ICS 3110
INFORMATION MANAGEMENT

Chapter 1

Information Systems and Management

Learning Outcomes

- By the end of this unit, the learner should be able to:
  - Describe the need for information management.
  - Describe business perspective of information systems.
  - Describe IT funding methods.

Acknowledgment

- Notes adapted from:

1. Managing and Using Information Systems By Keri E. Pearlson and Carol S. Saunders.
2. Management Information Systems: *Managing The Digital Firm.* By Kenneth C. Laudon and Jane P. Laudon.

Introduction

- The business side of IT is similar to the business itself.
- Projects are funded through budget allocations or a multitude of other sources, and managing those funds is done with prudent business practices.

Introduction

- The basic tools of finance and accounting are the basic tools for the financial management of IT, and further, for determining and communicating the value received from IT investments.

Information Systems

- Firms are intensively using information systems and making large investments in information technology.
- You will certainly want to know how to invest this money wisely.
- If you make wise choices, your firm can outperform competitors and If you make poor choices, you will be wasting valuable capital.

Information Management

- In today's knowledge economy, organizations that cant properly utilize their information assets risks serious failure.

What is Information Management?

- Information management is an emerging field that is concerned with:
  - The infrastructure used to collect, manage, preserve, store and deliver information.
  - The guiding principles that allow information to be available to the right people at the right time.
  - The organizational and social contexts in which information exists.

Purpose of Information Management

1. Design, develop, manage, and use information with insight and innovation.
2. Support decision making and create value for individuals, organizations, communities and societies.

Organizations

- Information systems are an integral part of organizations.
- The key elements of an organization are its:
  - People
  - Structure
  - Business processes
  - Politics, and culture.

Organizations

- Organizations have a structure that is composed of different levels and specialties.
- Their structures reveal a clear-cut division of labor.
- Authority and responsibility in a business firm are organized as a hierarchy, or a pyramid structure.

Organizations

- The upper levels of the hierarchy consist of managerial, professional, and technical employees, whereas the lower levels consist of operational personnel.

Business Processes

- An organization coordinates work through its hierarchy and through its business processes, which are logically related tasks and behaviors for accomplishing work.
  - Examples: Developing a new product, fulfilling an order, and hiring a new employee.

Business Processes

- Most organizations' business processes include formal rules that have been developed over a long time for accomplishing tasks.
- These rules guide employees in a variety of procedures, from writing an invoice to responding to customer complaints.

Business Processes

- Some of these business processes have been written down, but others are informal work practices, such as a requirement to return telephone calls from co-workers or customers, that are not formally documented.

Business Processes

- Information systems automate many business processes.
- E.g. how a customer receives credit or how a customer is billed is often determined by an information system that incorporates a set of formal business processes.

Culture

- Each organization has a unique culture, or fundamental set of assumptions, values, and ways of doing things, that has been accepted by most of its members.
- You can see organizational culture at work by looking around your university or college.

Culture

- Some bedrock assumptions of university life are that professors know more than students, the reasons students attend college is to learn, and that classes follow a regular schedule.
- Parts of an organization's culture can always be found embedded in its information systems.

Politics

- Different levels and specialties in an organization create different interests and points of view.
- These views often conflict over how the company should be run and how resources and rewards should be distributed.

Politics

- Conflict is the basis for organizational politics.
- Information systems come out of this cauldron of differing perspectives, conflicts, compromises, and agreements that are a natural part of all organizations.

Management

- Management's job is to make sense out of the many situations faced by organizations, make decisions, and formulate action plans to solve organizational problems.

Management

- Managers
  - Perceive business challenges in the environment;
  - They set the organizational strategy for responding to those challenges; and
  - They allocate the human and financial resources to coordinate the work and achieve success.
- Throughout, they must exercise responsible leadership.

Management

- But managers must do more than manage what already exists.
- They must also create new products and services and even re-create the organization from time to time.
- A substantial part of management responsibility is creative work driven by new knowledge and information.

Management

- Information technology can play a powerful role in helping managers design and deliver new products and services and redirecting and redesigning their organizations.

Management

- Information systems must provide information to satisfy the needs of managers and workers.
- Management is responsible for monitoring service levels and costs and for promoting the company's strategy of combining low cost and superior service.

Business Perspective On Information Systems

- Managers and business firms invest in information technology and systems because IS provide real economic value to the business.
- The decision to build or maintain an information system assumes that the returns on this investment will be superior to other investments in buildings, machines, or other assets.

