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SECOND PHASE SUBMISSION OF ASSIGNMENT

MANAGEMENT INFORMATION SYSTEM



ATLANTIC INTERNATIONAL UNIVERSITY

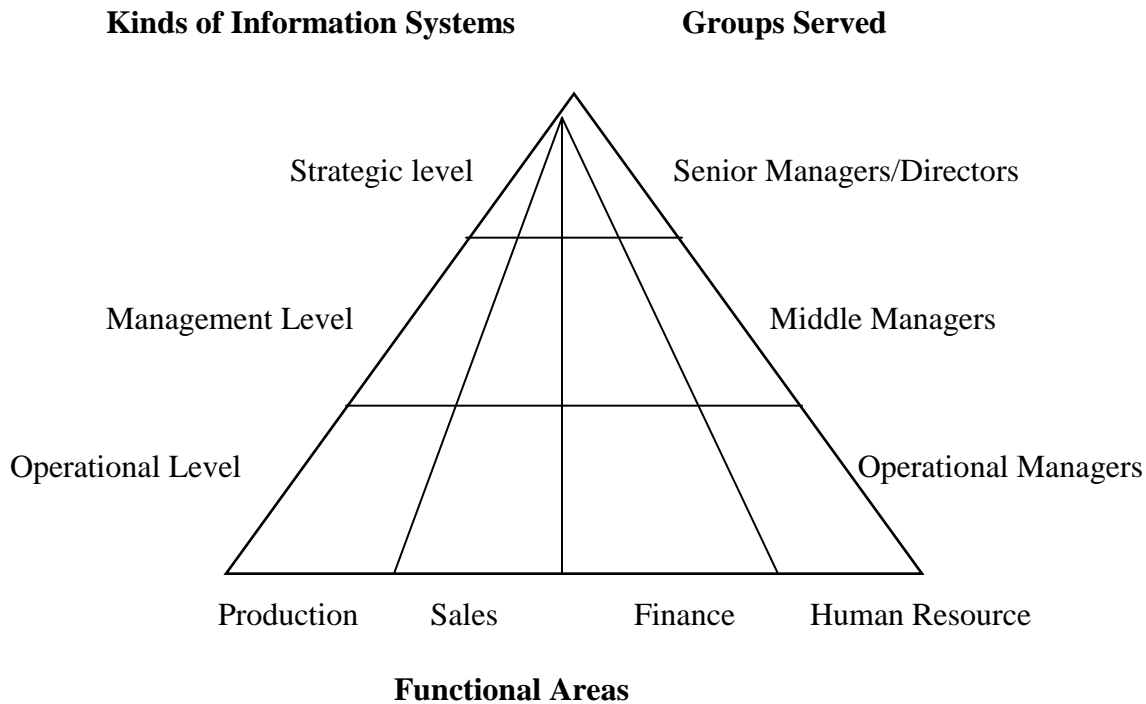
**MANAGEMENT INFORMATION SYSTEMS
COURSE**

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MANAGEMENT INFORMATION SYSTEMS

Because there are different interest, specialties and levels in an organization, there are different kinds of systems. No single system can provide all the information an organization needs.



The above diagram illustrates one way to depict the kinds of systems found in an organization.

In the above illustration the organization is divided into

- a) Strategic
- b) Management
- c) Operational

The above is further divided into functional areas as indicated in the figure hence this show that systems are built to serve different organizational interests.

a) Operational Level System

This supports operational managers by keeping track of the elementary activities and transactions of the organization i.e. cash deposits, payroll, credit decisions sales, receipts e.t.c

The principle purpose of systems at this level is to answer routine questions and track the flow of transactions through the organization. (Example of Operational Level system is record bank deposits from ATM and One that tracks the number of hours worked each day by employees on a factory floor.)

b) Management level systems

This serves the monitoring, controlling, decision-making and administrative activities of middle managers. The principle question addressed by such systems is (Are things working well) Management level systems typically provide periodic reports rather than instant information on operations. Mostly these systems show wherever actual costs exceed budgets.

Some management level systems support non-routine decision making. They tend to focus on less-structured decisions for which information requirements are not always clear. These systems often answer "What-if" questions thus answers to these questions frequently require new data from outside the organization, as well as data from inside that cannot be easily drawn from existing operational level systems.

c) Strategic –Level Systems

This system helps senior management tackle and address strategic issues and long-term trends both in the firm and in the external environment. Their principle concern is matching changes in the external environment with existing organizational capability.

ORGANIZATIONS, MANAGEMENT AND NETWORKED ENTERPRISE

Why Information Systems?

Ask managers to describe their most important resources and they'll list

a) Money b) Equipment

c) Materials c) People

It's very unusual for managers to consider information an important resource and yet it is.

We are in the midst of a swiftly moving river of technology and business innovation that is transforming the global business landscape. An entirely new internet business culture is emerging with profound implications for the conduct of business. This can be seen everyday on how business people work using the high-speed internet connection for e-mail and information gathering, portable computers connected to wireless networks, cellular telephones connected to the internet and computing power to an increasingly mobile and global workforce.

