WIRED FOR INNOVATION
HOW IT IS RESHAPING THE ECONOMY
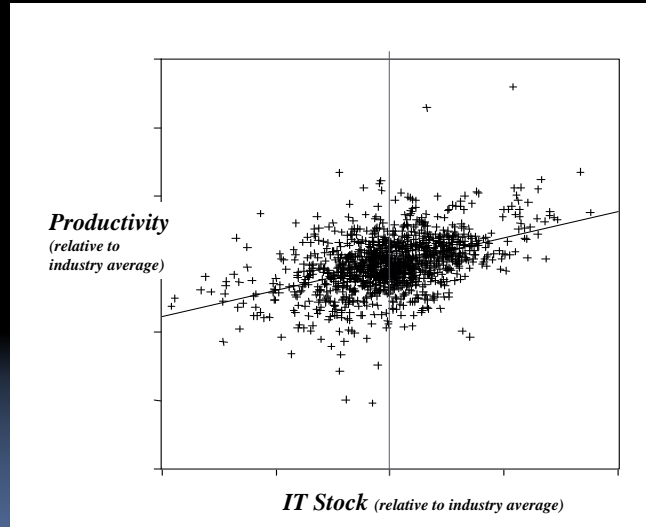
Erik Brynjolfsson
MIT Sloan School and MIT Center for Digital Business
http://digital.mit.edu/erik

"The Great Restructuring"

IT and Productivity: The Data Speak

Productivity
(relative to industry average)

IT Stock *(relative to industry average)*

(Source: Brynjolfsson and Hitt,)

3

Is the spread between leaders and laggards growing or shrinking your industry?

Corporate Performance Spread has Grown

Performance Spread: Gross Profit Margin

High IT Industries

Low IT Industries
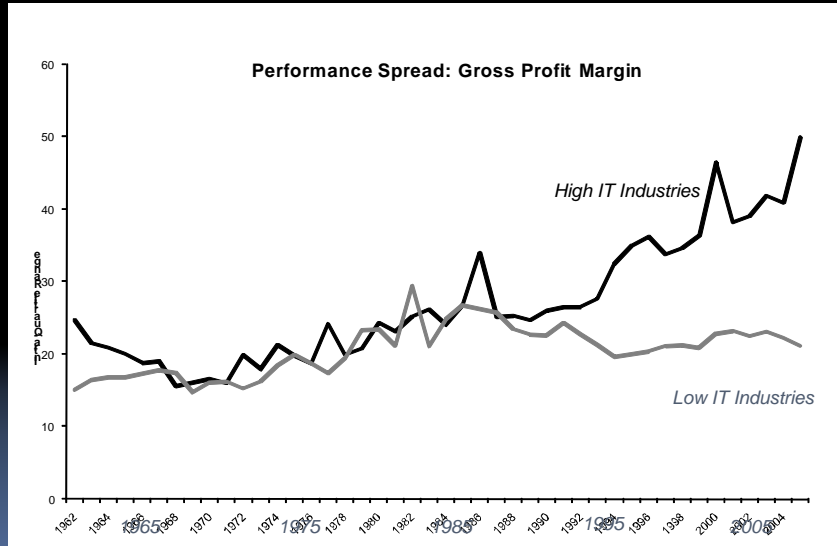
IT Enables Four Drivers of Innovation

Measure

Experiment

Share

Replicate

Measure

7

New Tools Beget Revolutions

"Nanodata"

- Clickstream/Page views/Web transactions
- Mobile phone/GPS/Location data
- Email messages
- RFID
- Web links/Blog references/SSRN/Facebook
- ERP/CRM/SCM transactions
- Real-time machinery diagnostics/engines/equipment
- Google/Bing/Yahoo Searches
- Bar code scanner data
- Stock market transactions
- Twitter feeds
- Wikipedia updates
- Etc….

9

The Information Gold Mine

➤ Digital Information is Doubling Every 1.2 years

➤ The size of the largest data warehouses is tripling every two years

Exceeds processor growth predicted by Moore's law

10

Data vs. HiPPOs

Truck Routing

Wine Chemistry

Housing Sales

Experiment

Experimentation at Harrah's

Gary Loveman
- Zero executive experience
- Zero background in Casinos
- But, an MIT PhD who knows how to make numbers talk

Results
- Transformed Harrah's from second tier to number one gaming company in the world
- Completed a $30.7 Billion LBO
- Introduced a culture of pervasive field experimentation
  - "There are two ways to get fired from Harrah's…"

"We have come out on top in the casino wars by mining our customer data deeply, running marketing experiments and using the results to develop and implement finely tuned marketing and services strategies that keep our customers coming back."

