Advanced Retail Strategy

Session 2: May 30th, 2019

Objectives

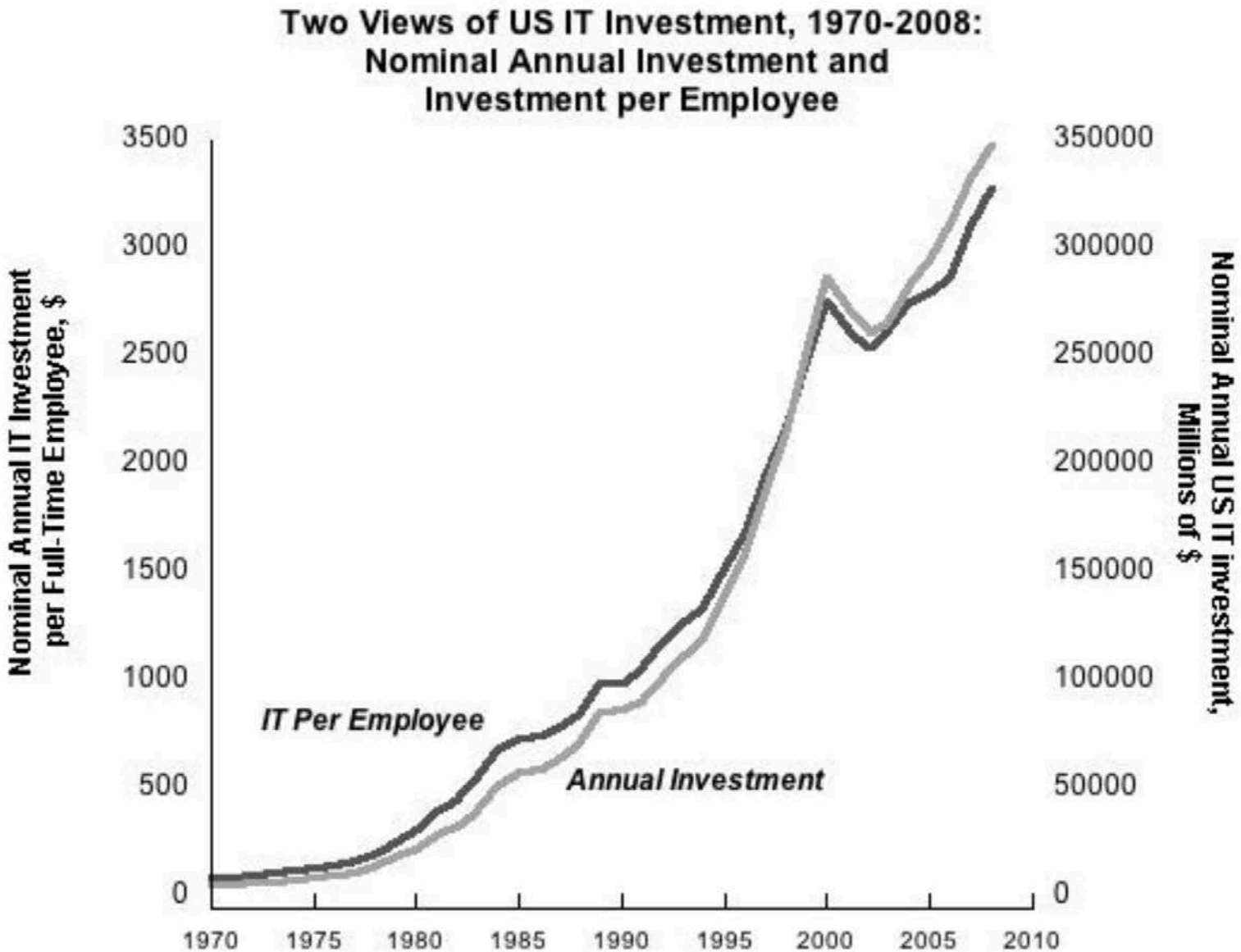
No matter what your functional area is as an executive you have to speak the new language of retail, and increasingly that language is technical. IT isn't just a CTO/CIO function anymore.

In this session we're going to explore:

1) What factors predict success in technology investment
2) How to think about managing your technology investment portfolio
3) What you can do to help your company be successful in this area regardless of your role.

To achieve this we're going to explore work from Sinan Aral and his colleagues as they discuss the concepts of "IT Savvy" and IT Portfolio Management and check them against my experiences in industry so that we have frameworks to deal with new tech as it emerges in each of our areas in an organization.

IT Investment Has Grown Dramatically



The ‘IT Productivity Paradox’

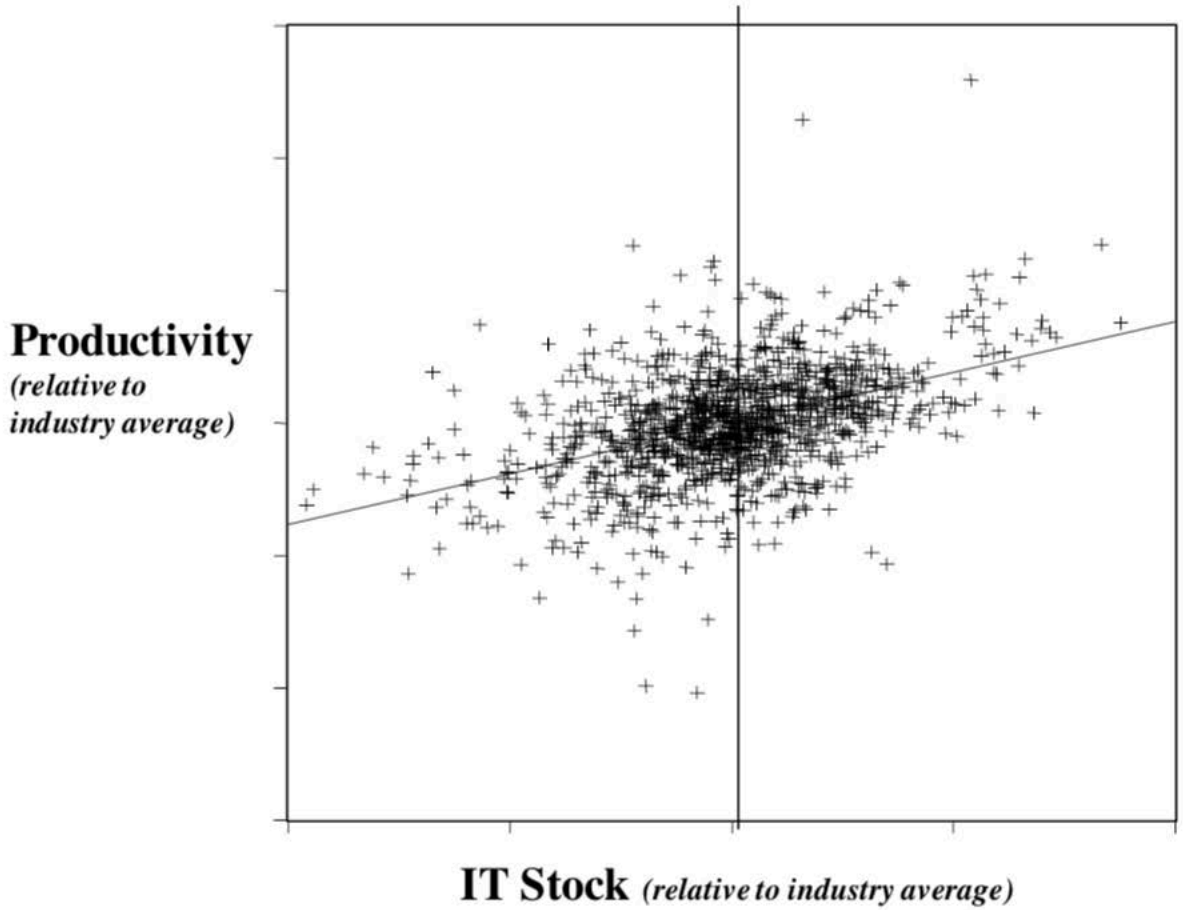
Nobel Prize Winning Economist Robert Solow (1989):