The emergence of internet business culture has set expectations that we all share. We expect online services for purchasing goods and services, we expect friends and business colleagues to be available by e-mail and cell-phone, and we expect to be able to communicate with our vendors, customers and employees anytime of the day or night over the internet.

Importance of Information Technology

- 1) Capital Management
- 2) Foundation of Doing Business
- 3) Productivity
- 4) Strategic Opportunity and advantage

1) Capital Management

Information Technology has become the largest component of capital investment for firms globally.

Investment in information technology has doubled as a percentage of total business investment and now accounts for more capital investment in the world.

2) Foundation of doing business

In many industries survival and even existence without extensive use of Information systems is inconceivable hence all e-commerce is impossible without substantial IT investments hence firms like Google, Amazon online universities i.e Atlantic International University simply wouldn't exist

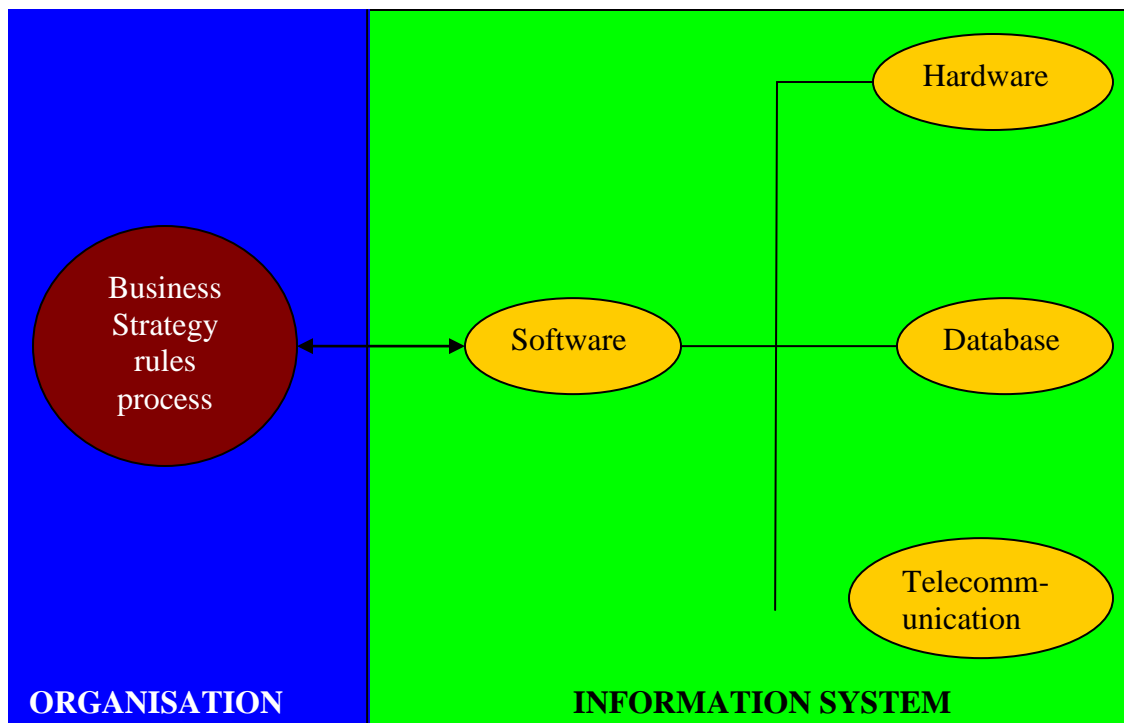
Today firms like Insurance, Finance, Real estate as well as personal services such as travel and education can not operate without IT. Therefore Information Technology is the foundation of business in the twentieth first century.

3) Productivity

IT is one of the most important tools along with innovation in organization and management, infact these innovations need to be linked together hence IT plays a critical role in increasing the productivity of firms, entire nations and the world.

In contemporary systems there is a growing interdependence between a firms information systems and its business capability. Changes un strategy, rules and business processes increasingly require changes in hardware, software, databases and telecommunications. Often what the organization would like to do depends on what its systems will permit it to do.

Organizations that invest wisely in information technology experience continued growth in productivity and efficiency



The above diagram show the interdependence between an organization information systems and its business capability

4) Strategic Opportunity and Advantage

If you want to take advantage of new opportunities in markets, develop new products and create new services chances are quite high you will need to make substantial investment in IT to realize the new business opportunities. If you want to achieve a strategic advantage over your rivals, to differentiate yourself from your competitors. IT is one avenue for achieving such advantages along with changes in business practices and management.

Why IT?

A combination of information technology innovations and a changing domestic and global environment makes the role of IT in business even more important than a few years year ago.

There are five factors to consider when assessing the growing impact of IT in business organizations.

- a) Internet growth and technology convergence
- b) Transformation of the business enterprise
- c) Growth of a globally connected economy
- d) Growth of knowledge and information based economies
- e) Emergence of the digital firm

Internet and Technology Convergence

The internet is bringing about a convergence of technologies, roiling markets, entire industries and firms in the processes. Traditional boundaries and business relationships are breaking down.

Telephone networks are merging into the internet and cellular phones are becoming internet access devices. The internet connected personal computer moving towards a role as a home entertainment control center.

