IT Portfolio and Business Strategy

15.968 Generating Business Value from Information Technology
SF/MOT
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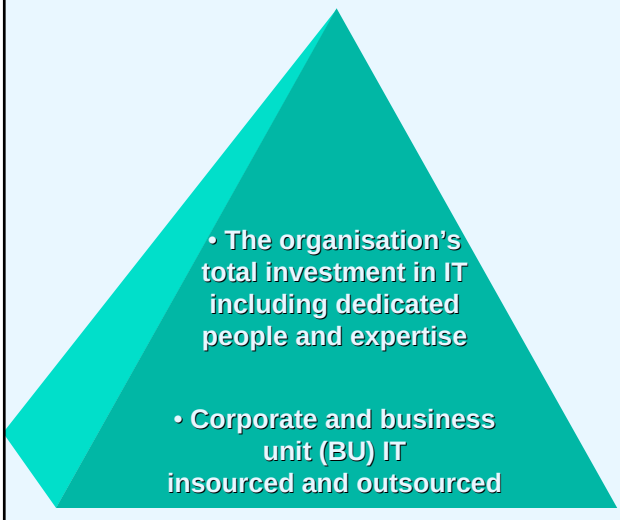
Center for Information Systems Research

What Is The IT Portfolio?

"a pain in the .... to measure the value of"



- IT People
- Web Sites
- EDI
- Production Planning Systems
- Credit Storing System
- Electronic Mail
- Video Conferencing
- Word Processing
- POS/EFTPOS
- CRM
- ATM's
- Transaction Processing & ERP
- Image Processing
- Help Desk
- Telecommunications Network
- Software Library
- Architecture
- Infrastructure
- Security

* Often expressed CEO opinion

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Management Objectives for Investing in IT

1. Reduce cost of doing business
   - Transactional IT
2. Provide better information
   - Informational IT
3. Gain competitive advantage or major innovation
   - Strategic IT
4. Provide shared base IT capability
   - IT Infrastructure

Combination

Source: Weill & Broadbent "Leveraging the New Infrastructure: How market leaders capitalize on IT," Harvard Business School Press, 1998

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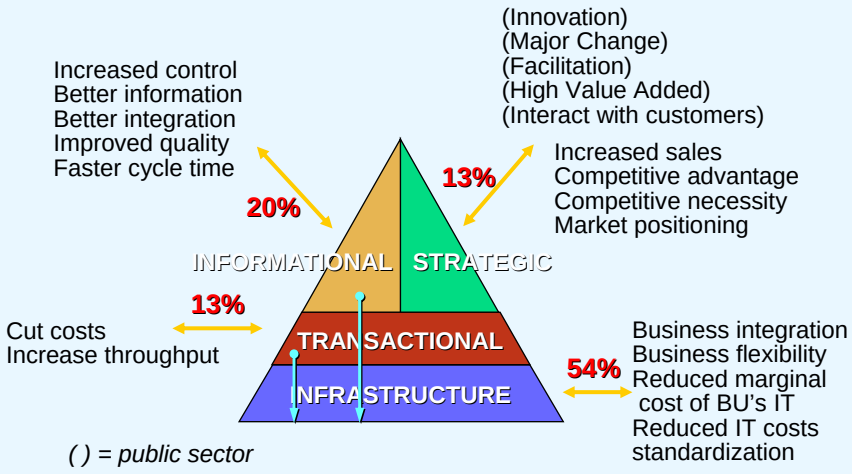
Rethinking IT as an Investment Portfolio

- asset class, risk and return, strategy



Source: Weill & Broadbent "Leveraging the New Infrastructure: How market leaders capitalize on IT," Harvard Business School Press, 1998. Percentages reflect data collected in 2001/02 from 117 firms.

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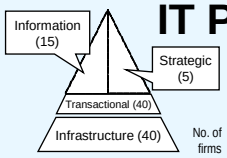
IT Portfolios In Different Industries



	Finance, Insurance[3]	Manu-facturing	TCEGSS[1]	Wholesale Retail	Other[2]	All
No. of firms	11	71	12	12	11	117
Firm-wide $IT as a Percent of Net Sales (Three year averages)[6]	3.2	2.5	2.2	2.3	3.0	2.6
Firm-wide $IT as a Percent of Discretionary Expense[5] (Three year averages)[6]	5.5	2.7	2.9	2.6	3.9	3.1
IT Investment 2001/02	14% / 16% / 56% / 14%	22% / 12% / 54% / 12%	18% / 8% / 58% / 16%	18% / 13% / 53% / 16%	13% / 17% / 58% / 12%	20% / 13% / 54% / 13%
% of Total IT Outsourced 2001	18	16	12	9	17	16
IT Investment 1993–97[7] (54 businesses over 5 years)	13% / 13% / 61% / 13%	22% / 12% / 52% / 14%				16% / 13% / 57% / 14%