“We see computers everywhere except in the productivity statistics”

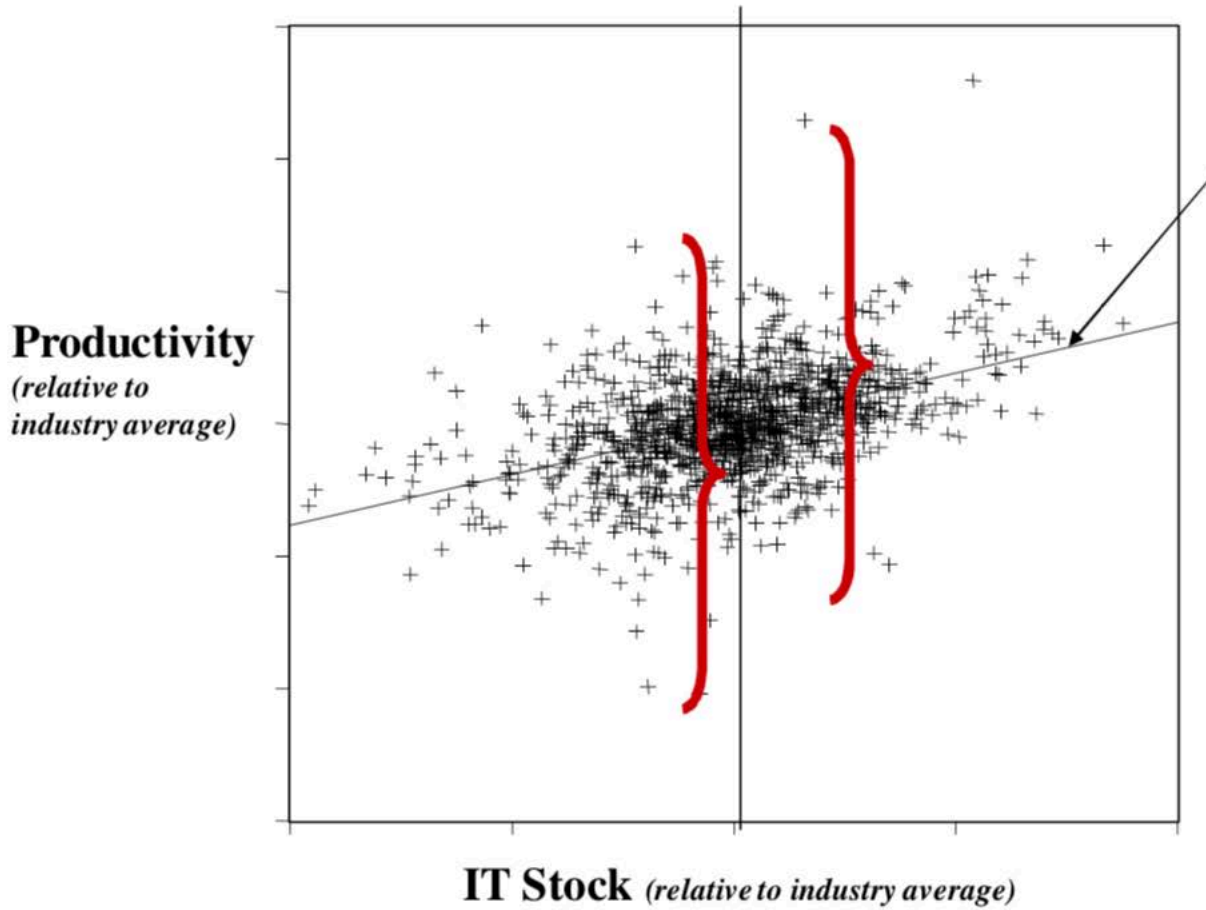
Were managers simply irrational?

Why all the investment in IT if it doesn’t contribute to productivity?

IT is associated with greater productivity...



IT is associated with greater productivity...



