

Managing and Using Information Systems: A Strategic Approach – Fifth Edition

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Chapter 7



The Business of IT

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Learning Objectives



- Understand the business of IT and the customers it serves.
- Describe a maturity model.
- Understand the balancing act between IS supply and business demand.
- Describe key IT organization activities and how the leadership within the IT organization ensures that the various activities are conducted efficiently and effectively.
- List the business processes within the IT department including building a business case, managing an IT portfolio, and valuing and monitoring IT investments.
- Describe funding models and total cost of ownership.

Real World Example



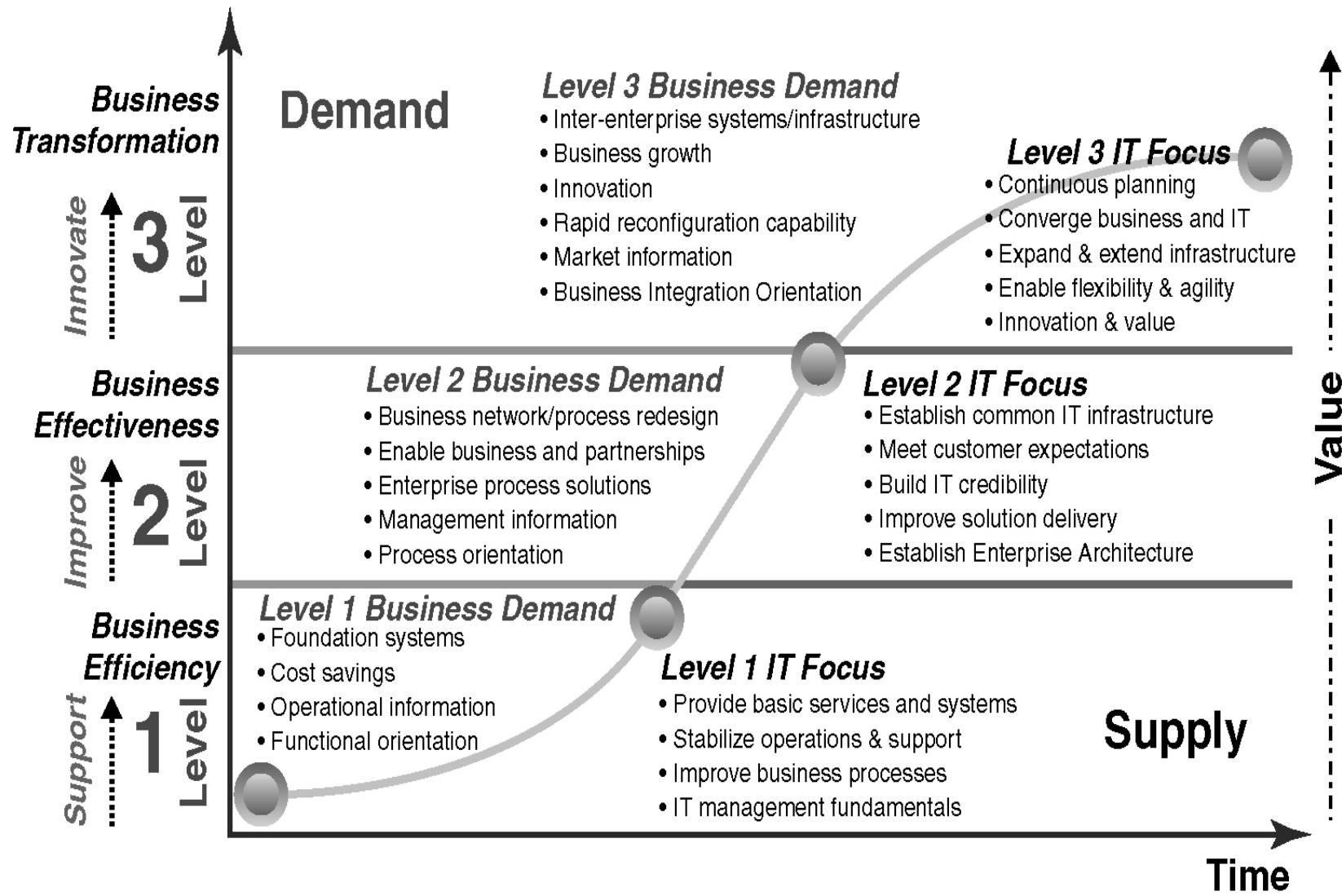
- The CIO of Avon Products Inc. relies heavily on hard-dollar metrics like NPV and IRR to demonstrate business value in IT investments.
- Although not the typical IT metrics, they are the language of business.
- Avon uses **payback**, **NPV**, **IRR**, and **risk analysis** for every investment.
- The business side of IT is similar to the business itself.

Organizing to Respond to Business Demand: A Maturity Model



- A **misalignment** between the demands on the business side and the IT offerings on the supply side.
- IT and the business are at different **levels of maturity** in their growth and development. (Business efficiency, Business Effectiveness and Business Transformation)
- **Maturity Model framework** is a useful tool for understanding the differences in capabilities (Figure 7.1). Business / IT maturity vs. Time
- When the **capabilities** of the IT organization are in balance with the **demand** of the business, both are at the same level.

Figure 7.1 Business-IT maturity model.



Understanding the IT Organization



- IT organizations all provide services to their businesses at the **right time** and in the **right way** based on:
 - the **skills** and **capabilities** of their people.
 - the organizational **focus** of management.
- Firms differ in their IT activities because of:
 - their organizational **goals**.
 - the firms' size.
 - the organizational **structure**.
 - the level of **maturity**.



What a Manager Can Expect From the IT Organization

- A manager typically can expect some level of support in **14 core activities** (Figure 7.2):
 1. Developing and maintaining IS.
 2. Managing supplier relationships.
 3. Managing data, information, and knowledge.
 4. Managing Internet and network services.
 5. Managing human resources.
 6. Operating the data center.
 7. Providing general support.

What a Manager Can Expect From the IT Organization (Cont.)



- 8. Planning for and managing business discontinuities.
 - 9. Innovating current processes.
 - 10. Establishing architecture platforms and standards.
 - 11. Promoting enterprise security.
 - 12. Anticipating new technologies.
 - 13. Participating in setting and implementing strategic goals.
 - 14. Integrating social IT.
-
- Activities could be found at **any maturity level**.

What a Manager Can Expect From the IT Organization (Cont.)