[1] Transportation, Communications, Electric, Gas & Sanitary Services
[2] Other firms include: Oil & Gas Extraction, Furniture & Fixtures, Paper Products, Printing
[3] Net Sales = Gross Interest Income plus Fees

This research has been funded, in part, by the National Science Foundation, Grant Number IIS-0085725 \

[4] Total Expenses = Net Sales – (Net Sales * Net Margin)
[5] Discretionary Expenses = Net Sales – (Net Sales * Operating Margin before Depreciation)
[6] Mean trimmed by 5% to remove outliers
[7] Source: *Leveraging the New Infrastructure: How Market Leaders Capitalize on information technology*, Peter Weill & Marianne Broadbent, HBS Press, 1998.

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Synchronize Information Technology Portfolios to Strategy

	Business Strategy			
	Average Firm	Cost Focus	Balance Cost & Agility	Agility Focused
IT Portfolio Mix of Investments	20% / 13% / 54% / 13%	13% / 5% / 40% / 42%	20% / 15% / 15% / 50%	14% / 17% / 11% / 58%
$IT compared to industry avg. as % of expenses or revenues	Average % of Revenues & Expenses	IT is 10-20% lower than industry average	IT is around industry average	IT is 10-25% higher than industry average

Source: P. Weill & M. Broadbent "Leveraging the New Infrastructure: How market leaders capitalize on IT," Harvard Business School Press, June 1998. (Based on a study of 54 businesses in 7 countries over five years and 117 firms studied in 2001/02.)

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Risk-Return Profiles in the IT Portfolio

Increasing Risk

Type of IT	Risk Return Characteristics	Ability to reduce risk & increase return through better IT premium (ITP)
Strategic	High risk, huge potential upside and 50% failure rate	Strong ITP significantly reduces risk of failure
Infrastructure	Moderate risk due to long life and business and technical uncertainty	Strong ITP increases infrastructure capability and flexibility for a given cost
Informational	Moderate risk due to difficulty of acting on information to create business value	Strong ITP provides management process to capitalize on the information
Transactional	Lowest risk with solid return of 25-40%	Strong ITP marginally reduces risk

IT Premium = enterprise's ability to gain above industry average returns from IT from better management
Source: P. Weill & M. Broadbent *Leverage the New Infrastructure: How market leaders capitalize on IT*, Harvard Business School Press, June 1998.

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Business Strategy

1. "Tactics employed, to gain competitive advantage over rivals [Porter 1980]

   Strategy is the creation of a unique and valuable position [Porter 1996]
2. "Strategy formulation and implementation merge into a fluid process of learning through which creative strategies evolve". "Collective intention". [Mintzberg 1989].
3. "The concept of strategy emerged from the need to help practitioners transform the daily chaos of events and decisions into an orderly way of sizing up the firms position in its environment" [Porter 1981].
4. The strategy of successful firms is adaptive and opportunistic [Kay 1993].
5. Unique character of firms relationships with customers, employees, suppliers → Core of distinctive competencies → Competitive advantage → Corporate success

   [Kay 1993]
6. Strategy is making trade offs when competing. Without trade offs there would be no need for choice and thus no need for strategy [Porter 1996]
7. Who are the targeted customers? What products and Services? How to efficiently conduct business? Market transition from old position to new. [Markides 1999]
8. Strategy is the creation of options on the future … clearly distinguish between investing and exercising an option [Williamson 1999].
9. E-Commerce businesses evolve and improve through live interactions with customers [Rayport 1999].
10. A strategy is a framework for making decisions.