β_C:

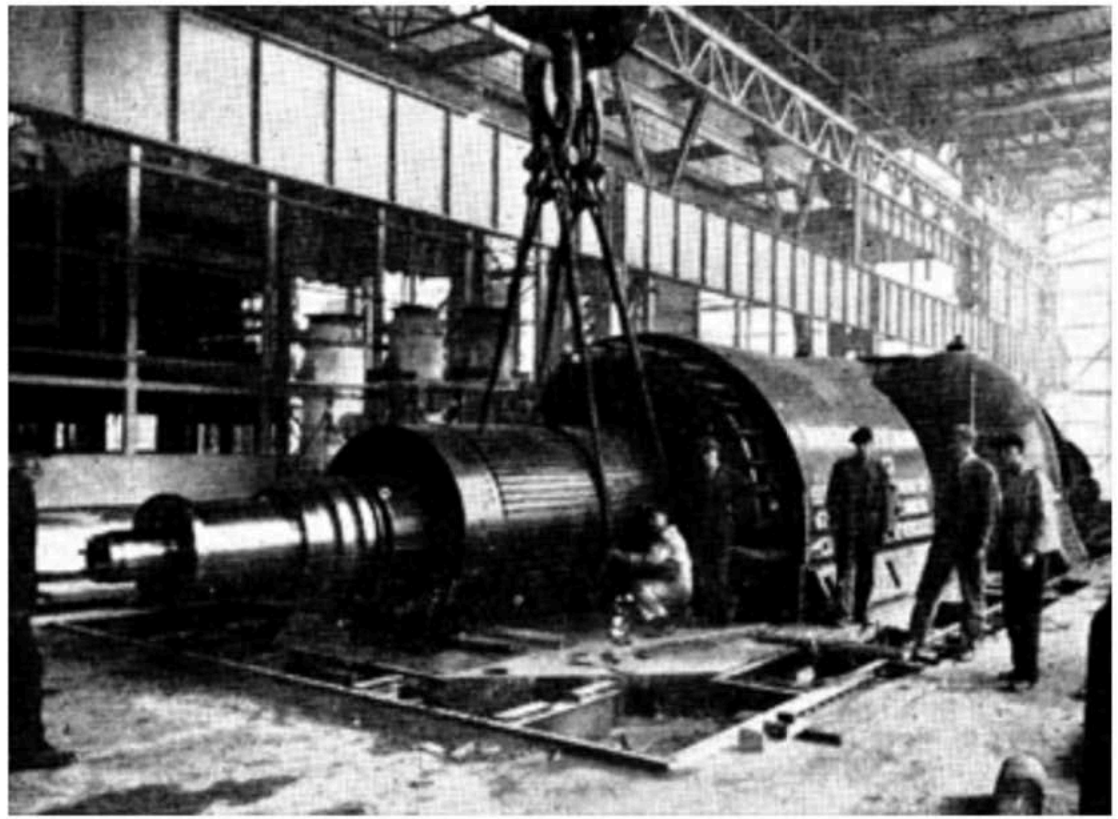
Describes the average relationship between the productivity of firms and their IT Capital Stock

...But what explains the substantial variation across firms?

Conversation I have at every conference:

Attendee: “How do I start investing in Machine Learning?”
Me: “What was the last IT investment your company made, and how did it go?”
Attendee:

"The Dynamo & The Computer"



- Steam Engine, Electric Dynamo and Computers all experienced productivity slowdown first.
- Inserting Electric Dynamo into old plant design created little productivity boost.
- Redesigning factory floors into distributed modules with a focus on workflow dramatically improved productivity.
- Same is true of computers!

<u>What's the history lesson?</u>

- New technology inserted into old organizational procedures produces little payoff. Its how *new tech* enables *new work* that matters.

Paul David, *AER* (1990)

4/5th of IT Investments are "Organizational"

Cost Breakdown for a Typical ERP Installation

	$millions	
Hardware		
Application, Web, and database servers including storage	**$0.8**	= 1/5th
Software		
ERP application Suite License (HR, Financials, Distribution) 1,000 regular trained users, 2,000 casual users	**$3.2**	
Implementation		
9 months to complete pilot site including process engineering, apps configuration, and testing 30 external consultants as $1,200 a day 30 internal staffers at an average salary of $100,000	**$9.3**	= 4/5th
Deployment		
3 external consultants at 9 sites for 3 months 9 internal staffers at each site for 6 month 5 days of user training at an average burdened user salary of $50,000 3 full-time training staff at an average burdened salary of $100,000	**$7.5**	
Start-up Costs Total	**$20.5**	

Source: Gormely et al. (1998)

“The Iceberg”: Computerization > Computers

Information Technology Capital (10%)

Technological Complements (15%)

Organizational Assets (75%)
Including Human Capital,
Business Processes, Culture,