Traditional networking and the internet are nearly synonymous with doing business. Firms' relationship with customers, employees, suppliers and logistic partners are becoming digital relationships i.e. as a consumer you will increasingly interact with sellers in digital environment, as an employer you will be interacting more electronically with your employees and giving them new digital tools to accomplish their work.

Electronic Business/E-Business- it's the designate use of the internet and digital technology to execute all of the activities in an enterprise. It includes activities for the internal management of the firm and coordination with suppliers and other business partners.

Electronic Commerce/ E-Commerce – It's the part of e-business that deals with buying and selling of goods and services electronically with computerized business transaction using the internet, networks and other digital technologies. It also includes activities supporting those market transactions such as advertising, marketing, customer support, delivery and payment.

Electronic Governments/E-Government – it's the application of the internet and related technologies to digitally enable government and public sector agencies relationships with citizens, businesses and other government arms. E-government can make government operations more efficient and also empower citizens by giving them easier access to information.

Transformation of the Business Enterprise

Along with rapid changes in markets and competitive advantage are changes in firms. The internet and new markets are changing the cost and revenue structure of traditional firms and are hastening the demise of traditional business models.

The internet and related technologies make it possible to conduct business across firm's boundaries almost as efficiently and effectively as it is to conduct business within the firm. This means that organizations are no longer limited by traditional boundaries or physical locations in how they design, develop and produce goods and services. It's possible to maintain close relationship with supplier and other business partners at a great distance and also outsource work that organizations formerly did themselves to other companies' i.e Cisco

Growth of a Globally Connected Economy

The success of firms today and in the future depends on their ability to operate globally.

Today information systems provide the communication and analytical power that organizations need to conduct trade and manage business global scale. Controlling the far-flung global corporation- communicating with distributors and suppliers, operating 24hours a day in different national environments, coordinating global work teams and servicing local and international reporting needs is a major challenge that requires powerful information systems

Globalization and IT bring new threats to domestic businesses because of global communication and management systems, customers now can shop in a worldwide market place obtaining price and quality information 24 hours a day. To become competitive participant in international markets organizations need powerful information and communication systems.

Growth of Knowledge and Information Based Economies

In knowledge and information based economies the market value of firms is based largely on intangible assets i.e. information, brands, unique business methods e.t.c.

Knowledge and information provide the foundation for valuable new products and services such as worldwide reservations systems, credit cards. Knowledge and information intense products i.e. computer games require a great deal of knowledge to produce and knowledge is used more intensively in the production of traditional products as well.

Emergence of the Digital Firm

A Digital firm is one in which nearly all of the organizations significant business relationships with customers, employees and suppliers are digitally enabled hence the core business processes are accomplished through digital networks spanning the entire organization.

Business processes refer to the set of logically related tasks and behaviors that an organization develops over time to produce specific business results and the unique manner in which these activities are organized and coordinated. Examples of business processes are Generating and fulfilling an order, developing a new product, creating marketing plan, hiring an employee.

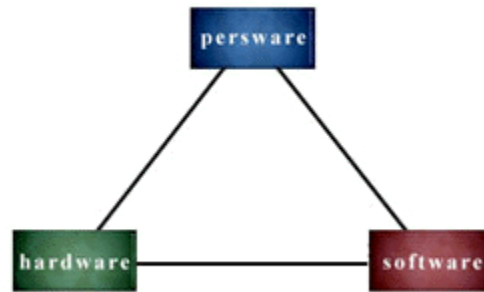
The way an organization manages accomplishes their business processes can be a source of competitive strength.

Digital firms sense and respond to their environment far more rapidly than traditional firms, giving the more flexibility to survive in turbulent times. They do offer extraordinary opportunities for more global organization and management. By digitally enabling and streamlining their work, digital firms have the potential to achieve unprecedented levels of profitability and competitiveness. A full digital firm is still a vision than a reality to most companies though this vision is driving them (companies) towards digital integration. Firms are continuing to invest heavily in information systems that integrate internal business processes and build closer link with suppliers and customers.

What Is an Information System?

(It's a set of interrelated components that collect (or retrieve), process, store and distribute information to support decision making and control.

Most of us think only of hardware and software when we think of an Information System. There is another component of the triangle that should be considered, and that's the people side, or "persware." Think of it this way:



input, processing, output and feedback processes. Most important is the feedback process; unfortunately it's the one most often overlooked. Just as in the triangle above, the hardware (input and output) and the software (processing) receive the most attention. With those two alone, you have computer literacy. But if you don't use the "persware" side of the triangle to complete the feedback loop, you don't accomplish much. Add the "persware" angle with good feedback and you have the beginnings of information literacy.

Information systems contain information about significant people, places and things within the organization or the environment surrounding it.

Information – is data that have been shaped into a form that is meaningful and useful to human beings.

Data – are streams of raw facts representing events occurring in organizations or its physical environment before they have been organized and arranged into a form that can be understood by people and used.

Business Perspective of information Systems

Business firms invest in information technology and systems because they provide real economic value to the business. The decision to build /maintain an information system assumes that the returns on this investment will be superior to other investments in buildings, machines or other assets. These superior returns will be expressed as increase in productivity, increase in revenues or perhaps a superior long term strategic positioning of the firm in certain markets.