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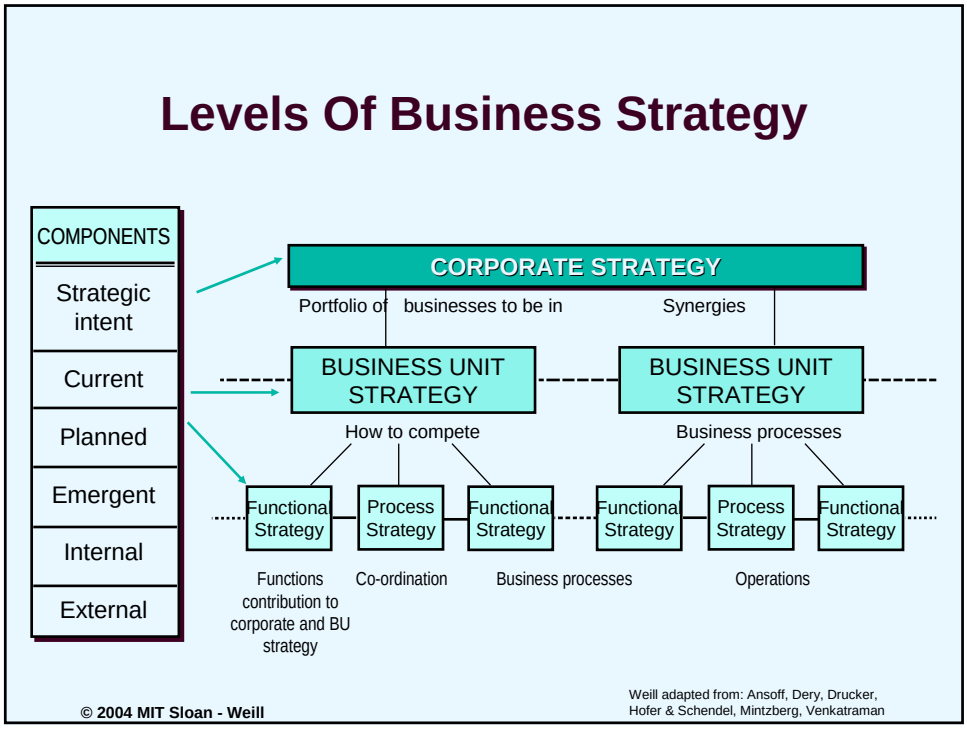
Levels Of Business Strategy
COMPONENTS
Strategic intent
Current
Planned
Emergent
Internal
External
CORPORATE STRATEGY
Portfolio of businesses to be in
Synergies
BUSINESS UNIT STRATEGY
BUSINESS UNIT STRATEGY
How to compete
Business processes
Functional Strategy
Process Strategy
Functional Strategy
Functional Strategy
Process Strategy
Functional Strategy
Functions contribution to corporate and BU strategy
Co-ordination
Business processes
Operations
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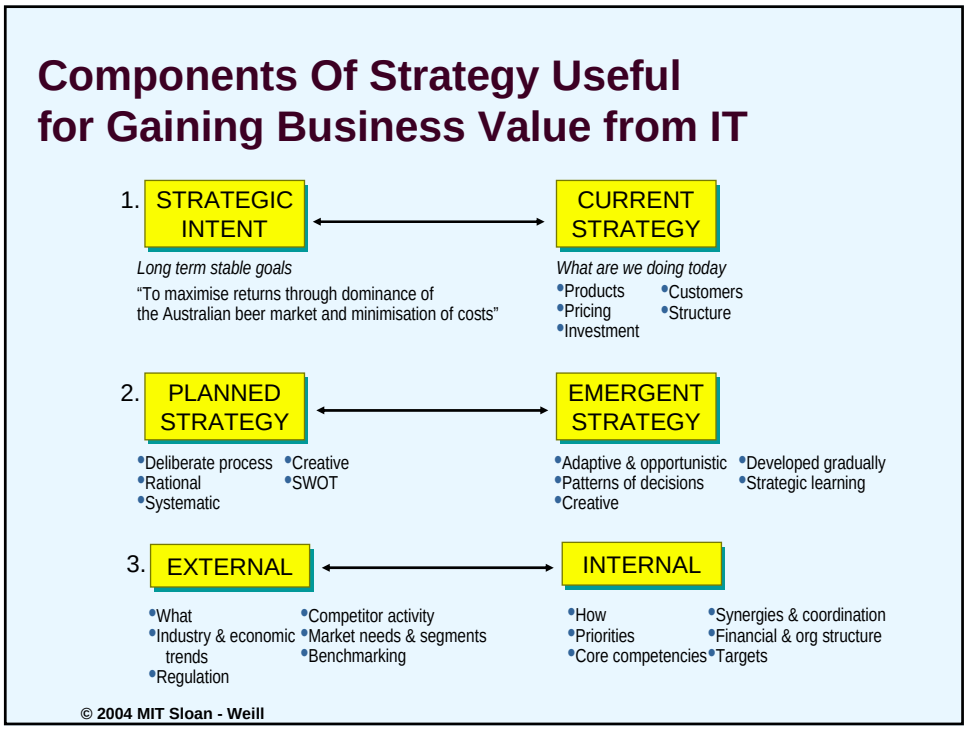
Weill adapted from: Ansoff, Dery, Drucker, Hofer & Schendel, Mintzberg, Venkatraman