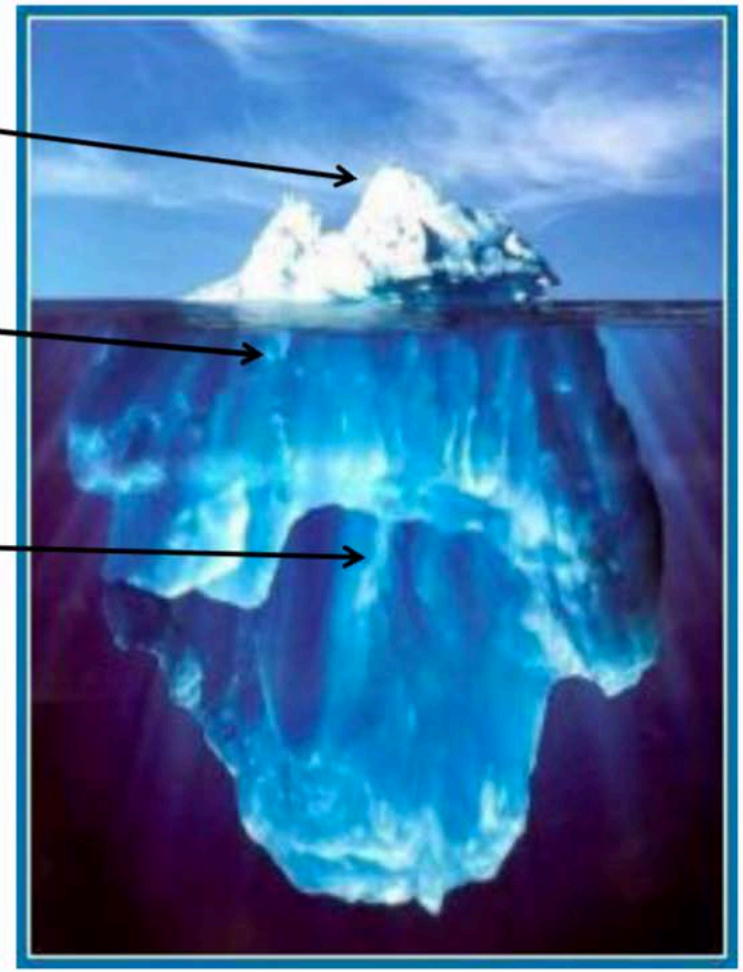
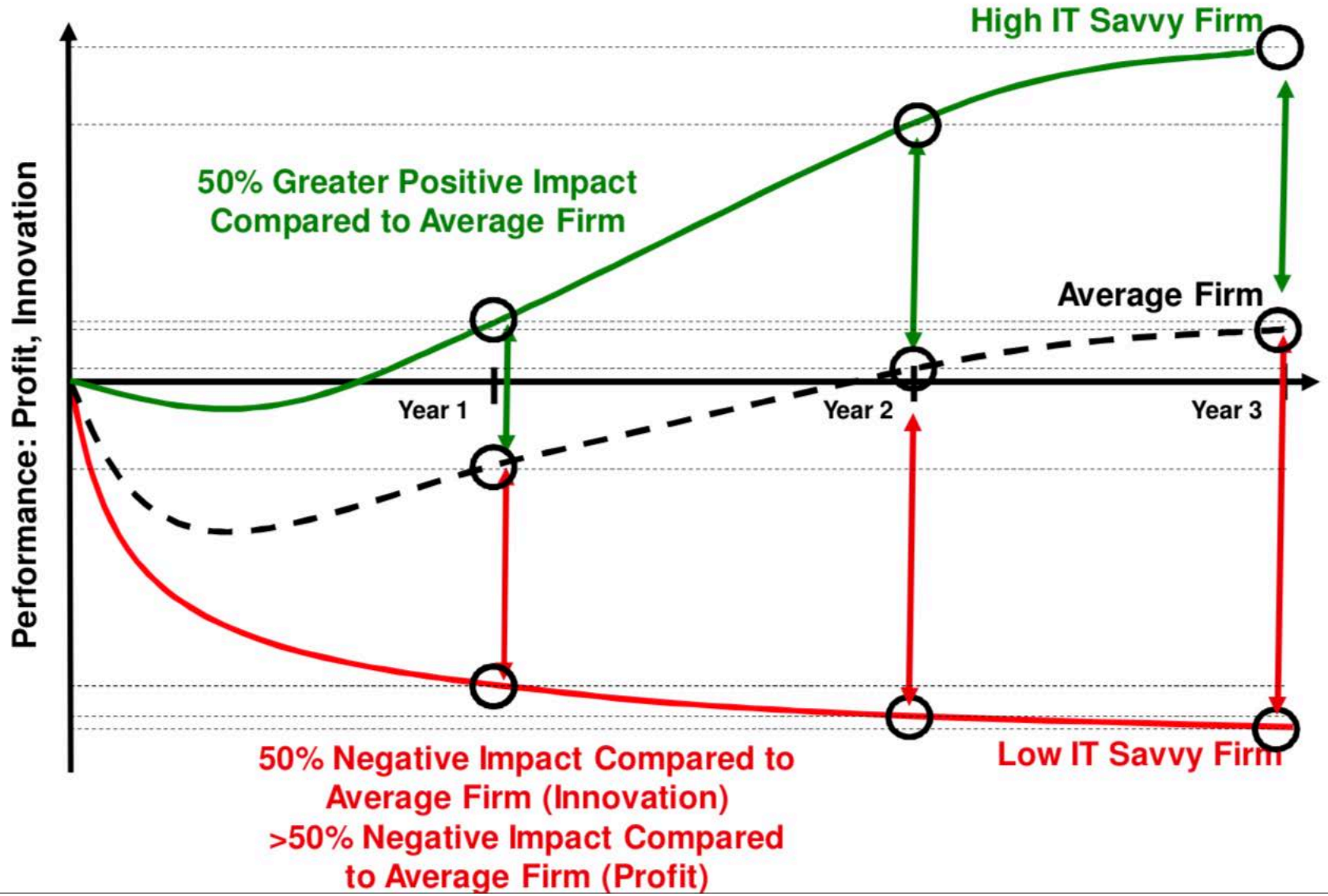


Image by Ralph Clevenger

IT Infrastructure in Focus



Why are FANG so good with IT?
(or the reverse idea: Why has Whole Foods struggled?)

Culture != Ball Pits and Yoga

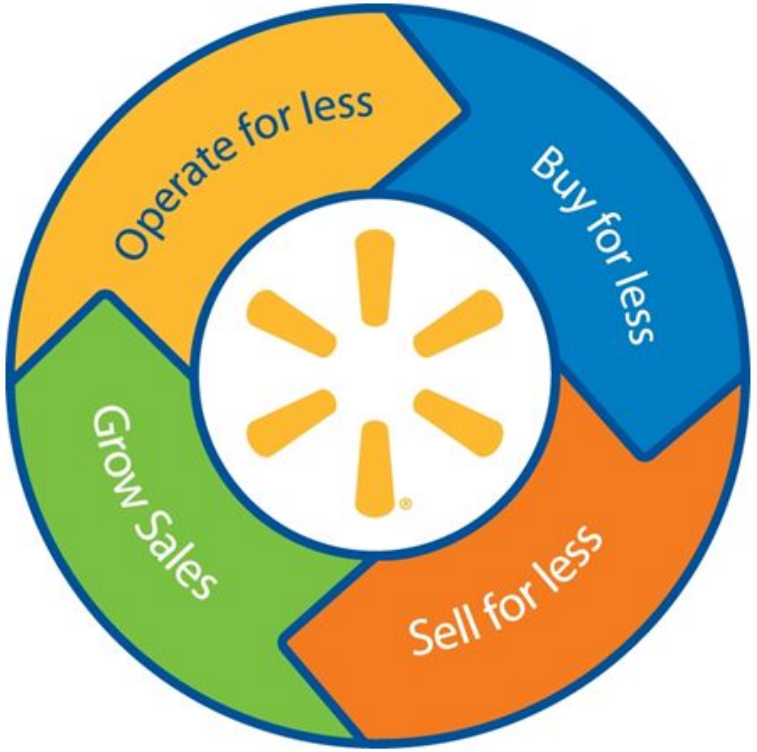
&

"AR vs Org Design"

EDLC -> EDLP

Walmart Business Model

1. EDLC – Operating at the lowest cost
2. EDLP – The lowest prices
3. Broadest Assortment



The Productivity Loop

Walmart

So what elements drive a strong culture?

7 Pillars of Productivity

Process Digitization	Moving from analog to digital processes allows real time tracking of key performance indicators, data mining and optimization.
Open Communications / Information Access	Encouraging widespread and open communication of information enables better managerial decisions, more effective collaboration and discovery of new ideas.
Employee Empowerment	Decentralization of decision rights supports IT business value. Access to information is wasted if employees are not empowered to make decisions.
Merit Based Incentives	Merit based incentives motivate employees to use information and decision making power they are given.
Investing in Corporate Culture	High level norms and goals provide culture cohesion and strategic focus to direct employees toward common goals.
Recruiting the Right People	Analytical skills, computer skills and education complement IT and enable employees to use IT effectively.
Human Capital	Training helps employees operate digital processes, find information, make decisions, cope with exceptions, meet strategic goals etc.