- Level 1 – The **functional** view predominates.
 - The IT organization is focused on the basic services needed to:
 - generate cost savings.
 - provide operational information needed.
- Level 2 – Makes the business **effective**.
 - The IT organization adopts a process view to provide services of an integrated nature across the organization.
 - Information delivered by IS supports managerial decision making.
 - Enables business partnerships.
- Level 3 - Focuses on **innovation**.
 - Provides support for strategic initiatives.
 - Helps spur innovation.

Activities in the IT Organization



- The **scope** of activities in the IT organization is expanding.
 - Integrating social IT into the organization's business activities (e.g., wikis, forums, and social networks).
 - Encouraging new forms of collaboration.
 - Creating new processes to accomplish the firm's goals.
- Managing the **sourcing relationships**.
 - Identifying and working with vendors who provide services.
 - Traditional activities have been outsourced to vendors for decades.
 - Data center operations, network management, and system development and maintenance (including application design, development, and maintenance).
 - Outsourcing process management is also called **business process outsourcing**.

Figure 7.2 IT organization activities and related level of maturity.

Activity	Description	Maturity Level
Developing and Maintaining Systems	Work together with business users to analyze needs, design the software, write or code the software, and test it to make sure it works and meets the business objectives; identify, acquire, and install outside software packages to fill business needs; maintain systems; address post-implementation needs, such as correcting system errors or enhancing the system to respond to changing business environments and governmental regulations.	1
Managing Supplier Relationships	Maximize the benefit of supplier relationships to the enterprise and preempt problems that might occur.	1
Managing Data, Information, and Knowledge	Database administration: collect and store data created, developed, or discovered by the enterprise (Level 1); manage enterprise information and knowledge (Level 2).	1,2
Managing Internet and Network Systems	Develop and maintain Internet capabilities; manage private networks, telephone systems, access to the Internet, and new wireless technologies; design network architecture; build and maintain the network infrastructure.	1,2 (depending on nature of network)
Managing Human Resources	Provide sufficient business and technical training so that staff can perform effectively and retain their value to the enterprise; hire staff; work to retain staff; fire poor performers; track time; work with enterprise HR personnel, who may be familiar with interviewing approaches, personnel laws, regulations, and trends.	1
Operating the Data Center	Operate and maintain large mainframe computers, rows of servers, or other platforms on which the company's data and business applications reside, or other hardware.	1
Providing General Support	Varies but may include helpdesk activities: maintain the first client contact through a centralized helpdesk even for such diverse services as networking and telecommunications; collect pertinent information, record it, determine its priority, contact the appropriate support personnel, and follow up with the business contacts with updates or resolution information.	1
Planning for Business Discontinuities	Develop and implement business continuity plan to counter terrorist attacks, intentional fraud, hurricanes, tornadoes, floods, or other man-made and natural disasters that could cripple the enterprise.	1

Figure 7.2 (Cont.)

Innovating Current Processes	Work with managers to innovate processes that can benefit from technological solutions (i.e., Social IT, installing voice mail to networking personal computers, automating general ledger transactions, ERP implementations); design systems that facilitate new ways of doing business.	2
Establishing Architecture Platforms and Standards	Develop, maintain, and communicate standards; ensure consistent data so that the integrity of a data warehouse won't be undermined.	2
Promoting Enterprise Security	Maintain the integrity of the enterprise infrastructure; implement enterprise information security strategy; identify and prioritize threats to the enterprise's information assets; develop and implement security policies and technical controls and infrastructure to address each threat; work with the business units to make their operational practices more secure and to train employees about security risks and the importance of security to their work; implement an awareness program that keeps security on employees' minds as they deal with information on a daily basis; participate in discussions about security investments.	2
Anticipating New Technologies	Scout new technology trends and help the business integrate them into planning and operations; assess the costs and benefits of new technologies for the enterprise; work closely with business groups to determine which technologies can provide the greatest benefit, how the technologies might affect the organization, how they might advance the business strategy, and when they should be implemented; ensure that the enterprise does not invest heavily in new technologies that quickly become obsolete or incompatible with other enterprise standards.	3
Participating in Setting and Implementing Strategic Goals	Enable business managers to achieve strategic goals by acting as consultants or by teaching them about developing technologies; advise managers on best practices within IT and work with them to develop IT-enhanced solutions to business problems; educate managers about current technologies; serve as partners in moving the enterprise forward.	3
Integrating the Use of Social IT	Leverage the use of social IT to create a business transformation; transform social IT from personal to business use; provide customer-, supplier-, and employee-facing applications for engagement, collaboration, and innovation; and manage the data resulting from social IT to provide business insights.	3

Managing IT Activities Globally



- Large **global** IT organizations:
 - perform many of the **same activities** listed in Figure 7.2.
 - face many of the same organizational issues as any other global department, including differences in:
 - time zones.
 - languages.
 - customs and holidays.
 - cultures.
- Figure 7.3 summarizes how a global IT perspective affects six information management issues.

Figure 7.3 Global considerations for the IT organization.

Issue	Global IT Perspective	Example
Political Stability	Investments in IT in a country with an unstable government should be carefully considered: How much do you invest? How risky is the investment?	Much offshoring is done with companies in India, a country that is facing an atomic war in its conflict with Pakistan.
Transparency	Domestically, an IT network can be end-to-end with little effort compared to global networks, which makes it difficult for these two types of systems to have the same look and feel, or, sometimes, to get to the data.	SAP-R3 is used to support production processes. When it is not installed in one country, managers cannot monitor the processes in that country the same way.
Business Continuity Planning	When crossing borders, it is important to make sure that contingency plans are in place and working.	After 9/11, many businesses are considering placing backup data centers in remote locations, but the concern when crossing borders is whether that data center will be available when/if needed.
Cultural Differences	Different countries have different cultures; some things are acceptable one place but not another. IT systems must not offend or insult those of a different culture.	Using images or artifacts from one culture may be insulting to another culture. For example, DitchWitch could not use its logo globally because a witch is offensive in some countries.
Sourcing	Getting the IT hardware within every country of operation may be difficult. Some technologies cannot be exported from the United States, and other technologies cannot be imported into specific countries. Vendors do not always have the same technologies available in every country.	Some technology is considered a potential threat to national security, such as encryption technologies, so exporting it to some countries, especially those that are not political allies of the United States, is not possible.
Data Flow Across Borders	Data, especially private or personal data, are not allowed to cross some borders.	Brazil refused to let data come across its borders from other countries, making it difficult for businesses to integrate their Brazilian operations into the corporate operations.