- -- Gary Loveman, CEO, Harrah's

Share

Cisco's Mac Wiki

- *Over 10,000 Macintosh users at Cisco, but no central IS support*

- *A few users established a wiki, where users could post tips, tricks, files, links and other content*

    - *Example: tip for using the Linux printers which were ubiquitous at Cisco*

- *Many users all over world got up to speed entirely via Mac Wiki*

- *Thousands of small ideas from hundreds of users*

Replicate

What Does IT Do?

1. Replicate Bits

Hello, Erik Brynjolfsson. We have recommendations for you. (Not Erik?)

wishlist Sweepstakes Week 2
Dream Kitchen ▸Learn more

Erik's Amazon.com | Today's Deals | Gifts & Wish Lists | Gift Cards

Your Account | Help

Shop All Departments   Search Books   GO   Cart   Your Lists

Books   Advanced Search   Browse Subjects   New Releases   Bestsellers   The New York Times® Bestsellers   Libros En Español   Bargain Books   Textbooks

Instant Order Update for Erik Brynjolfsson. You purchased this item on August 14, 2009. View this order.

Prime
Member: Erik Brynjolfsson

Erik Brynjolfsson: This item is eligible for Amazon Prime. Click here to turn on 1-Click and make Prime even better for you.
(With 1-Click enabled, you can always use the regular shopping cart as well.)

Click to LOOK INSIDE!

Wired for Innovation: How Information Technology is Reshaping the Economy (Hardcover)
by Erik Brynjolfsson (Author), Adam Saunders (Author)
★★★★★ (1 customer review)

List Price: $18.95
Price: $12.89 & eligible for free shipping with **Amazon Prime**
You Save: $6.06 (32%)

In Stock.
Ships from and sold by **Amazon.com**. Gift-wrap available.

9 new from $12.22   2 used from $13.24

Share your own customer images
Search inside this book

Quantity: 1
Add to Shopping Cart
or
Sign in to turn on 1-Click ordering.

Add to Wish List
Add to Shopping List

More Buying Choices
11 used & new from $12.22

Share with Friends

Frequently Bought Together
Customers buy this book with IT Savvy: What Top Executives Must Know to Go from Pain to Gain by Peter Weill

Price For Both: $32.66
Add both to Cart   Add both to Wish List
Show availability and shipping details

Customers Who Bought This Item Also Bought   Page 1 of 8
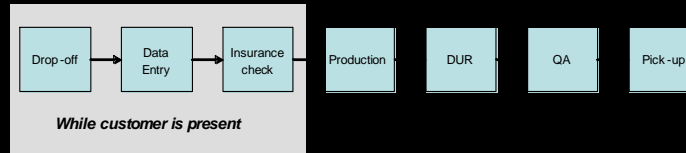

What Does IT Do?

1. *Replicate Bits*

2. *Replicate Processes*

20

CVS: Scale without Mass

New fulfillment process:

```
┌─────────────────────────────────────────┐
│  Drop-off → Data → Insurance    Production   DUR   QA   Pick-up
│            Entry    check
│        While customer is present
└─────────────────────────────────────────┘
```

- Short-term results: customer satisfaction scores
  - Wait time satisfaction: 76 → 86
  - Overall pharmacy satisfaction: 86 → 91
- New process embedded in Enterprise IT (EIT)
  - 100% compliance
- Rapid roll-out to over 4000 retail pharmacies

Cloud Scalability

Amazon Customer: Animoto
http://blog.animoto.com/

On April 14th 2008 Animoto provided a new plugin for facebook …

	Mon Apr 14th	Tue	Wed	Thu	Fri
Animoto Members	25,000	50,000			250,000
ec2 Server Instances	100	400	900	2800	3400

