


NBA 600
Strategy and IT
 Class 2, Wed 10/17

Prof. Dan Huttenlocher

Final Assignment


- Industry or company undergoing strategic change due to information technology
- Cover competitive landscape now and how changing, what value provided to whom
 - E.g., music industry, role of labels
- Brief proposal and 3 person team description due Monday 10/29 in class



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Today's Class


- Carr's position that "IT Doesn't Matter" strategically
- Metalfe's response
- Both raise issue of IT and productivity
 - Findings are complicated
 - How is productivity relevant to strategy
- To what degree are these authors talking about relationship of strategy and IT
 - What can we conclude about strategy and IT



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Carr's Main Points


- Scarcity not ubiquity of strategic value
 - IT has become ubiquitous (commoditized)
- Infrastructural technologies
 - IT has become an everyday necessity "like electricity"
- Switch from offense to defense in IT
 - Spend less
 - Follow don't lead
 - Focus on vulnerabilities not opportunities
- IT spending does not improve productivity



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What Carr Sees as IT

- Largely investment in PC's and communications infrastructure
 - Now cheaply available to all
- Less focus on software though does discuss commoditization of software
- Analogous to railroads, electricity
- More broadly are business processes becoming commoditized?
 - As embedded in commodity software
 - What implications for strategy beyond IT



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Carr on Companies' Use of IT

- Highlights Walmart and Dell as companies that stay back from cutting edge technologies until standardized
 - Do these companies use IT strategically?
 - Walmart leader in supply chain automation, is that standardized? If so why are other companies not using it?
 - Walmart's use of RFID, technology follower?
 - Dell unique in online sales of PC's, why not widely copied?
 - Relationship between first mover and strategy?



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Key Issues

- Being first not same as being strategic
 - Can go either way
- Strategy: profitable way of doing business that is not copied (for a considerable time)
 - Fedex, Walmart, Dell all good examples
 - All heavy users of IT
 - Though not necessarily biggest IT spenders, a critical point
 - IT driven by a strategic information view
 - Share info with customers, share info with suppliers

Metcalfe's Main Points

- IT matters because it is widely used
 - Misses strategic role
- Non IT execs willingly spend considerable time on IT issues, clearly important
 - Important not necessarily strategic
- Even "mature" IT still evolving quickly
 - 30 year old Ethernet still offering potential advantages with wide area gigabit
- Wide availability does not mean non-strategic, depends how used

IT and Productivity

- Both authors raise issue of productivity
 - How relevant to strategy
- Sustainable lower cost structure through IT enabled productivity
 - More effective at competing on price
 - E.g., Wal-Mart
- What is strategy about
 - Differentiation, competing on added value
 - Providing value others haven't, in a way that is profitable and sustainable

McKinsey Study Basic Findings

- Productivity acceleration of 1990's concentrated in 6 sectors
 - Semiconductors, computer manufacturing, telecommunications, wholesale, retail, securities
- IT important as enabler of innovation and competition – not alone a factor
 - Improved processes, products, services, distribution
 - Specific to industry sector and often to particular firm – no "silver bullet" or "killer app"
 - Degree of improvement not driven by IT spend

Industry Cases

- Detailed investigation of 3 sectors
 - Focus on retail and retail banking
- Consider how IT investments at sector and firm level tie to "performance levers"
 - Labor productivity
 - Capital for labor, labor efficiency, labor effectiveness
 - Goods and services
 - New, higher value, more value from current
 - Capital productivity
 - Asset utilization, non-labor costs

Tiering of IT Investments

- From necessary costs to potential strategies
- Basic cost of business
 - Necessary to be competitive
- Extended cost of business
 - Needed by leaders or larger firms
- Differentiating (strategic)
 - Allowing firms to gain cost, product or service advantage
- Next frontier (strategic)
 - Pilots of potential new differentiators