What the IT Organization Does Not Do



- The IT organization **does not** directly perform core business functions (e.g. selling, manufacturing, and accounting).
- Managers' lack of involvement in the design of systems turns over **control** of business operations.
- The IT organization **does not** typically design business processes.
- Partnerships between the general managers and IT professionals are important.
- The IT organization **does not** set business strategy.

Chief Information Officer (CIO)



- The **senior-most executive** in the enterprise (Figure 7.4).
 - Responsible for technology vision.
 - Leadership for designing, developing, implementing, and managing IT initiatives.
 - Focus on operating effectively in a constantly changing and intensely competitive marketplace.
- Works with the executive team in strategy formulation processes.
- A **business technology strategist** or strategic business leader.
- Uses technology as the core tool in creating **competitive advantage** and aligning business and IT strategies.
- In the early days, the CIO was predominantly responsible for controlling costs and reported to the CFO.

Figure 7.4 The CIO's lieutenants.

Title	Responsibility
Chief technology officer (CTO)	Track emerging technologies; advise on technology adoption; design and manage IT architecture to ensure consistency and compliance
Chief knowledge officer (CKO)	Create knowledge management infrastructure; build a knowledge culture; make corporate knowledge pay off
Chief telecommunications officer (CTO)	Manage phones, networks, and other communications technology across entire enterprise
Chief network officer (CNO)	Build and maintain internal and external networks
Chief resource officer (CRO)	Manage outsourcing relationships
Chief information security officer (CISO)	Ensure information management practices are consistent with security requirements
Chief privacy officer (CPO)	Be responsible for processes and practices that ensure privacy concerns of customers, employees, and vendors are met
Chief mobility officer (CMO)	Oversee and ensure the viable use of the mobile platforms and apps
Chief social media officer (CSMO)	Maintain a social IT perspective that results in effectively implementing social media

Building a Business Case



- The IT organization is often charged with providing **solutions**.
- A business case:
 - is created to gain support and a “go-ahead” decision on an IT investment.
 - is similar to a legal case.
 - is a structured document that lays out all the relevant information needed to make a go/no-go **decision** (Figure 7.5).
 - helps establish **priorities** for investing in different projects.
 - identifies how IT and the business can deliver new benefits.
 - gains **commitment** from business managers.
 - creates a basis for monitoring the investment.
- Daniel and Peppard have suggested a framework for identifying and describing both financial and nonfinancial benefits (Figure 7.6).
- Figure 7.7 contains a sample of the **cost-risk-benefit analysis**.

Figure 7.5 Components of a business case.

Section or Component	Description
Executive Summary	One or two page description of the overall business case document.
Overview and Introduction	Includes a brief business background, the current business situation, a clear statement of the business problem or opportunity, and a recommended solution at a high level.
Assumptions and Rationale	Includes issues driving the proposal (could be operational, human resource, environmental, competitive, industry or market trends, financial, or otherwise).
Program Summary	Includes a high level and then detailed description of the project, well-defined scope, objectives, contacts, resource plan, key metrics (financial and otherwise), implementation plan (high level discussion and potential impacts), and key components to make this a success.
Financial Discussion and Analysis	Starts with financial summary then includes details such as projected costs/revenues/benefits, financial metrics, financial model, cash flow statement, and assumptions that went into creating financial statements. Total Cost of Ownership (TCO) calculations analysis would go in this section.
Benefits and Business Impacts	Starts with business impacts summary then includes details on all non-financial outcomes such as new business, transformation, innovations, competitive responses, organizational, supply chain, and human resource impacts.
Schedule and Milestones	Outlines the entire schedule for the project, highlights milestones and details expected metrics at each stage (what makes the go/no-go decision at each stage). If appropriate, this section can also include a marketing plan and schedule (sometimes this is a separate section).
Risk and Contingency Analysis	Includes details on risks, risk analysis, and contingencies to manage those risks. Includes sensitivity analysis on the scenario(s) proposed and contingencies to manage anticipated consequences. Includes interdependencies and the impact they will have on potential outcomes.
Conclusion and Recommendation	Reiterates primary recommendation and draws any necessary conclusions.
Appendices	Can include any backup materials that were not directly included in the body of the document such as detailed financial investment analysis, marketing materials, and competitors literature.

Figure 7.6 Classification framework for benefits in a business case.

		Type of Business Change		
		Innovation (Do new things)	Improvement (Do things better)	Cessation (Stop doing things)
High ↑ degree of explicitness ↓ Low	Financial Benefits	Financial value can be calculated by applying a cost/price or other valid financial formula to a quantifiable benefit.		
	Quantifiable Benefits	There is sufficient evidence to forecast how much improvement/benefit should result from the changes.		
	Measurable Benefits	Although this aspect of performance is currently measured, or an approximate measure could be implemented, it is not possible to estimate how much performance will improve when changes are implemented.		
	Observable Benefits	By using agreed criteria, specific individuals or groups will use their experience or judgment to decide the extent the benefit will be realized.		

Figure 7.7 Cost-risk-benefit analysis for a business case.

Objective Type	Doing New Things	Doing Things Better	Stop Doing Things
Financial		<p>Benefit: Increased customer retention due to improved service provision Measure: Reduction in customer defections. Avoided defections due to service failure = 1,750 pa. Cost per defection = £500—savings of £875,000 pa Benefit Owner: Customer accounts manager</p> <p>Benefit: 20% reduction in call servicing costs Measure: Cost per service call. Number of calls pa = 5.6 million, total servicing costs = £1.2 million—savings of £240,000 pa Benefit Owner: Telechannel sales manager</p>	<p>Benefit: Stop call-backs to customers after failed service calls Measure: Number of call-backs. Number in previous years = 1.5 million. Cost per call-back = £0.46—savings of £690,000 pa Benefit Owner: Call center operations manager</p>
Quantifiable			<p>Benefit: Eliminate call waiting times over 2 minutes for customers Measure: Number of calls currently waiting over 2 minutes = 1.1 million Benefit Owner: Call center operations manager</p>
Measurable	<p>Benefit: Call center staff able to undertake sales calls/promote new services Measure: Number of sales calls per staff member or sales per staff member. Current value = 0 (call center currently purely inbound) Benefit Owner: Telechannel sales manager</p>	<p>Benefit: Customers not switching to competitors' products and services Measure: Number of defections to competitors. Current number of customers switching = 5,500 pa Benefit Owner: Customer accounts manager</p>	
Observable	<p>Benefit: Call center staff motivated by being trained about newer services Measure: Increased call center motivation Benefit Owner: Call center staff manager</p>	<p>Benefit: Ability to develop future services based on customer data Measure: Quantity and quality of customer profile data Benefit Owner: New service development manager</p>	<p>Benefit: Stop customers becoming frustrated/rude because of service failure Measure: Call center staff opinion Benefit Owner: Call center staff manager</p>
Investment Costs			
Purchase of new call center hardware and software:			
Cost of implementation technical consultants:			
Internal systems development costs (for configuration):			
Infrastructure upgrade costs:			
Business change costs:			
Training costs:			
Total:			
Net increase in annual systems support and license costs:			

Figure 7.7 (Cont.)