Components Of Strategy Useful for Gaining Business Value from IT
1. STRATEGIC INTENT
Long term stable goals
"To maximise returns through dominance of the Australian beer market and minimisation of costs"
CURRENT STRATEGY
What are we doing today
Products
Customers
Pricing
Structure
Investment
2. PLANNED STRATEGY
Deliberate process
Rational
Systematic
Creative
SWOT
EMERGENT STRATEGY
Adaptive & opportunistic
Patterns of decisions
Creative
Developed gradually
Strategic learning
3. EXTERNAL
What
Industry & economic trends
Regulation
Competitor activity
Market needs & segments
Benchmarking
INTERNAL
How
Priorities
Core competencies
Synergies & coordination
Financial & org structure
Targets
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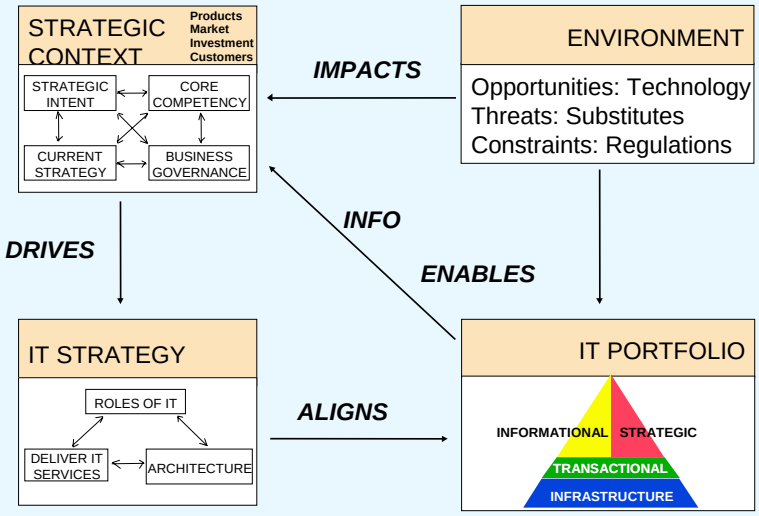
IT And Business Strategy



IT Architecture: An integrated set of technical choices and standards to guide the organization in satisfying business needs. eg. data ,computing, applications and communications

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What Is IT Infrastructure

The base foundation of budgeted-for IT capability (both technical and human), shared throughout the firm as reliable services, and centrally coordinated.

- Budgeted for and provided by IS function (usually)
- Platform of shared services including; full service networks, electronic & voice messaging, shared customer databases, mainframe processing capabilities, help desk, expertise, EDI, security, home page etc.
- Requires architecture
- Driven by strategic intent
- Significant part of total IT investment (industry dependent)
- Enables "business purpose" users of IT (ie. applications).
- "Determines the business degrees of freedom"

  [Keen]
- Platform for delivery of electronic commerce

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IT Architecture

An integrated set of technical choices to guide the organization in satisfying business needs. The architecture is a set of policies and rules that govern the use of IT and plot a migration path to the way business will be done.

Has to cope with business uncertainty and technological change.

WHY?

1. Establishes compatibility - a framework for resolving technological choices
2. Policies and mechanics to deliver the IT strategy
3. Technological model of the organization
4. Rationalize multi-vendor chaos -> vendor independence
5. Infrastructure plus architecture - determines the practical range of applications that can be readily developed.

Driven by Strategic Intent

ELEMENTS

Computing
- hardware and operating systems

Communications
- telecommunications networks

Data
- data assets, use, storage, control

Applications
- functions, relationships, development

Work
- standard processes, work policies

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IT Alignment To Business Strategy

Easy To Say

80 Firms: Many Industries

Strength of Alignment:

Totally isolated	9%
Tenuous link	35%
Somewhat linked	48%
Well linked	8%

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Weill Adapted from Bob Galliers, Curtin University

Difficulties In Forming and Aligning IT Strategy

- No or frequently changing strategy
- Poor governance
- No IT involvement in business strategy
- IT organizationally dispersed
- Technically focused IT management
- Business Unit vs. enterprise wide tensions
- Others