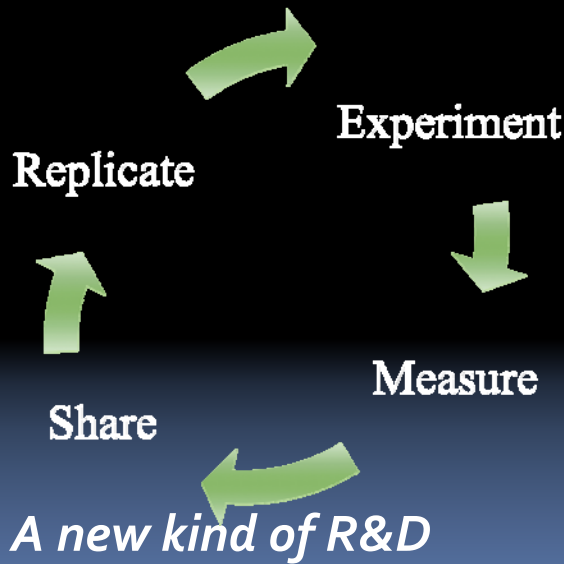## IT Reduces the Costs of Measurement, Experimentation, Sharing and Replication

---
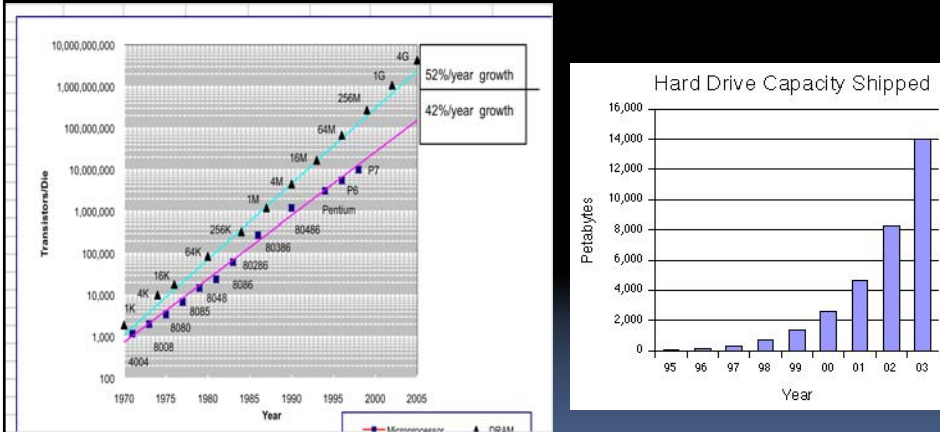
Synergies Amplify The Benefits

Replicate → Experiment → Measure → Share

A new kind of R&D

Four Steps to the Future of Business

1. Design and field numerous *experiments*

2. *Measure* results in great detail

3. *Share* findings and identify winners

4. Rapidly and cheaply *replicate* winners

Digital Darwinism:

Accelerating Discovery and Competition 25

Implications for Managers

1. Recognize the heightened value of innovation
   - Adjust recruiting, retention and incentives systems
   - Innovations can be big or small
   - Change the culture:
     - From analyze and plan to experiment and scale
2. Invest in technologies and platforms that encourage, aggregate, codify and/or propagate innovations
   - ERP/SCM/CRM etc.
   - Cloud computing, Enterprise-strength Web 2.0 and Social networking
3. Apply the four step process
   - Experiment, Measure, Share and Replicate

26

To learn more about my research,
please visit my website:
http://digital.mit.edu/erik

MIT Center for Digital Business

Mission Statement

To be the leading academic source of innovation in management theory and practice for digital business

Key Deliverables

Research
– Focused projects with faculty-sponsor partnerships
– Student projects within the MBA curriculum
– Over 100 Working papers
Networking Events
– Annual Conference and CIO Summit
– Research Workshops
– Webcast Seminars
MBA Recruiting
Web Access
– Private Website with access to research

Research Groups

• *Digital Marketing Strategy*
• *Digital Productivity*
• *Digital Health*
• *Digital Services*

Research Sponsors
Amazon
BTMU
BT
Cisco
CSK
General Motors
Google
Hewlett-Packard
Intel
McKinsey
SAP
SAS
Suruga Bank

The Center for Digital Business is the largest industry-sponsored research program at the MIT Sloan School. To learn about the Center, visit:

http://digital.mit.edu