Firm-wide IT Savvy

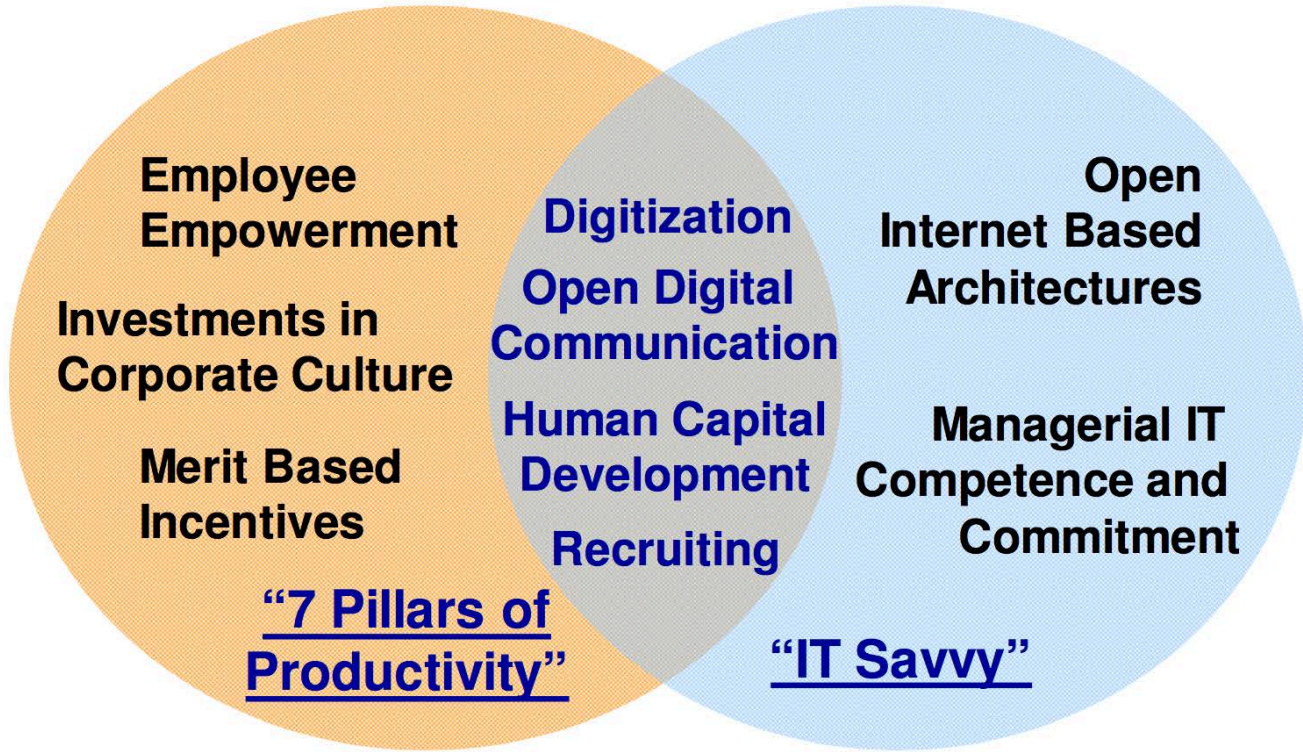
IT for Internal Communication	Intensity of electronic communication media such as email, intranets and wireless devices for internal communications and work practices.	Practices
IT for External Communications	Intensity of electronic communication media such as email, intranets and wireless devices for supplier/customer communications and work practices.	Practices
Internet Use	Internet based architectures (i.e., open) for key functions like sales force management, employee performance measurement, training and post-sales customer support.	Practices
Digital Transactions	Percent digitization of transactions executed with both suppliers and customers.	Practices
Human Capital	Technical and business skills of IT people, IT skills of business people and ability to hire skilled IT people.	Competencies
Management IT Competence	The degree of senior management commitment to IT projects and the degree of business unit involvement in IT decisions.	Competencies

Organizational Capital & Intangible Investments

"Organizational Capital" & "Intangible Investments":

the investments in human capital, business process engineering, skill development, training and organizational design that complement IT investments and help firms derive greater business value per IT dollar.