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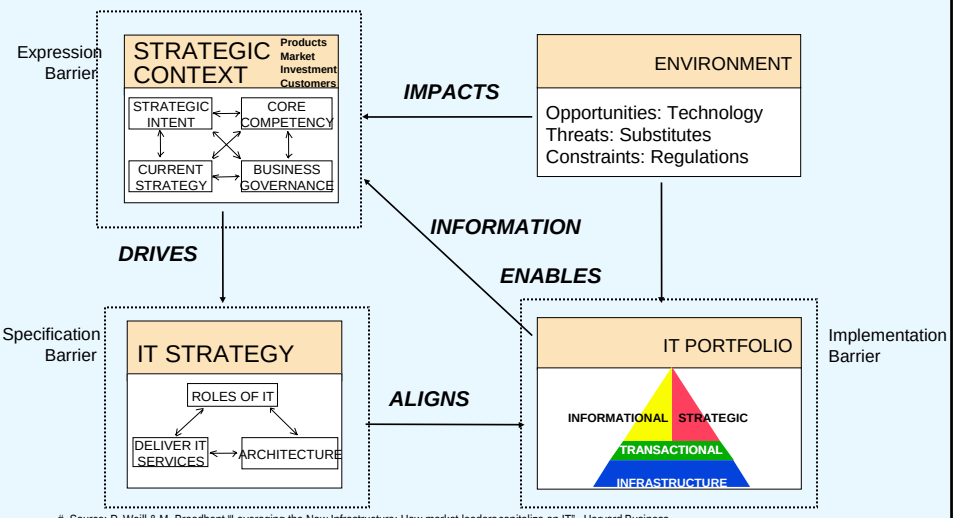
Barriers to Aligning Business Strategy and IT



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

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Symptoms of Poor Alignment Between the IT Portfolio and Business Strategy

Always True				Never True	
1	2	3	4	5	Senior management has no vision for the role of IT
1	2	3	4	5	IT group drives IT projects
1	2	3	4	5	No IT component in Division's strategy
1	2	3	4	5	Vital information necessary to make decisions is often missing.
1	2	3	4	5	Islands of automation and information - different standards
1	2	3	4	5	Management perceives little value from computing
1	2	3	4	5	A them and us mentality prevails
1	2	3	4	5	IT doesn't help for the hard tasks
1	2	3	4	5	Hard to get financial approval for IT projects
1	2	3	4	5	Senior management see outsourcing as a way to control IT
Average					

For more detail see Weill and Broadbent 1998 Appendix 2, pp. 257

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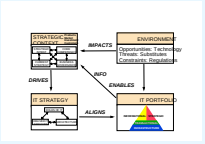
Frameworks for Aligning Strategy and IT (Readings)

- "5 factors" & "Value Chain" - Porter *(Porter 1985 pp 1-8, Earl pp 47 & 54)*
- "CSFs" - Rockart *(Earl pp 72, Keen 1991 pp 46)*
- "Value Disciplines" - Treacy & Wiersema *(Treacy & Weirsema, Chapter 3)*
- "Reach & Range" - Keen *(Keen 1991 pp 40 & 180)*
- "Aligning the IT Portfolio" – Weill & Broadbent, Chapter 2
- "Management by Maxim" – Weill & Broadbent
- Managing Partnerships (Ross & Rockart)
- IT Governance
  15.571 – Sessions 11 & 12
  15.968 – Session 8