In some cases, firms are required to invest in information systems simply because such investments are required to stay in business. For instance some small banks may be forced to invest in automatic teller machines (ATM) networks or offer complex banking services requiring large technology investments simply because it is a cost of doing business hence its assumed that most information systems investments will be justified by favorable results.

Every business has an information value chain, in which raw information is systematically acquired and then transformed through various stages that add value to the that information. The value of an information system to a business as well as the decision to invest in any new information system is I large part determined by the extent to which the system will lead to better management decision, more efficient business processes and a

higher firm profitability. Although there are other reasons why systems are built their primary objective is to contribute to corporate value.

Dimensions of Information Systems

There are three dimensions of information systems namely

- a) organization
- b) Management
- c) Information technology

a) Organization

Information systems are an integral part of organizations. The key elements of an organization are its :

- (i) People
- (ii) Structure
- (iii) Business processes
- (iv) Politics
- (v) Culture

Organizations are composed of different levels and specialties. Their structures reveal a clear-cut division of labor. Experts are employed and trained for different functions. The major business functions or specialized tasks performed by business organization consist of:

- (i) Sales and marketing
- (ii) Manufacturing and production
- (iii) Finance and accounting
- (iv) Human resources

An organization coordinates work through a structured hierarchy and through its business processes. The hierarchy arranges people in a pyramid structure of rising authority and responsibility. The upper levels of the hierarchy consist of

- (i) Managerial
- (ii) Professionals
- (iii) Technical employees

Whereas the lower levels consist of

- (i) Operational Personnel

	FUNCTIONS	PURPOSE
i	Sales and marketing	Selling the organization's products and services
ii	Manufacturing and production	Producing products and services
ii	Finance and Accounting	Managing the organization's financial assets and maintaining the organization's financial records
iv	Human resource	Attracting, developing and maintaining the organization's labor force, maintaining employee records

Most organizations business processes include formal rules that have been developed over a long time for accomplishing tasks. These rule guide employees in a variety of procedures from writing an invoice to responding to customer complaints thus some of these procedures have been formalized and written down but others are informal work practices such as a requirement to return a telephone call from co-workers or customers these are normally not documented

b) Management

Management's job is to make sense out of the many situations faced by organization's make decisions and formulate action plans to solve organizations problems. The Management perceives business challenges in the environment, they set the organization strategy for responding to those challenges and allocate human and financial resources to coordinate the work and achieve success. Throughout they must exercise responsible leadership

The management must do more than manage what already exists hence 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. Information technology can play a powerful role in re-directing and re-designing the organization.

Its important to note that managerial roles and decision vary at different levels of the organization. **Senior managers** make long-range strategic decisions about what products and services to produce. While **Middle managers** carry out the programs and plans of senior management. **Operational managers** are responsible for monitoring the firms daily activities. All levels of management are expected to be creative, to develop novel solutions to a broad range of problems thus each level of management has different information needs and information system requirements.

c) Technology

Information Technology is one of many tools that managers use to cope with change.

Computer hardware is the physical equipment used for input, processing and output activities in an information system. It consists of the following:

- a) The Computer processing unit
- b) various input, output and storage devices
- c) Physical media to link these devices together

Computer Software consists of the detailed, preprogrammed instructions that control and coordinate the computer components in an information system.

Storage technology includes both physical media for storing data, such as magnetic disk, optical disc or tape and the software governing the organization of the data on these physical media.

Communication technology consists of both physical devices and software, links the various pieces of hardware and transfers data from one physical location to another. Computers and communications equipment can be connected in networks for sharing voice, data, images, sound or even video hence a network links two or more computers to share data or resources e.g. printer