Two Frameworks for Organizational Capital & Intangible Investments



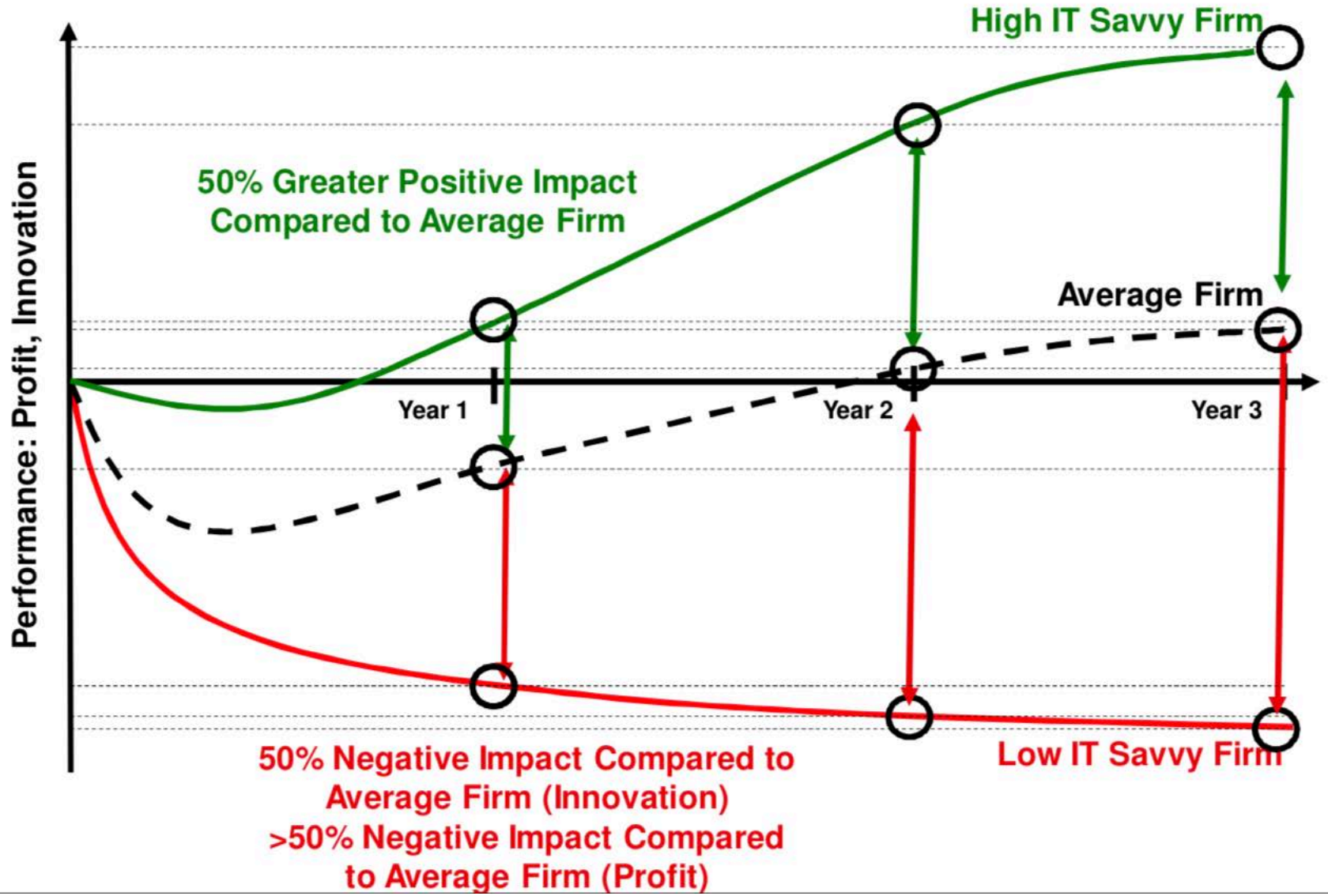
When comparing your company with another…

Common: Let's compare how much they spend vs. us on (IT /Marketing/etc…)

Rare: Let's talk about how their investment strategy differs from ours and what that implies

Ultra-Rare: Let's compare how effective they are with their investments vs. us

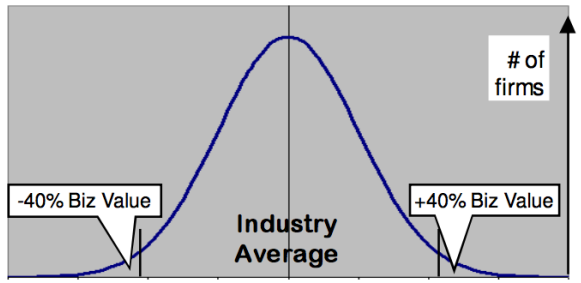
IT Infrastructure in Focus



How do I articulate our IT strategy?
How do I compare it to a competitor?
How do I plan and execute the change?
How do we think about roadmapping this out?

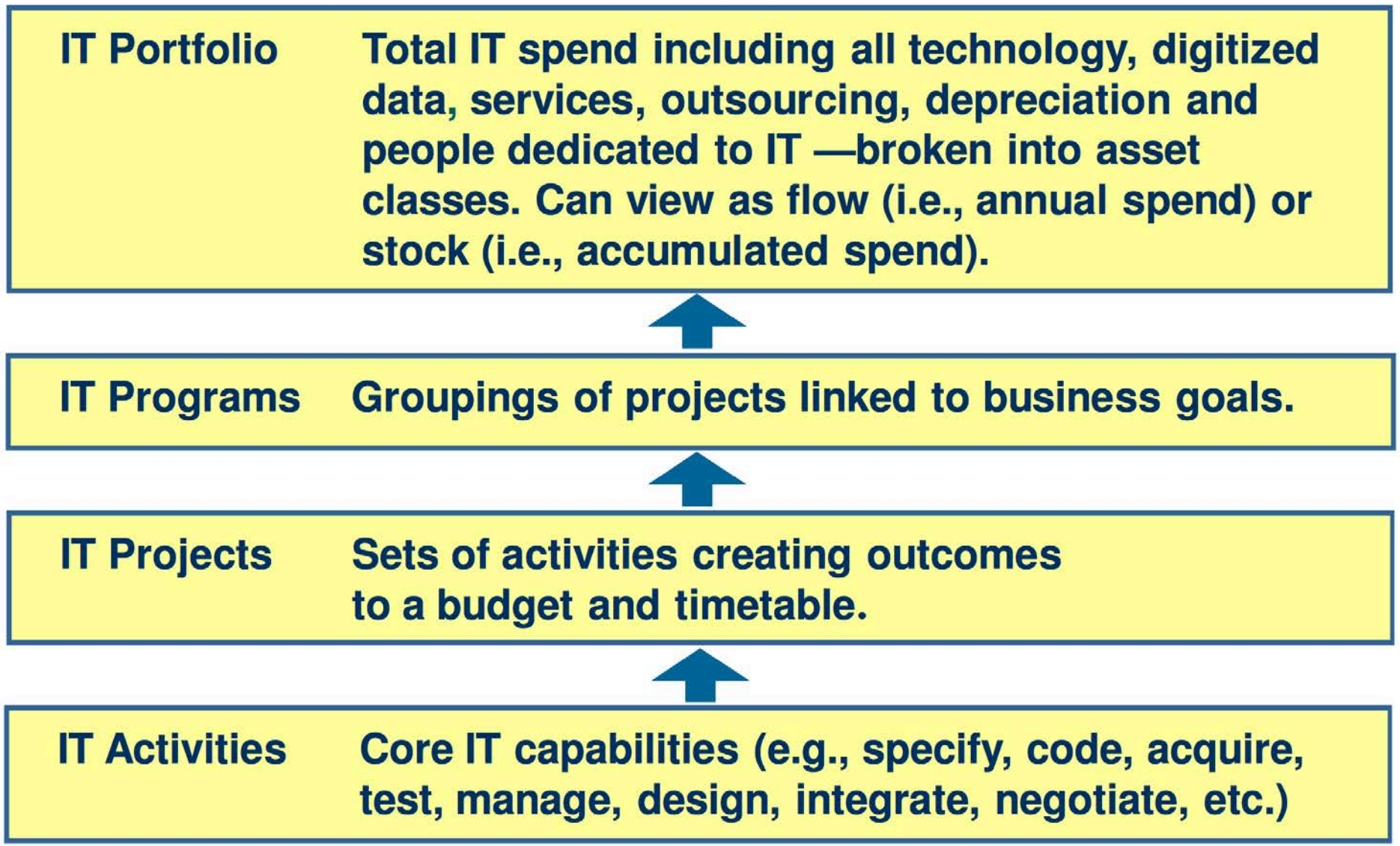
The IT Portfolio Framework

- Four Management Objectives for investing in IT
- Creates an IT portfolio with four asset classes
- Each asset class has different risk return profiles
- The role of senior management is to align the IT portfolio to strategy and balance for risk and return
- Top performing enterprises can get up to 40% more value, i.e., IT Savvy*