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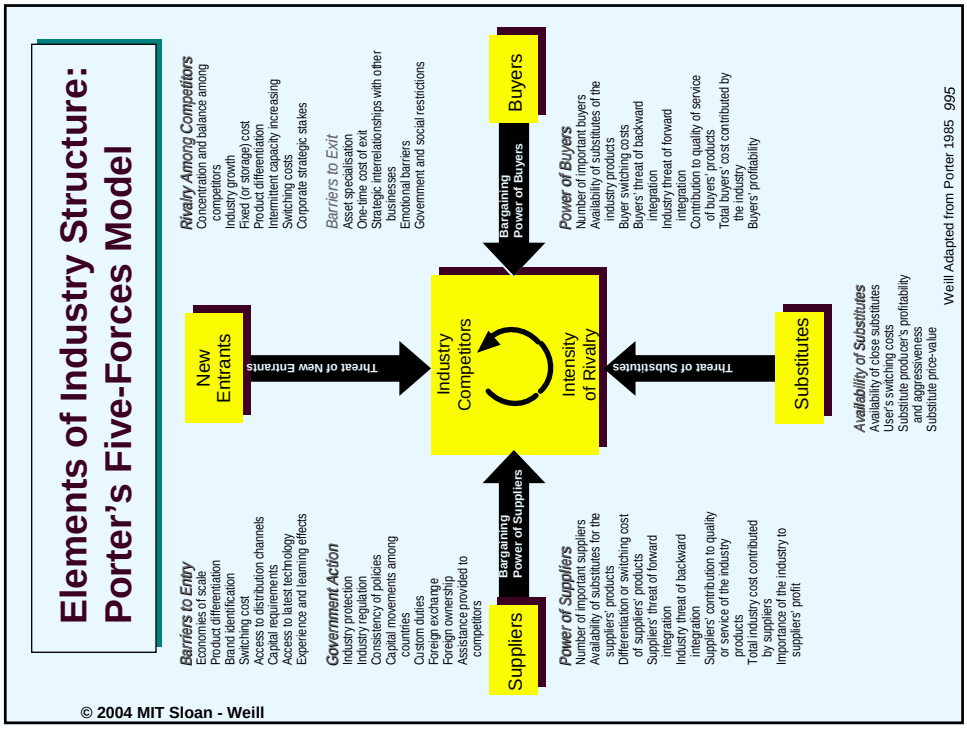
Elements of Industry Structure:
Porter's Five-Forces Model
Rivalry Among Competitors
Concentration and balance among competitors
Industry growth
Fixed (or storage) cost
Product differentiation
Intermittent capacity increasing
Switching costs
Corporate strategic stakes
Barriers to Exit
Asset specialisation
One-time cost of exit
Strategic interrelationships with other businesses
Emotional barriers
Government and social restrictions
Buyers
Bargaining Power of Buyers
Power of Buyers
Number of important buyers
Availability of substitutes of the industry products
Buyer switching costs
Buyers' threat of backward integration
Industry threat of forward integration
Contribution to quality of service of buyers' products
Total buyers' cost contributed by the industry
Buyers' profitability
New Entrants
Threat of New Entrants
Industry Competitors
Intensity of Rivalry
Threat of Substitutes
Substitutes
Availability of Substitutes
Availability of close substitutes
User's switching costs
Substitute producer's profitability and aggressiveness
Substitute price-value
Weill Adapted from Porter 1985 995
Barriers to Entry
Economies of scale
Product differentiation
Brand identification
Switching cost
Access to distribution channels
Capital requirements
Access to latest technology
Experience and learning effects
Government Action
Industry protection
Industry regulation
Consistency of policies
Capital movements among countries
Custom duties
Foreign exchange
Foreign ownership
Assistance provided to competitors
Bargaining Power of Suppliers
Suppliers
Power of Suppliers
Number of important suppliers
Availability of substitutes for the suppliers' products
Differentiation or switching cost of suppliers' products
Suppliers' threat of forward integration
Industry threat of backward integration
Suppliers' contribution to quality or service of the industry products
Total industry cost contributed by suppliers
Importance of the industry to suppliers' profit
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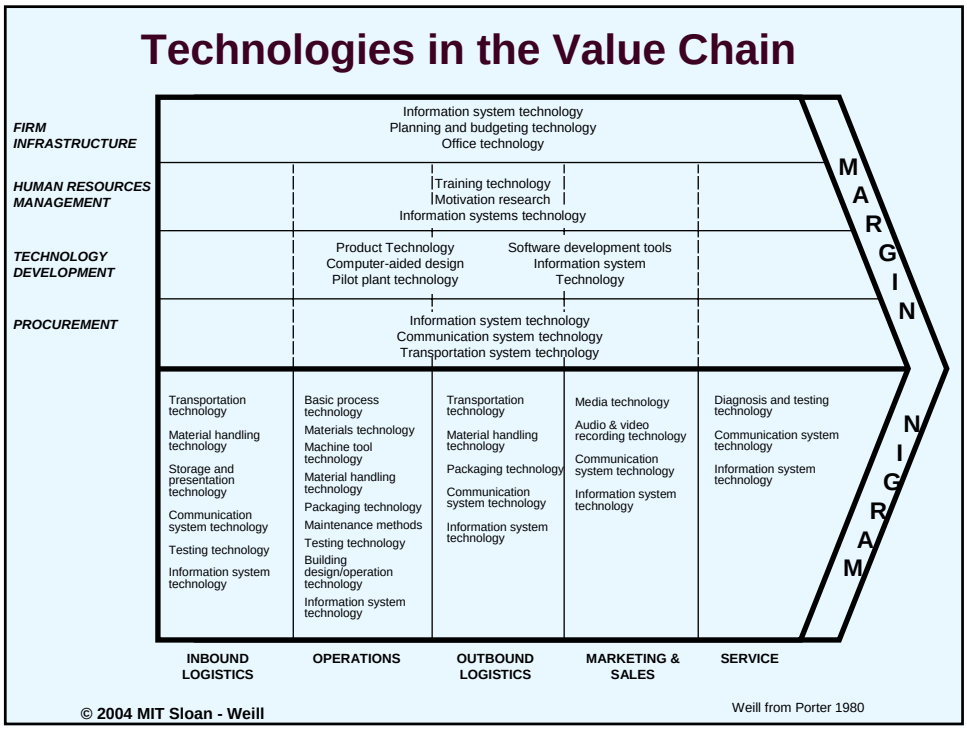
Technologies in the Value Chain
FIRM INFRASTRUCTURE
Information system technology
Planning and budgeting technology
Office technology
HUMAN RESOURCES MANAGEMENT
Training technology
Motivation research
Information systems technology
TECHNOLOGY DEVELOPMENT
Product Technology
Computer-aided design
Pilot plant technology
Software development tools
Information system
Technology
PROCUREMENT
Information system technology
Communication system technology
Transportation system technology
MARGIN
Transportation technology
Material handling technology
Storage and presentation technology
Communication system technology
Testing technology
Information system technology
Basic process technology
Materials technology
Machine tool technology
Material handling technology
Packaging technology
Maintenance methods
Testing technology
Building design/operation technology
Information system technology
Transportation technology
Material handling technology
Packaging technology
Communication system technology
Information system technology
Media technology
Audio & video recording technology
Communication system technology
Information system technology
Diagnosis and testing technology
Communication system technology
Information system technology
INBOUND LOGISTICS
OPERATIONS
OUTBOUND LOGISTICS
MARKETING & SALES
SERVICE
Weill from Porter 1980
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Critical Success Factors