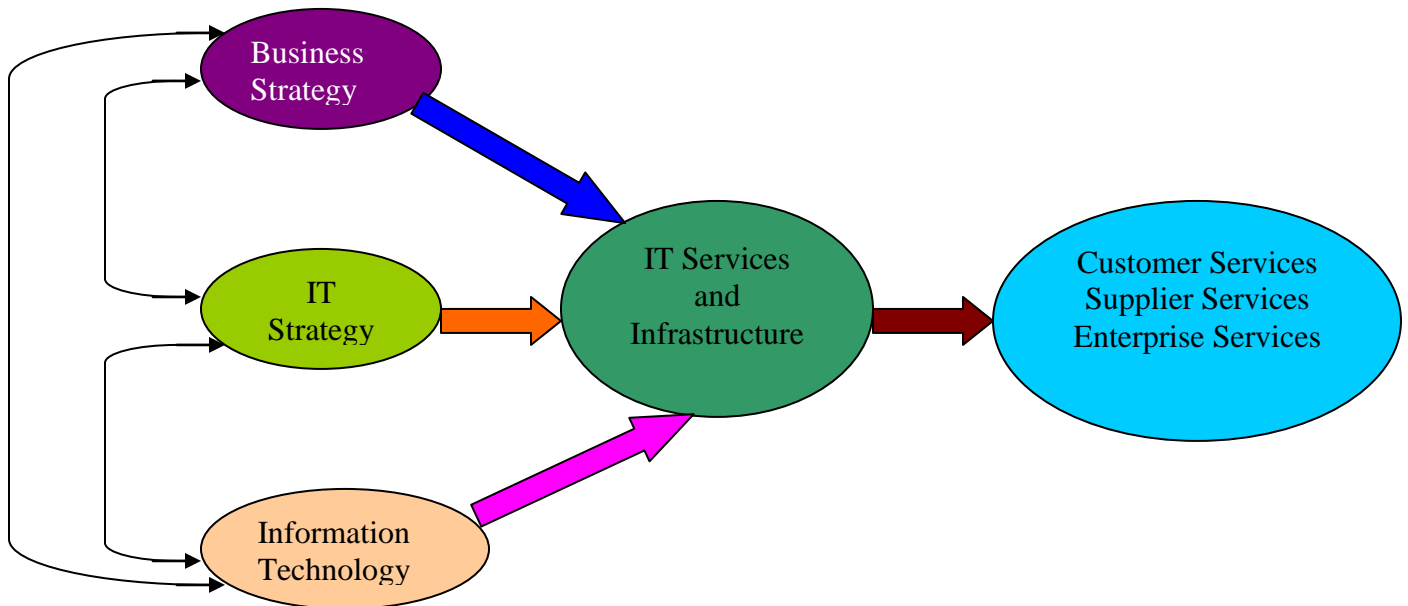
The world's largest and most widely used network is the internet. The internet is an international network of networks that are both commercial and publicly owned.

The internet has created a new "universal" technology platform on which to build all sorts of new products, services, strategies and business models. This technology platform has internal uses, providing the connectivity to link different systems and networks within the firm. Internal corporate networks based on internet technology are called **Intranets** and private intranets extended to authorize users outside the organization are called **extranets** and organizations use such networks to coordinate their activities with other firms for making purchases, collaborating on design and other inter-organizational work.

The internet services (World Wide Web) is of special interest to organizations. The World Wide Web is a system with universally accepted standards for storing, retrieving, formatting and displaying information in a networked environment. All web pages maintained by organizations/individuals are called Web site.

INFORMATION TECHNOLOGY INFRASTRUCTURE

IT infrastructure is a set of physical devices and software applications that are required to operate the entire enterprise.



The services a firm is capable of providing to its customers, suppliers and employees are a direct function of its IT infrastructure. This infrastructure should support the firm's business and information system strategy. New information technologies have a powerful impact on business and IT strategies as well as the services that can be provided to customers

Levels of IT Infrastructure

Firm infrastructure is organized at three major levels

- a) Public unit
- b) Enterprise unit
- c) Business unit

All firms are dependent on public IT infrastructure, which include the Internet, the Public switches telephone network, Industry –operated networks and other IT support facilities such as Cable systems and cellular networks.

Enterprise – wide infrastructure includes services such as e-mail, a central corporate Web site, corporate-wide intranets and an increasing array of enterprise-wide software applications.

Business units also have their own infrastructure that s uniquely suited to their line of business such as specialized production software and systems, customer and vendor systems

INFRASTRUCTURE COMPONENTS

IT infrastructure is composed of seven major components i.e.

- ❖ Databases Management and Storage
- ❖ Consultants and systems integrators
- ❖ Networking/Telecommunications
- ❖ Enterprise Software Applications
- ❖ Operating Systems Platforms
- ❖ Computer Hardware Platform
- ❖ Internet Platforms

The above mentioned components must be coordinated to provide the firm with a coherent IT infrastructure.