Risk Analysis

- | | |
|-----------------------|---|
| Technical Risks: | Complexity of the systems functionality
Number of system interfaces and systems being replaced |
| Financial Risks: | Confidence in some investment costs—especially business change
Confidence in the evidence for some of the benefits
Business criticality of areas affected by the system |
| Organizational Risks: | The extent of changes to call center processes and practice
Limited existing change management capability
Call center staff capability to promote more technical services
Customer willingness to share information for profiling purposes |

IT Portfolio Management



- **IT portfolio management** refers to:
 - “evaluating new and existing applications collectively on an ongoing basis to determine which applications provide value to the business in order to support **decisions** to replace, retire, or further invest in applications across the enterprise.”
- Continually deciding on the right mix of investments from **funding**, management, and **staffing** perspectives.
- The goal is for the company to fund and invest in the most valuable initiatives that, taken together as a whole, generate maximum benefits to the business.

Asset Classes of IT Investments



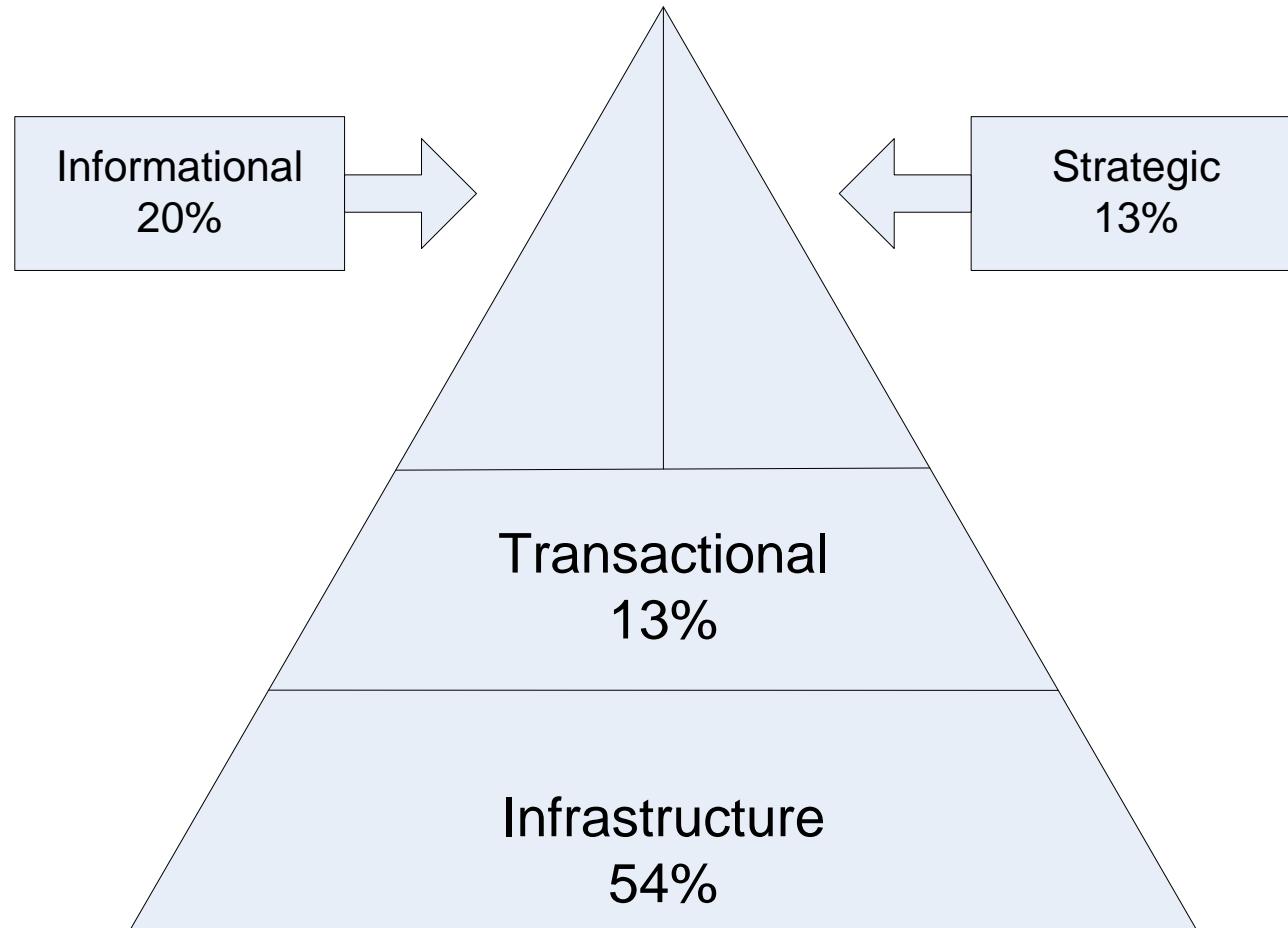
- Professor Peter Weill and colleagues at MIT's Center for Information Systems Research (CISR) describe four asset classes of IT investments:
 1. Transactional Systems
 - Systems that streamline or cut costs.
 2. Infrastructure Systems
 - Shared IT services used for multiple applications such as servers, networks, databases, or laptops.
 3. Informational Systems
 - Systems that provide information used to control, manage, communicate, analyze, or collaborate.
 4. Strategic Systems
 - Systems used to gain a **competitive advantage** in the marketplace.

Portfolio Management Perspective



- New systems are evaluated on their own merits as well as their overall impact on the **portfolio**.
- Systems can't stand alone.
 - Evaluated based on their ability to meet business demand as part of an integrated web of applications.
- Figure 7.8 summarizes a typical IT portfolio.
- Weill's study found that the average firm allocates:
 - 46% of its total IT investment each year to **infrastructure**.
 - 25% of its total IT investment in transactional systems.
- Different industries allocate their IT resources differently.
- Managers use a portfolio view of IT investments to manage IT resources.
 - Shows where money is being spent on IT.

Figure 7.8 Average company's IT portfolio profile.