- What are the 3 or 4 things a firm must get right to flourish?
- Develop measures to track CSF's.
- How does IT Portfolio help achieve CSF's.
- CSF's change over time => flexibility.
- Can be done at different levels in organizations.
- Great for focus.

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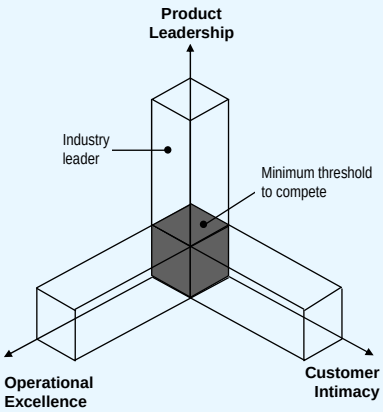
Weill adapted from Rockart, MIT

Value Disciplines



	Operational-Excellence model	Customer-Intimacy model	Product-Leadership model
'Rules' and norms	– Process, product-driven – Conformance, 'one-size-fits-all' mindset	– Customer-driven – Variation and 'have-it-your-way' mindset	– Concept, future-driven – Experimentation and 'out-of-the-box' mindset
Business processes	– End-to-end supply-chain optimisation – Emphasis on efficiency and reliability	– Customer service, market-place management – Emphasis on flexibility and responsiveness	– Product development, time-to-market and market communications – Emphasis on breakthroughs
Organisation and skills	– Central authority, low level of empowerment – High skills at the core of the organisation	– Empowerment close to point of customer contact – High skills at boundary of the organisation	– Ad hoc, organic and cellular – High skills abound in loose-knit structures
Management systems	– Command and control, standard operating procedures – Quality management	– Customer-equity measures like life-time value – Satisfaction, share management	– Rewarding individuals' innovative capacity – Risk and exposure management
Information and information systems	– Integrated low-cost transaction systems – The system is the process	– Granular customer databases, linking internal and external information – Strong analytical tools	– Person-to-person communications systems – Technologies enabling cooperation