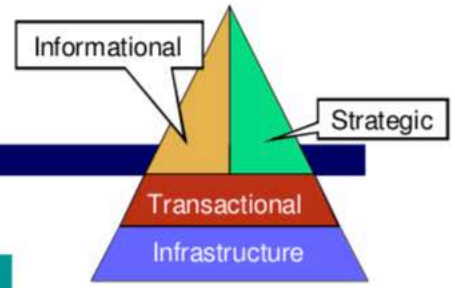


***IT Savvy = enterprise's ability to gain above industry average returns from IT by better management.**

What's in the IT Portfolio



Firms Have an IT Portfolio with Four Asset Classes

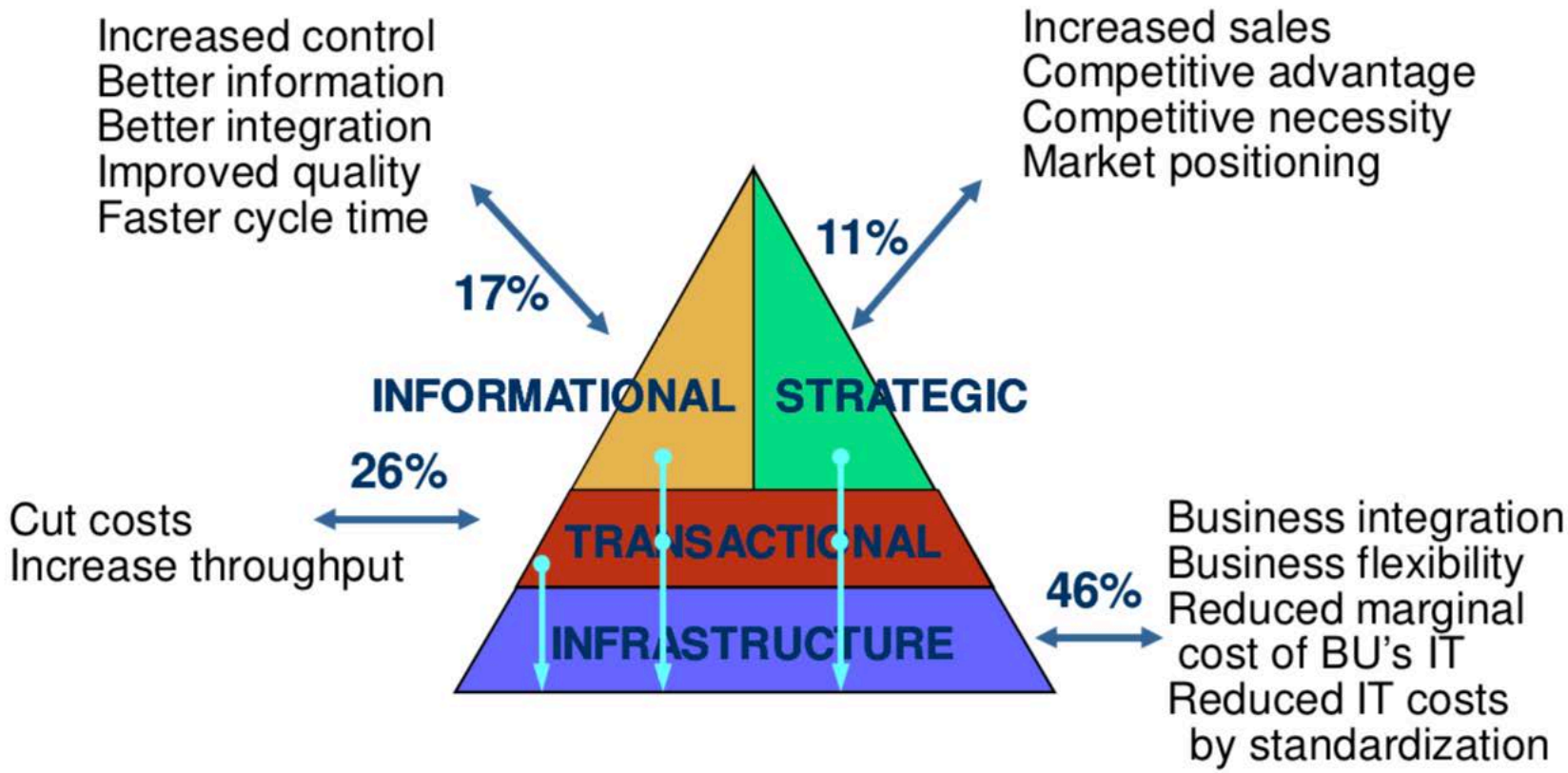


Management Objective	IT Asset Class	Description
Reduce Costs	Transactional	Automates processes, cuts costs or increases the volume of business a firm can conduct per unit cost, e.g., order processing, bank cash withdrawal, billing, and other repetitive transaction processing function.
Provide Better Information	Informational	Provides information for managing, accounting, reporting and communicating internally and with customers, suppliers and regulators, e.g., decision support, planning, control, sales analysis, customer relationship and Sarbanes-Oxley reporting systems
Enable Innovation	Strategic	Supports entry into a new market, development of new products or capabilities, and innovative implementations of IT. Example: ATMs
Provide a Shared Basis Of IT Capability	Infrastructure	Provides the foundation of shared IT services (both technical and human) used by multiple applications, e.g., servers, networks, laptops, shared customer databases, help desk, application development.

Source: "Managing the IT Portfolio (Update Circa 2003)," P. Weill & S. Aral, MIT Sloan CISR Research Briefing, Vol. III, No. 1C, March 2003, drawing on Weill & Broadbent 1998.