IT Portfolio Business Strategies



- Decision makers use the portfolio to **analyze risk**.
 - Assess fit with business strategy.
 - Identify opportunities for reducing IT spending.
- Portfolio management helps prioritize IT investments across multiple decision criteria.
 - Value to the business.
 - Urgency.
 - Financial return.
- The IT portfolio must be aligned with the **business strategy**.
- Weill's work suggests that a different balance between IT investments is needed for a **cost-focused** strategy compared to an **agility-focused** strategy.
- Figure 7.9 summarizes the different business strategies.

Figure 7.9 Comparative IT portfolios for different business strategies.

	Transactional Investments	Infrastructure Investments	Informational Investments	Strategic Investments
Average Firm	25%	46%	18%	11%
Cost Focus	27%	44%	18%	11%
Agility Focus	24%	51%	15%	10%

Valuing IT Investments



- New IT investments are often justified in terms of monetary costs and benefits.
- Soft **benefits**, such as the ability to make future decisions, make it difficult to measure the payback of IT investment.
 - The systems are complex, and calculating the costs is an art—not a science.
 - Calculating a payback period may be more complex than other types of capital investments.
 - Many times the payback cannot be calculated because the investment is a necessity rather than a choice—with no tangible payback.
- IT managers need to learn to express benefits in a business-like manner such as ROI or increased customer satisfaction.
- Figure 7.10 shows the **valuation methods** used.

Figure 7.10 Valuation methods.

Valuation Method	Description
Return on Investment (ROI)	ROI= (Estimated lifetime benefits-Estimated lifetime costs)/Estimated lifetime costs.
Net Present Value (NPV)	Calculated by discounting the costs and benefits for each year of system's lifetime using present value.
Economic Value Added (EVA)	EVA = net operating profit after taxes.
Payback Analysis	Time that will lapse before accrued benefits overtake accrued and continuing costs.
Internal Rate of Return (IRR)	Return on the IT investment compared to the corporate policy on rate of return.
Weighted Scoring Methods	Costs and revenues/savings are weighted based on their strategic importance, etc.
Prototyping	A scaled-down version of a system is tested for its costs and benefits.
Game Theory or Role-playing	These approaches may surface behavioral changes or new tasks attributable to a new system.
Simulation	A model is used to test the impact of a new system or series of tasks; low-cost method.

Management Approach to Valuing IT Investments



- Despite the difficulty, the task of evaluating IT investments is necessary.
- Know which approaches to use and when to use them.
- Managers should choose based on the attributes of the project.
- Use **return on investment** (ROI) or **payback analysis** when detailed analysis is not required.
 - A project is short-lived.
 - The costs and benefits are clear.
- Use net present value (NPV) and economic value added (EVA) when the project lasts long enough that the time value of money becomes a factor.
 - EVA is particularly appropriate for capital intensive projects.

Analysis Pitfalls



- Both IT and business managers may encounter a number of **pitfalls** when analyzing return on investment:
 - Not every situation calls for in-depth analysis.
 - Not every evaluation method works in every case. Factors to consider include:
 - the assets employed.
 - the duration of the project.
 - any uncertainty about implementation.
 - Circumstances may alter the way a particular valuation method is used.
 - Managers use an “adjusting” factor in their estimates.
 - Managers can fall into “**analysis paralysis**.
 - Experience and being mindful of the **risks** of incorrect valuation help decide when to stop analyzing.
 - Even when the numbers say a project is not worthwhile, the investment may be necessary to remain competitive.

Monitoring IT Investments



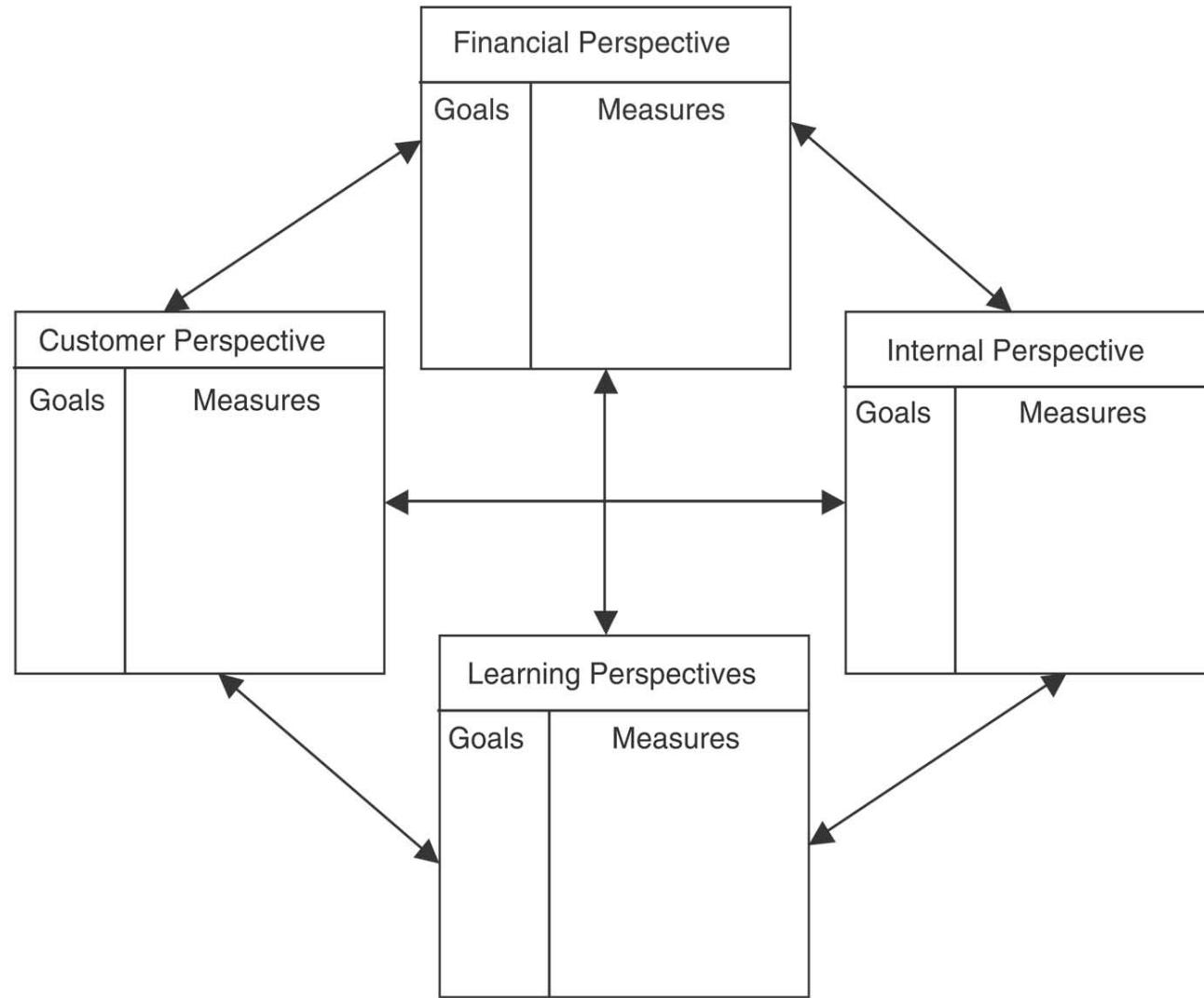
- Ensure that the money spent on IT results in benefits for the organization.
- A common, accepted set of **metrics** must be created.
 - Metrics must be monitored and communicated to **senior management** and customers of the IT department.
 - Metrics are often financial in nature (e.g., ROI, NPV).
 - **IT metrics** include:
 - logs of errors encountered by users, end-user surveys, user turnaround time, logs of computer and communication up/downtime, system response time, and percentage of projects completed on time and/or within budget.
 - **Business metrics** include:
 - the number of contacts with external customers, sales revenue accrued from web channels, and new business leads generated.