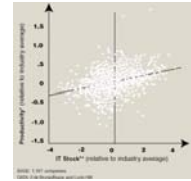
IT Tiering for Retail Sector

Next frontier investments	<ul style="list-style-type: none"> Enhancement of customer experience solutions <ul style="list-style-type: none"> Mobile POS (e.g., flexibility in pricing, wireless terminals) Receipt (e.g., Walmart is piloting range of devices to sell entire range of GE appliances) CRM (retailers want to market to "bricks of clay") Improvements in store presentation <ul style="list-style-type: none"> Self-check-out Electronic tags Department of core processes tools <ul style="list-style-type: none"> Merchandise management at optimum level and automation linkage of products to pricing Employee reporting systems
Differentiating investments	<ul style="list-style-type: none"> Revenue management applications <ul style="list-style-type: none"> Pricing and markdown optimization applications Target segmentation plan and merchandise optimization engine, which statistically evaluates bundles of products Inventory optimization Logistics optimization Merchandise planning applications <ul style="list-style-type: none"> Forecasting and algorithms to perform demand forecasting, assortment and allocation planning, and replenishment at "retail" optimum level (e.g., selection, item, level) depending on category and subsector Link across "lower" systems level for merchandise allocation Walmart stores scores based on multiple variables and statistical outcomes Threats "CDOs" <ul style="list-style-type: none"> Retailers need to Walmart to collaborate/coordinate with suppliers CDO-like systems implemented by Target and leading apparel retailers for close collaboration with suppliers
Extended cost of doing business investments	<ul style="list-style-type: none"> Data warehouses <ul style="list-style-type: none"> Structure of functional data warehouses to perform "larger" and "smoother" queries on transactional data Data integrable reporting tools Supplier and logistic applications <ul style="list-style-type: none"> RFID RFID Merchandise management systems <ul style="list-style-type: none"> WMS Warehouse automation
Cost of doing business investments	<ul style="list-style-type: none"> Core business operations solutions <ul style="list-style-type: none"> POS systems Labor scheduling tools Inventory tracking and control tools Accounting <ul style="list-style-type: none"> Accounting Financial reporting Human resources <ul style="list-style-type: none"> Recruitment HR systems Information systems <ul style="list-style-type: none"> Infrastructure Information systems Specialty inventory systems <ul style="list-style-type: none"> Basic "CDO" (e.g., ERP) Infrastructure systems (e.g., transactional databases, network management, security, storage systems)

Source: IDC analysis

Brynjofsson Study of IT Productivity

- Finds overall positive relation between IT investment and productivity
 - Examines nearly 1200 companies
 - Considers level of IT capital per worker
- Tremendous variability
 - Can't simply invest in IT and wait for payoff
- Catalyst for broader institutional change
 - Can increase (or potentially decrease) productivity



Rate of Adoption and Strategy

- Over time most investments become cost of business (not just true of IT)
 - Productivity increase for industry rather than competitive advantage
- Rate varies greatly
 - Extent of competition in industry
 - Complementary advantages such as scale
 - E.g., WalMart, increasingly Target
 - Ability to stay ahead through better learning
 - Virtuous cycle of advantage by out-innovating
 - E.g., WalMart (until now?), FedEx from 70's-90's

IT and Strategy

- Difficult to achieve and sustain competitive advantage through IT investment alone
 - More likely to be and remain differentiating when coupled with other advantages
 - Scale, substantial changes in business process, associated learning effects
- Sectors vary greatly in strategic value
 - Retail leaders able to turn data into valuable information for inventory, planning, pricing
 - Not yet necessary cost of business (commoditized)
 - Banking advances quickly adopted industry wide

Relation to Carr "Debate"

- Takes simplistic view of IT as a silver bullet
 - Investment provides competitive advantage
 - Used to, but doesn't any longer
- Years worth of studies have shown IT alone does not improve productivity
 - Why expect it to provide competitive advantage
- Rebuttals largely fall into same trap
 - All or none generalities rather than specifics of industry structure, company positioning, ...
- Strategic analysis critical for IT investment

Necessary vs. Differentiating

- Two different roles for IT
 - Necessary for doing business ("infrastructural")
 - Enabling differentiation ("proprietary")
- Necessary IT managed for reliability, security, cost
 - Perhaps formerly differentiating
 - Industry standards or shared resources
- Differentiating IT requires clear strategic understanding
 - In service of strategy, not strategy itself

Either Necessary or Differentiating

- Strategic value depends on sector and specific company
 - Information-based businesses
 - Software
 - Including those becoming so, such as digital goods
 - Retailing
 - Customer and supply chain
 - Shipping and logistics
 - How much potential for advantage remains?
 - Oil and gas

Next Time

- The Internet and Economics of Networks
 - Legg Mason research report as some background on network economics