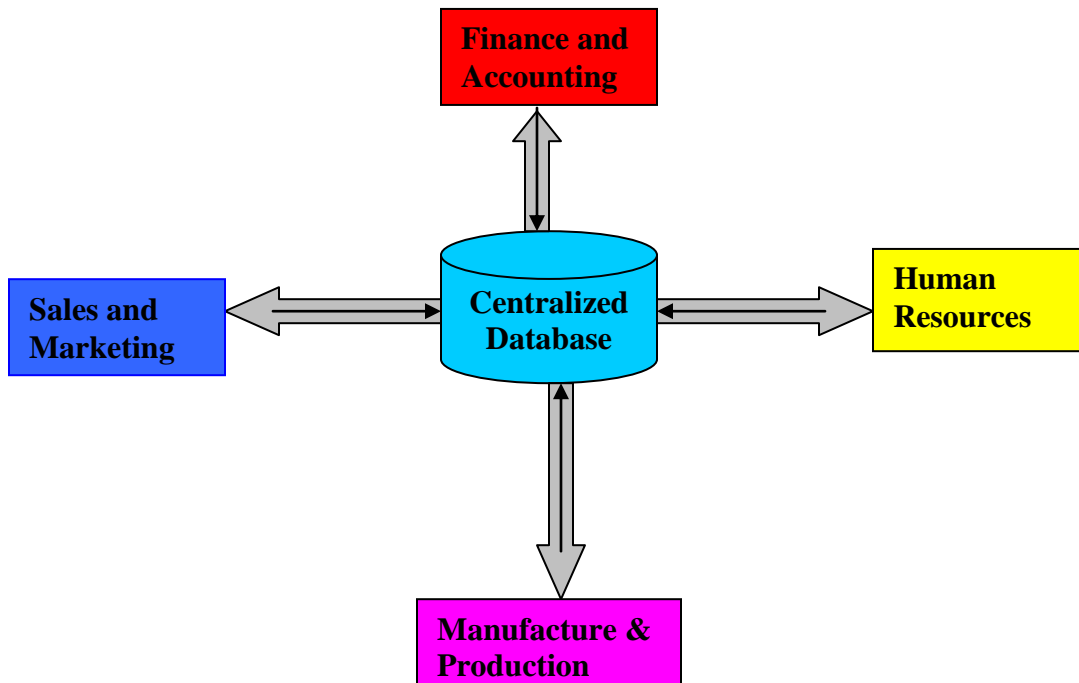
ORGANIZATIONAL AND MANAGEMENT SUPPORT SYSTEMS FOR THE DIGITAL FIRM

ENTERPRISE SYSTEMS

"Enterprise System also known as [Enterprise Resource Planning](#) System provide a single information system for organization-wide coordination and integration of key business processes. It collects data from various business processes in manufacturing and production, finance and accounting, sales and marketing, human resources; and store the data in a single ample data respiratory which help other part of business by providing required information." An Enterprise Information System would typically be operated by professional [system administrators](#) and be deployed on dedicated [servers](#). It would typically offer network connectivity and provide services that supported the operations carried out by the enterprise.

Both the value and the challenge of enterprise systems can be found in the integration they force on the firm's information and business processes. Enterprise software consist of a set interdependent software modules that support basic internal business processes for finance and accounting, human resources, production and sales and marketing.

The software enables data to be used by multiple functions and business processes for precise organizational coordination and control



Enterprise systems feature a set of integrated software modules and a central database that enable data to be shared by many different business processes and functional areas throughout the enterprise.

The software is built around thousands of predefined business processes

If the enterprise software does not support the way the organization does business, companies can rewrite some of the software to support the way their business processes work. However enterprise software is usually complex and extensive customization may degrade system performance, comprising the information and process integration that are the main benefits of the systems

Business Value of Enterprise Systems

Enterprise systems promise to integrate diverse internal business processes of a firm into a single information architecture and that integration can have a very large payback if a company installs and use enterprise software correctly. Enterprise systems can produce value both by increasing organizational efficiency and by providing firm wide information to help Management make better decisions.

❖ A More uniform organization

Companies can use enterprise systems to support organizational structure that were not previously possible or to create a more disciplined organizational culture i.e Firms can use enterprise systems to integrate the corporation across geographical or business unit boundaries or create a more uniform organizational culture in which every one uses similar processes and information. An enterprise enables organizations to do business the same way worldwide.

❖ More efficient operations and customer-driven business processes

Enterprise systems can help create the foundation for a more customer-driven organization. By integrating discrete business in sales, production, finance and logistics the entire organization more efficiently responds to customers request for products or information, forecast new products and build and deliver them as demand requires.

Manufacturing is better informed about producing only what customers have ordered procuring exactly the right amount of components or raw materials to fill actual orders, staging production and minimizing the time that components/finished productions are in inventory.

❖ Firm wide information for improved decision making

In addition to monitoring operational activities such as tracking the status of orders and inventory levels, enterprise systems also improve organization-wide reporting and decision making. Enterprise systems create a single, integrated repository of data for the entire firm. The data have common, standardized definitions and formats that are accepted by the entire organization.

Performance figures mean the same thing across the company and can be provided automatically without human intervention. Senior management can more easily find out at any moment how a particular organizational unit is performing i.e enterprise systems might

help senior management immediately determine which products are most or least profitable.

Enterprise system includes a variety of software's i.e. Supply chain Management Systems, Customer Relationship Management systems

ENTEPRISE INTERGRATION TRENDS

Businesses are now pursuing even greater degrees of cross-functional process integration than that supplied by the traditional enterprise applications. They want to make customer relationship management, Supply chain management and enterprise systems work closely together with each other and they want to link these systems tightly with those of customers, suppliers and business partners. Businesses also want to obtain more value from enterprise applications, web services and other integration technologies by using them as platforms for new enterprise wide services.

Enterprise software has become more flexible and capable of integration with other systems. The major enterprise software vendors have developed Web-enabled software for customer relationship management, supply chain management, decision support, enterprise portals and other business functional that integrate with the enterprise software.

MANAGEMENT OPPORTUNITIES, CHALLENGES AND SOLUTIONS

Implementation of an enterprise application is above all a business decision rather than a technology decision. Companies need to be sure that they are defining a problem that a customer relationship management, Supply Chain Management or enterprise system can solve. It's critical for an organization to know how much integration they want and what the organization will look and feel like when it is achieved.

Management Opportunities

Both the peril and promise of enterprise applications lie in their power to fundamentally change the way the organization works.

Overtime most firms obtain extraordinary business value from enterprise applications because of their power to improve process coordination and management decision making. Promises of dramatic reductions in inventory costs, order to delivery time, as well as more efficient customer response and higher product and customer profitability make these applications very alluring.