Business Perspective On Information Systems

- These superior returns will be expressed as:
  - Increase in productivity.
  - Increase in revenues (which will increase the firm's stock market value)
  - Superior long-term strategic positioning of the firm in certain markets (which produce superior revenues in the future).

Business Perspective On Information Systems

- From a business perspective, an information system is an important instrument for creating value for the firm.
- Information systems enable the firm to increase its revenue or decrease its costs by providing information that helps managers make better decisions or that improves the execution of business processes.

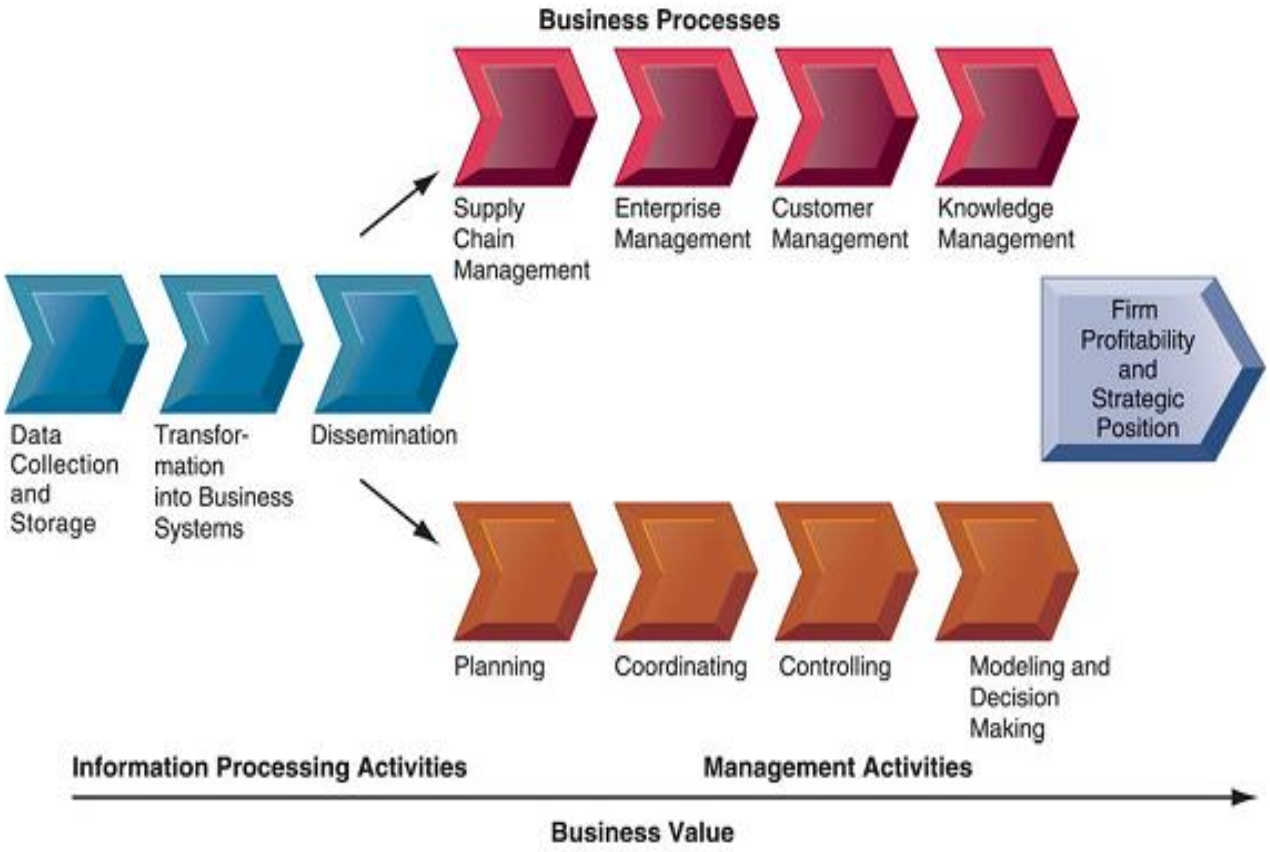
Business Perspective On Information Systems

- For example, information system for analyzing supermarket checkout data can increase firm profitability by helping managers make better decisions on which products to stock and promote in retail supermarkets.

Business Perspective On Information Systems

- Every business has an information value chain, in which raw information is systematically acquired and then transformed through various stages that add value to that information.