The Balanced Scorecard



- Two methods for communicating metrics are **scorecards** and **dashboards**.
- Robert Kaplan and David Norton developed the balanced scorecard.
 - Focuses attention on the organization's value drivers—which include, but are not limited to, financial performance.
- Companies use it to assess the full impact of their **corporate strategies** on their customers and workforce as well as their financial performance.
- This methodology allows managers to look at the business from four perspectives (Figure 7.11):
 - Customer, internal business, innovation/learning, and financial.

Figure 7.11 The Balanced Scorecard perspectives.



The Usefulness of the Balanced Scorecard



- Managers of IT found the scorecard to be useful in managing and communicating the **value** of the IT department.
- Applying the categories of the balanced scorecard to IT might mean interpreting them more broadly than originally conceived by Kaplan and Norton.
- The questions asked when using this methodology within the IT department are summarized in Figure 7.12.
- Norton found the balanced scorecard to be the most effective management framework for achieving **organizational alignment** and strategic success.
 - Senior IT managers understand their organization's performance and measure it in a way that supports its business strategy and goals.

Figure 7.12 Balanced scorecard applied to IT departments.

Dimension	Description	Example IT Measures
Customer perspective	<i>How do customers see us?</i> Measures that reflect factors that really matter to customers	Impact of IT projects on users, impact of IT's reputation among users, and user-defined operational metrics
Internal business perspective	<i>What must we excel at?</i> Measures of what the company must do internally to meet customer expectations	IT process metrics, project completion rates, and system operational performance metrics
Innovating and learning perspective	<i>Can we continue to improve and create value?</i> Measures of the company's ability to innovate, improve, and learn	IT R&D, new technology introduction success rate, training metrics
Financial perspective	<i>How do we look to shareholders?</i> Measures to indicate contribution of activities to the bottom line	IT project ROI, NPV, IRR, cost/benefit, TCO, ABC

IT Dashboards



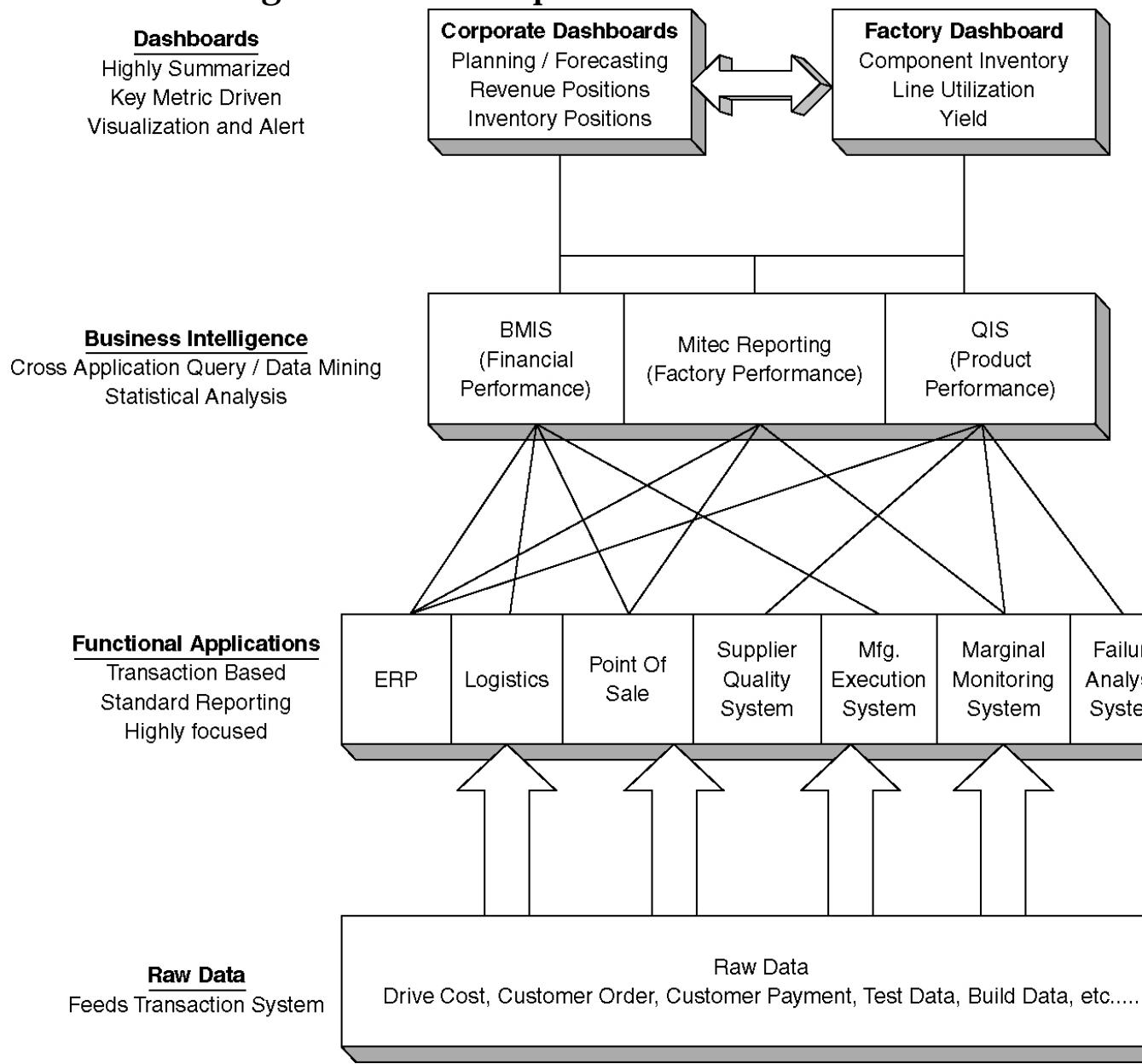
- IT dashboards: [Example](#)
 - summarize key metrics for senior managers in a way that provides quick identification of the **status** of the organization.
 - provide frequently-updated information on areas of interest within the IT department.
- The data focuses on project status or operational systems' status.
- In order to increase its transparency, the U.S. federal government created an IT dashboard website in 2009.
 - The increased **transparency** increased **accountability** for managing the investments.
- Figure 7.13 contains the architecture of a sample dashboard for Western Digital.