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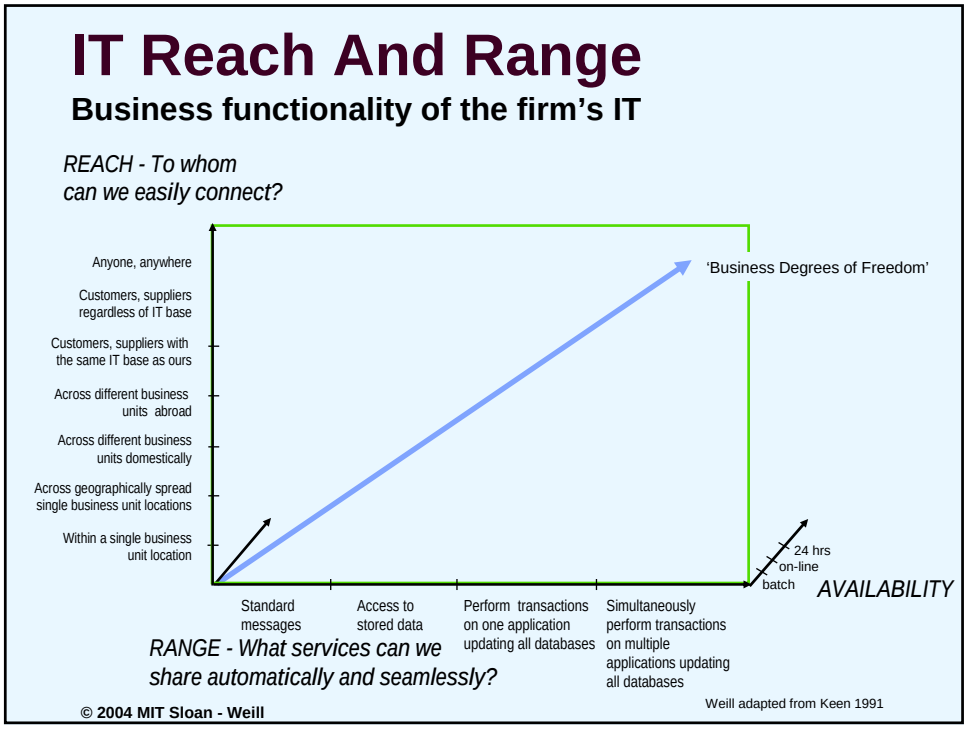
Weill from Tracey & Wiersema 1993, CSC Index 1993


IT Reach And Range
Business functionality of the firm's IT
REACH - To whom can we easily connect?
Anyone, anywhere
Customers, suppliers regardless of IT base
Customers, suppliers with the same IT base as ours
Across different business units abroad
Across different business units domestically
Across geographically spread single business unit locations
Within a single business unit location
'Business Degrees of Freedom'
24 hrs
on-line
batch
AVAILABILITY
Standard messages
Access to stored data
Perform transactions on one application updating all databases
Simultaneously perform transactions on multiple applications updating all databases
RANGE - What services can we share automatically and seamlessly?
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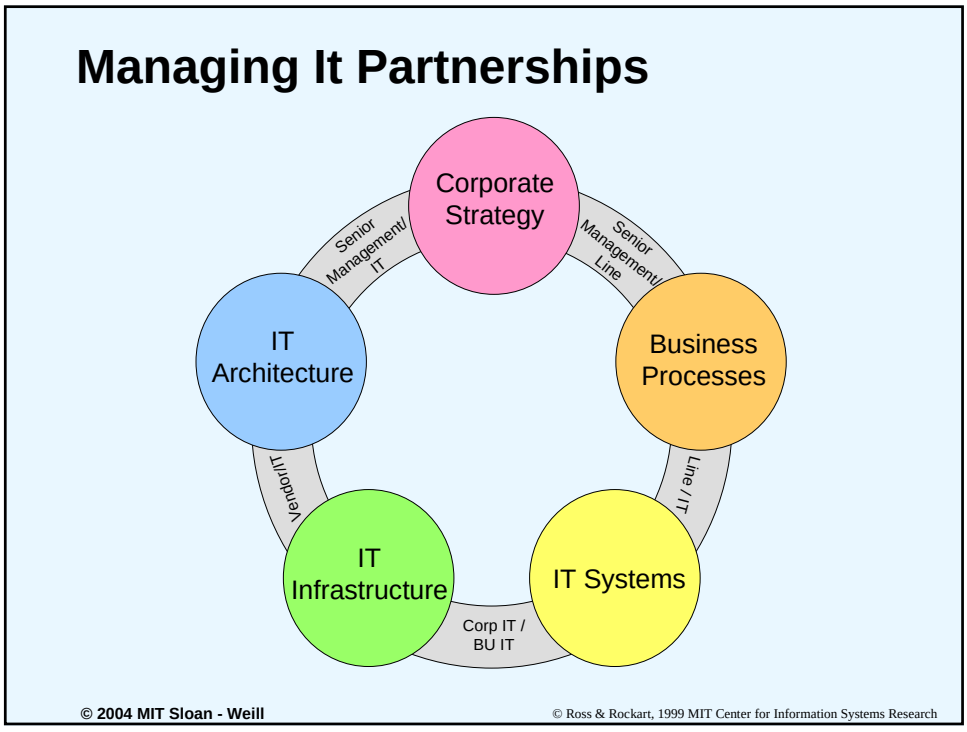
Weill adapted from Keen 1991


Managing It Partnerships
Corporate Strategy
Senior Management/ IT
Senior Management/ Line
IT Architecture
Business Processes
Vendor/IT
Line / IT
IT Infrastructure
IT Systems
Corp IT / BU IT
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