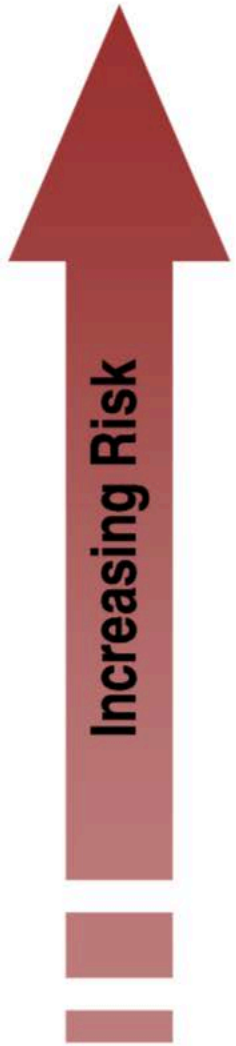
Rethinking IT as an Investment Portfolio

— Four different asset classes



Data: Percentages are of 2005 total $IT spending (new + sustaining) from 649 enterprises, from MIT CISR Survey.
Framework Source: Weill & Broadbent, *Leveraging the New Infrastructure: How market leaders capitalize on IT,* Harvard Business School Press, 1998.

Risk-Return Profiles in the IT Portfolio



Type of IT	Risk Return Characteristics	Ability to reduce risk & increase return through better IT Savvy*	Analogy to personal investment portfolio
Strategic	High risk, huge potential upside and 50% failure rate	Strong IT Savvy significantly reduces risk of failure	Emerging markets
Infrastructure	Moderate risk due to long life and business and technical uncertainty	Strong IT Savvy increases infrastructure capability and flexibility for a given cost	Options & Property
Informational	Moderate risk due to difficulty of acting on information to create business value	Strong IT Savvy provides management process to capitalize on the information	S & P 500 Index fund
Transactional	Lowest risk with solid return of 25-40%	Strong IT Savvy marginally reduces risk	Bonds

*IT Savvy = enterprise's ability to gain above industry average returns from IT by better management.

Source: P. Weill & M. Broadbent *Leverage the New Infrastructure: How market leaders capitalize on IT* Harvard Business School Press, June 1998

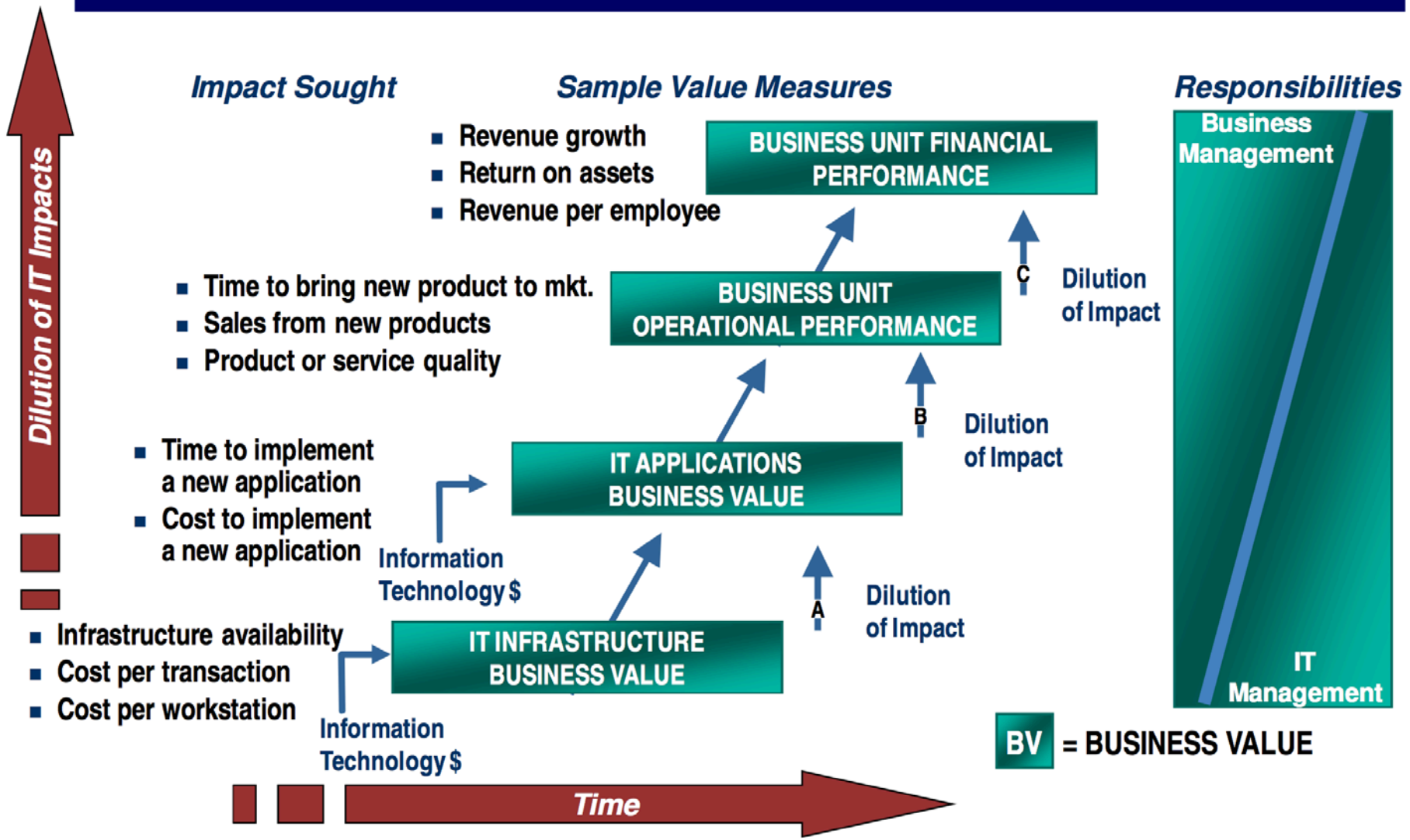
How would you describe your company's investment strategy?

How would you describe your main competitors' strategies?

What are the implications of this?

“Many a slip between the cup and the lip.”

Tracking the Impact of Information Technology Investments



Source: P. Weill & M. Broadbent, *Leveraging the New Infrastructure: How market leaders capitalize on IT*, Harvard Business School Press, June 1998.

What does success look like?

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What teams are critical to the success of the project and how are we getting buy-in and establishing accountability?
Who will get the credit and who will get the blame? How are we managing these realities?

This list isn't about the CTO, this is a list about the company you work in and how you help it perform at peak level.

You (can) have a huge impact on the likelihood of success of IT investments.