Business Information Value Chain



Business Perspective On Information Systems

- The value of an information system to a business, as well as the decision to invest in any new information system, is, in large part, determined by the extent to which the system will lead to better management decisions, more efficient business processes, and higher firm profitability.

Business Perspective On Information Systems

- Although there are other reasons why systems are built, their primary purpose is to contribute to corporate value.
- From a business perspective, information systems are part of a series of value-adding activities for acquiring, transforming, and distributing information that managers can use to improve decision making, enhance organizational performance, and, ultimately, increase firm profitability.

Business Perspective On Information Systems

- The business perspective calls attention to the organizational and managerial nature of information systems.
- An information system represents an organizational and management solution, based on information technology, to a challenge or problem posed by the environment.

Organizational Capital and The Right Business Model

- Awareness of the organizational and managerial dimensions of information systems can help us understand why some firms achieve better results from their information systems than others.
- Studies of returns from information technology investments show that there is considerable variation in the returns firms receive.

Organizational Capital and The Right Business Model

- Some firms invest a great deal and receive a great deal; others invest an equal amount and receive few returns.
- Still other firms invest little and receive much, whereas others invest little and receive little.
- This suggests that investing in information technology does not by itself guarantee good returns

What accounts for this variation among firms?

- The answer lies in the concept of complementary assets.
- Information technology investments alone cannot make organizations and managers more effective unless they are accompanied by supportive values, structures, and behavior patterns in the organization and other complementary assets.

What accounts for this variation among firms?

- Business firms need to change how they do business before they can really reap the advantages of new information technologies.
- Some firms fail to adopt the right business model that suits the new technology, or seek to preserve an old business model that is doomed by new technology.

What accounts for this variation among firms?

- For instance, recording label companies refused to change their old business model, which was based on physical music stores for distribution rather than adopt a new online distribution model.
- As a result, online legal music sales are dominated not by record companies but by a technology company called Apple Computer.

Complementary Assets

- Complementary assets are those assets required to derive value from a primary investment (Teece, 1988).
- For instance, to realize value from automobiles requires substantial complementary investments in highways, roads, gasoline stations, repair facilities, and a legal regulatory structure to set standards and control drivers.

Complementary Assets

- Research on business information technology investment indicates that firms that support their technology investments with investments in complementary assets, such as new business models, new business processes, management behavior, organizational culture, or training, receive superior returns, whereas those firms failing to make these complementary investments receive less or no returns on their information technology investments.

Complementary Assets

- These investments in organization and management are also known as organizational and management capital.

Major Complementary Investments

- Organizational assets.
- Managerial assets.
- Social assets

Complementary Assets

- Organizational assets
  - Supportive organizational culture that values efficiency and effectiveness
  - Appropriate business model
  - Efficient business processes
  - Decentralized authority
  - Distributed decision-making rights
  - Strong IS development team

Major Complementary Investments

- Managerial assets
  - Strong senior management support for technology investment and change
  - Incentives for management innovation
  - Teamwork and collaborative work environments
  - Training programs to enhance management decision skills
  - Management culture that values flexibility and knowledge-based decision making

Major Complementary Investments

- Social assets
  - The Internet and telecommunications infrastructure
  - IT-enriched educational programs raising labor force computer literacy
  - Standards (both government and private sector)
  - Laws and regulations creating fair, stable market environments
  - Technology and service firms in adjacent markets to assist implementation

Complementary Assets

- Some of this investment involves tangible assets, such as buildings, machinery, and tools.
- However, the value of investments in information technology depends to a large extent on complementary investments in management and organization.

Funding IT Department

- Who pays for:
  - IT? The users?
  - The IT department?
  - The corporate function?
  - Certain costs are associated with designing, developing, delivering, and maintaining the IT systems.
  - How are these costs recovered?

IT Funding Methods

- The three main funding methods are:
  - Chargeback
  - Allocation, and
  - Corporate budget

Chargeback

- With a chargeback funding method, IT costs are recovered by charging individuals, departments, or business units based on actual usage and cost.
- The IT department collects usage data on each system it runs.
- Rates for usage are calculated based on the actual cost to the IT group to run the system and billed out on a regular basis.

Chargeback

- Chargeback systems are popular because they are viewed as the most equitable way to recover IT costs.
- Costs are distributed based on usage or consumption of resources, ensuring that the largest portion of the costs is paid for by the group or individual who consumes the most.
- Chargeback systems can also provide managers with the most options for managing and controlling their IT costs..