Management Challenges

❖ High Total Cost of Ownership

Enterprise systems, Supply chain management and Customer relationship management systems are very expensive to purchase and implement. The total implementation cost, including hardware, software, database tools, consulting fees, personnel costs and training are usually very high (costly). Cost run even higher for organizations with global operations, which must manage organizational and technology changes in many different languages, time zones, currencies and regulatory environments.

❖ Organizational Change Requirements

Enterprise applications require not only deep-seated technological changes but also fundamental changes in the way the business operates. Business processes change dramatically as do organizational structure and culture. Organizations that do not understand the need for these changes or that are unable to make them will have problems implementing enterprise applications and using them effectively.

Employees must accept new job functions and responsibilities. They will have to learn how to perform a new set of processes and understand how the information they enter into the system can affect other parts of the company. New organizational learning is required for organizational members to acquire complex new knowledge about new business rules and business processes.

Organizations embracing CRM (Customer Relationship Management) systems need to transform their focus from a product centric view to a customer centric view in which retaining a customer is a priority. These changes require more interdepartmental cooperation. If a firm's sales, marketing, support systems, back office systems and data

warehouses exist in isolation, the cross- functional information sharing, integration and business intelligence to optimize the customer experience cannot occur

Supply Chain Management raises implementation hurdles because it extends beyond the walls of the company. Business managers have accustomed to thinking about their firms , the best interests of their firms and business process improvements that benefit the entire firm

Unless enterprise application investments are accompanied by improvements in the firms business processes they are unlikely to improve the flow of information and goods.

Realizing Strategic Value

Companies may fail to achieve strategic benefits from enterprise applications if the generic processes that had been sources of advantage over competitors. Enterprise systems promote centralized organizational coordination and decision making, which may not be the best for some firms to operate.

Management Solution Guidelines

Successful implementation of enterprise applications requires knowledge of how the business works today as well as how it wants to work tomorrow it takes a lot of work to get enterprise applications to work properly. Everyone in the organization must be involved.

❖ Look at Business objectives

A customer relationship management, Supply Chain Management or enterprise systems isn't merely a technology change it represents a fundamental change in the way the company conducts its business. Any Company contemplating such systems focus too much on the technology and not enough on business goals. The management must understand the business objectives they want to achieve with enterprise applications before buying any software. They must determine whether an enterprise application will actually help the company meet these objectives. Identify the key business processes the company is trying to improve and how much these processes must change with an enterprise application should always.

❖ Attention to data and data management

Enterprise applications require that information that was previously maintained in different systems and different departments and functional areas be integrated and made available to the company as a whole. Companies' implementing enterprise applications must develop organization-wide definitions of data. Understanding how the organization uses its data and how the data would be handled in a customer relationship management, supply chain management or enterprise systems.

❖ **Senior Management Commitment and Employee Support**

Support and backing from the CEO is critical for ensuring that all changes required by enterprise applications will be adopted by the entire company. Employees/People are much more willing to take on different job responsibilities or change the way they work if senior management is firmly behind the effort. Support for the system can be encouraged by clearly demonstrating the business value that comes with the enterprise application project and how all can contribute to its success

❖ **Education and Training**

Education and training are always essential for successful information system implementation, but even more so for enterprise applications. Managers must learn how the system can change key processes, organizational structure and information they use.

Employees will need to learn exactly how the system supports the work they perform and how it affects the broader organization each time its used.

BUILDING AND MANAGEMENT INFORMATION SYSTEMS

Systems as Planned Organizational Change

Building a new information system is one kind of planned organizational change. The introduction of a new information system involves much more than new hardware and software. It also includes changes in jobs, skills, management and organization. When we design a new information system, we are re-designing the organization.

Linking Information Systems to the Business Plan

Deciding which new systems to build be an essential part of the organization planning process. Organizations need to develop an information systems plan that supports their overall business plan and in which strategic systems are incorporated into top-level planning. Once specific projects have been selected within the overall context of a strategic plan for the business and the systems are, an Information systems plan can be developed.

The plan serves as a road map indicating the direction of systems development (the purpose of the plan), the rational, current systems/situation, new developments to consider, the management strategy, the implementation plan and the budget.

The plan contains a statement of corporate goals and specifies how information technology will support the attainment of those goals. The report shows how general goals will be achieved by specific systems projects. It identifies specific target dates and milestones that can be used later to evaluate the plan's progress in terms of how many objectives were actually attained in the time frame specified in the plan. The plan indicates the key management decisions concerning hardware acquisition, telecommunications, centralization/decentralization of authority, data and hardware, and required organizational change. Organizational changes are also usually described, including management and employee training requirements, recruiting efforts, changes in business processes and changes in authority, structure or management practices.

Establishing Organizational Information Requirements

To develop an effective information system plan , the organization must have clear understanding of both its long and short term information requirements. Two principal methodologies for establishing the essential information requirements of the organization as a whole are:

- ❖ Enterprise Analysis
- ❖ Critical Success factors

ENTERPRISE ANALYSIS/BUSINESS SYSTEMS PLANNING

Enterprise Analysis: The firm's information requirements can be understood only by examining the entire organization in terms of organization units, functions, processes and data elements. Enterprise analysis can help identify the key entities and attributes of the organization's data i.e.

