Adam Saunders
Agenda

1. Technology, Innovation and Productivity in the Information Age
2. Measuring the Information Economy
3. IT’s Contributions to Economic Growth
4. Business Practices that Enhance Productivity
5. Organizational Capital
6. Incentives for Innovation in the Information Economy
7. Consumer Surplus
8. Frontier Research Opportunities
Where Does Productivity Growth Come From?

- Not working harder
- Not using more capital
- Not using more resources
- Productivity growth comes from working smarter:
  - New technologies
  - New techniques

IT and Productivity: The Data Speak

Computers are associated with greater productivity...

...But what explains the substantial variation across firms?
What are the key assets at Dell?

Computerization > Computers

- IT Capital (10%)
- Technological Complements (15%)
- Organizational Complements (75%)

Intangible Assets are more important in the Information Economy
MIT Analysis of Organizational Assets

Sample: 1167 large firms over 10 years
(10,473 observations)

- Four Principal Types of Data
  - Revenues and Market Value from S&P’s Compustat II
  - Computer Capital from Computer Intelligence
  - Ordinary Capital, Labor, other Assets, R&D from S&P’s Compustat
  - Organizational Assets from surveys we conducted

- Part of 5 year, $5 million project at MIT
  - Support from the U.S. National Science Foundation
  - Additional support from BT, CSK and Cisco Systems via the Center for Digital Business

Business Performance depends on Both IT and “Organizational Capital”

1. The “Digital Organization”
   A distinct corporate culture and organizational practices are found at most (but not all) heavy users of computers and Internet

2. Higher Productivity and Higher Market Value
   Firms that adopt the Digital Organization have higher performance

3. IT and Digital Organization are Complements
   Firms that adopt the Digital Organization and simultaneously invest more in IT have disproportionately higher performance
Interactions Between IT and Digital Organization

Market value

Digital org.

IT Capital

High IT and Digital Org.

Market value

Digital org.

IT Capital
Seven Practices of Digital Organizations

1. Move from analog to digital business processes
2. Distribute decision-rights
3. Foster open information access
4. Link incentives to performance
5. Maintain focus and communicate goals
6. Hire the best people
7. Invest in human capital

If these practices increase productivity, why haven’t all firms adopted them?
Summary: The Digital Organization

1. IT: the catalyst for productivity surge...
2. …but organizational capital is the bulk of the iceberg
   ● Payoff only when both investments are made
3. Seven practices of the “Digital Organization”
4. These practices form a Coherent System
To learn more about this research, please visit my website:
http://digital.mit.edu/erik
To Order the book, please visit:
http://www.amazon.com/