Chargeback

- For example, a manager may decide to use desktop systems rather than laptop systems because the unit charge is less expensive.
- The chargeback system gives managers the details they need to understand both what IT resources they use and how to account for IT consumption in the cost of their products and services.

Chargeback

- Because the departments get a regular bill, they know exactly what their costs are.
- Creating and managing a chargeback system, however, is a costly endeavor itself.
- IT departments must build systems to collect details that might not be needed for anything other than the bills they generate.

Chargeback

- For example, if PCs are the basis for charging for network time, then the network connect time per PC must be collected, stored, and analyzed each billing cycle.
- The data collection quickly becomes large and complex, which often results in complicated, difficult-to-understand bills.

Chargeback

- In addition, picking the charging criteria is more of an art than a science.
- For example, it is relatively easy to count the number of PCs located in a particular business unit, but is that number a good measure of the network resources used?

Chargeback

- It might be more accurate to charge based on units of network time used, but how would that be captured and calculated?

Allocation

- To simplify the cost recovery process compared to the chargeback method, an allocation system can be used.
- An allocation funding method recovers costs based on something other than usage, such as revenues, login accounts, or number of employees.

Allocation

- With this type of allocation system, it does not matter whether these employees even use the IT; the department is still charged the same amount.

Allocation

- The allocation mechanism is simpler to implement and apply each month.
- Actual usage does not need to be captured.
- The rate charged is often fixed at the beginning of the year.

Two main advantages of Allocation

1. The level of detail required to calculate the allocations is much less, and for many organizations that aspect saves expense.
2. The charges from the IT department are predictable.

Two main advantages of Allocation

- Unlike the chargeback mechanism, where each bill opens up an opportunity for discussion about the charges incurred, the allocation mechanism seems to generate far less frequent arguments from the business units.
- Often, quite a bit of discussion takes place at the beginning of the year, when rates and allocation bases are set, but less discussion occurs each month, because the managers understand and expect the bill.

Two major complaints made about allocation systems

1. The free rider problem: a large user of IT services pays the same amount as a small user when the charges are not based on usage.
2. Deciding the basis for charging out the costs is an issue.

Complaints made about allocation systems

- Choosing the number of employees over the number of desktops or other basis is a management decision, and whichever basis is chosen, someone will pay more than their actual usage would imply.
- 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.

Complaints made about allocation systems

- Often when an allocation process is used, a true-up process is needed at the end of the year, in which total IT expenses are compared to total IT funds recovered from the business units and any extra funds are given back to the business.

Complaints made about allocation systems

- In some cases, additional funds are needed, however IT managers try to avoid asking for funds to make up for shortfalls in their budget.
- The true up process is needed because the actual cost of the information system is difficult to predict at the beginning of the year.

Complaints made about allocation systems

- Cost changes over the year since hardware, software, or support costs fluctuate in the marketplace and because IT managers, like all managers, work constantly on improving efficiency and productivity, resulting in lower costs.

Complaints made about allocation systems

- In an allocation process, where the rate charged for each service is fixed for the year, a true-up process allows IT managers to pass along any additional savings to their business counterparts.

Complaints made about allocation systems

- Business managers often prefer the predictability of their monthly IT bills along with a true-up process over the relative unpredictability of being charged actual costs each month.

Corporate Budget

- An entirely different way to pay for IT costs is to simply consider them all to be corporate overhead and pay for them directly out of the 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.

Corporate Budget

- Corporate budgeting is a relatively simple method for funding IT costs.
- It requires no calculation of prices of the IT systems.
- And because bills are not generated on a regular cycle to the businesses, concerns are raised less often by the business managers.

Corporate Budget

- IT managers control the entire budget, giving them control of the use of those funds, and ultimately more input into what systems are created, how they are managed, and when they are retired.
- This funding method also encourages the use of new technologies because learners are not charged for exploration and inefficient system use.

Drawbacks of Corporate Budget

1. First, all IT expenditures are subjected to the same process as all other corporate expenditures, namely the budgeting process.

   In many companies, this process is one of the most stressful events of the year: everyone has projects to be done, and everyone is competing for scarce funds.

Drawbacks of Corporate Budget

- If the business units do not get billed in some way for their usage, many companies find that they do not control their usage. Getting a bill for services motivates the individual business manager to reconsider his or her usage of those services.

Drawbacks of Corporate Budget

2. If the business units are not footing the bill, the IT group may feel less accountable to them, which may result in an IT department that is less end-user or customer-oriented.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