Types of IT Dashboards



- Types of IT Dashboards:
 1. Portfolio dashboards.
 - Show senior IT leaders the status, problems, milestones, progress, expenses, and other metrics related to specific projects.
 2. Business-IT dashboards.
 - Show relevant business metrics and link them to the IT systems that support them.
 3. Service dashboards.
 - Show the important metrics about the IS such as up-time, throughput, service tickets, progress on bug fixes, help desk satisfaction, etc.
 4. Improvement dashboards.
 - Monitor the three to five key improvement goals for the IT group.

Figure 7.13 Example architecture of a dashboard.



Funding IT Resources



- Who pays for IT?
- The three main funding methods are **chargeback**, **allocation**, and **corporate budget**.
 - Both chargeback and allocation methods distribute the costs back to the businesses, departments, or individuals within the company.
 - In corporate budgeting, costs are not linked directly with any specific user or business unit; costs are recovered using corporate coffers.

Group Discussion: Which funding method works best?

Why?

Chargeback



- IT costs are recovered by charging individuals, departments, or business units based on **actual usage** and cost.
- The IT organization collects usage data on each system it runs.
 - Rates for usage are calculated based on the actual cost to run the system and are billed out on a regular basis.
- When the IT organization wants to recover administrative and overhead costs using a chargeback system, costs are built into rates charged for each of the services.
- Chargeback systems are popular and are:
 - Viewed as the most equitable way to recover IT costs.
 - Expensive to create and manage.
 - Most appropriate when there is a wide variation in usage among users or when actual costs need to be accounted for by the business units.

Allocation



- Allocation funding method recovers costs based on **something** other than usage such as revenues, login accounts, or number of employees.
- Simpler to implement and apply each month compared to the chargeback mechanism.
- The rate charged is often **fixed** at the beginning of the year.
- Two main advantages:
 - The level of detail required to calculate the allocations is much less.
 - Leads to cost savings.
 - Charges from the IT organization are predictable.
 - Generates far less frequent arguments from the business units.

Allocation Mechanisms



- Two major complaints about allocation systems:
 - The **free-rider** problem.
 - A large user of IT services pays the same amount as a small user.
 - Deciding the basis for allocating the costs.
 - Choosing the number of employees over the number of desktops or other basis is a management decision.
- Allocation mechanisms work well when a corporate **directive** requires use of this method and when the units agree on the basis for dividing up the costs.
- A **follow-up** (“true-up”) process is needed at the end of the fiscal year.
 - The total IT expenses are compared to total IT funds recovered.
 - Extra funds are given back to the business units.

Corporate Budget



- With the corporate budget funding method, the costs fall to the corporate bottom line rather than levying charges on specific users or business units (Figure 7.14).
- Corporate budget advantages:
 - Relatively simple method for funding IT costs.
 - Requires no calculation of prices of the IT systems.
 - Bills are not generated on a regular cycle to the businesses.
 - Concerns are raised less often.
 - IT managers **control** the entire budget.
 - Control the use of the funds.
 - Have more input into what systems are created, how they are managed, and when they are retired.
 - Encourages the use of new technologies because learners are not charged for exploration and inefficient system use.

Corporate Budget Drawbacks



- Corporate budget drawbacks:
 - All IT expenditures are subjected to the **same** process as all other corporate expenditures—the budgeting process.
 - One of the most stressful events of the year.
 - Everyone is competing for scarce funds.
 - When business units do not get billed, it is hard to control usage.
 - The IT group may feel less accountable.
 - The IT organization may be less end-user or customer oriented.

Figure 7.14 Comparison of IT funding methods.

Funding Method	Description	Why Do It?	Why Not Do It?
Chargeback	Charges are calculated based on actual usage.	Fairest method for recovering costs because it is based on actual usage. IT users can see exactly what their usage costs are.	IT department must collect details on usage, which can be expensive and difficult. IT must be prepared to defend the charges, which takes time and resources.
Allocation	Total expected IT expenditures are divided by nonusage basis such as number of login IDs, employees, or desktops.	Less bookkeeping for IT because rate is set once per fiscal year, and basis is well understood. Predictable monthly costs.	IT department must defend allocation rates; may charge low-usage department more than their usage would indicate is fair.
Corporate Budget	Corporate allocates funds to IT at annual budget session.	No billing to the businesses. IT exercises more control over what projects are done. Good for encouraging use of new technologies.	Competes with all other budgeted items for funds.

How Much Does it Cost?



- The three major IT funding approaches are designed to **recover** the costs of building and maintaining IS.
- The goal is to cover the costs, not to generate a profit.
- The most basic method for calculating the costs of a system is to add the costs of all the components including:
 - hardware.
 - software.
 - network.
 - people involved.
- IT organizations calculate the initial costs and ongoing maintenance costs in this way.

Direct and Indirect Costs



- Traditional accounting methods account for **direct** and **indirect** costs.
- **Direct costs** can be clearly linked to a particular process or product.
 - E.g., components used to manufacture the product, assembler's wages for time spent building the product, etc.
- **Indirect costs** are the overhead costs.
 - E.g. the electric bill, the salary of administrative managers, the expenses of administrative function, the wages of the supervisor overseeing the assembler, the cost of running the factory, the maintenance of machinery used for multiple products, etc.

Activity-Based Costing (ABC)



- The allocation process can be cumbersome and complex.
 - A source of trouble for many organizations.
- Calculates costs by counting the **actual activities** that go into making a specific product or delivering a specific service.
- **Activities** are processes, functions, or tasks that occur over time and produce recognized results.
- Activities are the common denominator between business process improvement and information improvement across departments.
- ABC calculates the amount of **time** that system was spent supporting a particular activity and allocates only that cost to that activity.
 - Charges all costs to “profit centers” instead of to “cost centers.”

Total Cost of Ownership



- When a system is proposed and a business case is created to justify the investment, the decision is often made on **incomplete information**.
- **Total cost ownership (TCO)**: one technique used to calculate a more accurate cost that includes all associated costs.
 - Rapidly becoming the industry standard.
 - Gartner Group introduced TCO in the late 1980s to calculate PC-based IT infrastructures.
- TCO looks beyond initial capital investments.
 - Includes costs associated with technical support, administration, training, and system retirement.

TCO Calculation for IT Infrastructure



- TCO:
 - estimates annual costs **per user** for each potential infrastructure choice and then totals them.
 - provides the best investment numbers to compare with financial return numbers when analyzing the net returns on various IT options.
- A major IT investment is for **infrastructure**.
 - Figure 7.15 uses the hardware, software, network, and data categories to organize the TCO components the manager needs to evaluate.
 - The manager can assess infrastructure components at a medium level of detail and categorically allocate “softer” costs like administration and support.

Figure 7.15 TCO component evaluation.

	Infrastructure	Cost per end user of	Cost per end user of
Category	Component	Option 1	Option 2
Hardware	Desktops Servers Mobile platforms Printers Archival storage Technical support Administration Training Informal support Retirement		
	Total Hardware Cost		
Software	OS Office Suite Database Proprietary Technical support Administration Training Informal support		
	Total Software Cost		
Network	LAN WAN Dial-in lines/modems Technical support Administration		
	Total Network Cost		
Data	Removable media On-site backup storage Off-site backup storage		
	Total Data Cost		

TCO Component Breakdown – Hardware and Software



- The TCO framework for the **hardware** category includes computing platforms and peripherals.
- The components listed are somewhat arbitrary.
 - Highly unusual that every user possesses every component.
 - For shared components, such as servers and printers, TCO estimates should be computed per component and then divided among all users who access them.
 - When only certain groups of users possess certain components, it is wise to segment the hardware analysis by platform.
- **Soft costs**, such as technical support, administration, and training, are easier to estimate than they appear.
 - These calculations can be broken down (Figure 7.16).
 - The final soft cost, informal support, is important but may be harder to pin down.

Figure 7.16 Soft costs considerations.

Soft Cost Areas	Components of Cost	User	Annual Costs	Cost/Hour	Total Cost
Technical support	Hardware phone support In-person hardware troubleshooting Hardware hot swaps Physical hardware repair Total cost of technical support	Call center IT operations IT operations IT operations			
Administration	Hardware setup Hardware upgrades/modifications New hardware evaluation Total cost of administration	System administrator System administrator IT operations			
Training	New employee training Ongoing administrator training Total cost of training Total soft costs for hardware	IT operations Hardware vendor			

TCO Component Breakdown – Informal Support



- Managers want to analyze the costs of **informal support** for two reasons:
 1. The costs—both in salary and in opportunity.
 - Nonsupport employee costs may prove significantly higher than analogous costs for a formal support employee.
 2. The quantity of informal support activities in an organization provides an indirect measure of the **efficiency** of its IT support organization.
 - The formal support organization should respond with sufficient promptness and thoroughness to discourage all but the briefest informal support transactions.
- Putting dollar values on informal support may be a challenge.
- Managers want to gauge the relative potential of each component option to affect the need for informal support.
 - Even if the figures are inaccurate, managers can be more aware of areas where costs can be cut.

TCO as a Management Tool



- TCO:
 - is a tool for evaluating which **infrastructure** components to choose.
 - can help managers understand how infrastructure costs break down.
- **Labor** costs associated with an IT infrastructure far outweigh the actual capital investment costs.
 - TCO provides the fullest picture of where managers spend their IT dollars.
- TCO results can be evaluated over time against **industry standards**.
- TCO studies assist in decisions about budgeting, resource allocation, and organizational structure.
 - The cost of implementing TCO can be a detriment to the program's overall success.
- Both ABC and TCO are complex approaches.
 - Require significant effort to determine the costs to use in the calculations.
- Managers must weigh the benefits of using these approaches with the costs of obtaining reliable data.

Chapter 7 - Key Terms



Activity-based costing (ABC) (p. 227) - calculates costs by counting the actual activities that go into making a specific product or delivering a specific service.

Allocation funding method (p. 224) - recovers costs based on something other than usage—such as revenues, login accounts, or number of employees.

Balanced scorecard (p. 218) - focuses attention on the organization's value drivers—which include, but are not limited to, financial performance.

Business case (p. 209) - a structured document that lays out all the relevant information needed to make a go/no-go decision.

Chapter 7 - Key Terms (Cont.)



Business-IT Maturity Model (p. 198) - a useful tool for understanding the differences in capabilities.

Business technology strategist (p. 206) - the strategic business leader who uses technology as the core tool in creating competitive advantage and aligning business and IT strategies.

Chargeback funding method (p. 223) - charging individuals, departments, or business units based on actual usage and cost.

Chief Information Officer (CIO) (p. 206) - the senior-most executive in the enterprise responsible for technology vision and leadership for designing, developing, implementing, and managing IT initiatives for the enterprise to operate effectively in a constantly changing and intensely competitive marketplace.



Chapter 7 - Key Terms (Cont.)

Corporate budget funding method (p. 225) - the costs fall to the corporate bottom line rather than levying charges on specific users or business units.

Dashboard (p. 221) - provides a snapshot of metrics at any given point in time.

Economic value added (EVA) (p. 216) - accounts for opportunity costs of capital to measure true economic profit and revalues historical costs to give an accurate picture of the true market value of assets.

IT portfolio management (p. 213) - “evaluating new and existing applications collectively on an ongoing basis to determine which applications provide value to the business in order to support decisions to replace, retire, or further invest in applications across the enterprise.”



Chapter 7 - Key Terms (Cont.)

Net present value (NPV) (p. 216) - calculated by discounting the costs and benefits for each year of the system's lifetime using the present value factor calculated each year as $1/(1+ \text{discount rate})^{\text{year}}$.

Return on investment (ROI) (p. 216) - Percentage rate that measures the relationship between the amount the business gets back from an investment and the amount invested.

Total cost of ownership (TCO) (p. 228) – calculation that includes all costs associated with technical support, administration, training, and system retirement.



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