1. Purpose of the plan
 - Overview of plan contents
 - Current business organization and future organization
 - Key business processes
 - Management strategy
2. Strategic Business Plan Rationale
 - Current situation
 - Current business organization
 - Changing environments
 - Major goals of the business plan
 - Firm's strategic plan
3. Current Systems
 - Major systems supporting business functions and processes
 - Current Infrastructure capabilities
 - ❖ Hardware
 - ❖ Software
 - ❖ Database
 - ❖ Telecommunications and internet
 - Difficulties meeting business requirements
 - Anticipated future demands
4. New Developments
 - New system projects
 - ❖ Project description
 - ❖ Business rationale
 - ❖ Applications role in strategy
 - New infrastructure capabilities required
 - ❖ Hardware
 - ❖ Software
 - ❖ Database
 - ❖ Telecommunications and internet
5. Management Strategy
 - Acquisition plans
 - Milestones and timing
 - Organizational realignment
 - Management controls
 - Major training initiatives
 - Personnel strategy

6. Implementation Plan
 - Anticipated difficulties in implementation
 - Progress reports
7. Budget requirements
 - Requirements
 - Potential savings
 - Financing
 - Acquisition cycle

STRATEGIC ANALYSIS OR SUCCESS FACTORS

The strategic analysis/critical success factor approach is an organizations information requirements are determined by a small number of critical success factors of managers. If these goals can be attained, success of the firm or organization is assured. Critical success factor's (CSF's) are shaped by the industry, the firm, the manager and the broader environment. New information systems should focus on providing information that helps the firm meet these goals.

The principle method used in CSF analysis is personal interviews- three/four with a number of top managers identifying their goals and the resulting CSF's. These personal CSF's are aggregated to develop a picture of the firms CSF's. Then systems are built to deliver information on these CSF's.

The strength of the CSF method is that it produces less data to analyze than does enterprise analysis. Only top managers are interviewed and the questions focus on a small number of CSF's rather than requiring a broad inquiry into what information is used in the organization. This method explicitly asks managers to examine their environments and consider how their analyses of them shapes their information needs. It is especially suitable for top management and for the development of decision-support systems (DSS) and executive support systems (ESS) unlike enterprise analysis; the CSF method focuses organizational attention on how information should be handled.

The methods primary weakness is that the aggregation process and the analysis of the data are art forms. There is no particular rigorous way in which individual CSF's can be aggregated into a clear company pattern.

Systems Development and Organizational Change

Information technology can promote various degrees of organizational change, ranging from incremental to far-reaching. The listed below shows four kinds of structural organizational change that are enabled by information technology.

- 1) Automation
- 2) Rationalization
- 3) Re-engineering
- 4) Paradigm shifts

Each carries different rewards and risks

The most common form of IT-enabled organizational change is automation. The first applications of information technology involved assisting employees with performing their tasks more efficiently and effectively. Calculating paychecks and payroll registers, giving bank tellers instant access to customers deposit records these are all examples of automation.

A deeper form of organizational change one that follows quickly from early automation is rationalization of procedures. Automation frequently reveals new bottlenecks in production and makes the existing arrangement of procedures and structures painfully cumbersome.

Rationalization of procedures is the streamlining of standard procedures.

A more powerful type of organizational change is business process reengineering, in which business processes are analyzed, simplified and redesigned. Using information technology, organizations can rethink and streamline their business processes to improve speed, service and quality. Business reengineering reorganizes work flows, combining steps to cut waste and eliminating repetitive, paper intensive tasks. It is usually much more ambitious than rationalization of procedures, requiring a new vision of how the process is to be organized.

Rationalizing procedures and redesigning business processes are limited to specific parts of a business. New information systems can ultimately affect the design of the entire organization by transforming how the organization carries out its business or even the nature of the business.

A more radical form of business change is called paradigm shift. Paradigm shift involves rethinking the nature of the business and the nature of the organization.

In many instances firms seeking paradigm shift and pursuing reengineering strategies achieve stunning, order of magnitude increases in their returns on investment

Business Process Reengineering and Process Improvement

Many companies today are focusing on building new information systems that will improve their business processes. Some of these systems projects represent radical restructuring of business processes, whereas others entail more incremental process change.

Business process Reengineering

If organizations rethink and radically redesign their business processes before applying computer power, they can potentially obtain very large payoffs from investments in information technology.

Work flow management

It's a process of stream lining business procedures so that documents can be moved easily and efficiently.

Work flow and document management software automates processes such as routing documents to different locations, securing approvals, scheduling and generating reports. Two or more people can work on a document simultaneously, allowing much quicker completion time. Work need not to be delayed because a file is out or document is in transit. With a properly designed indexing system, users will be able to retrieve files in many different ways, based on the content of the document.

Steps in Effective Reengineering

One of the most important strategic decisions that a firm can make is not deciding how to use computers to improve business processes but rather understanding what business processes need improvement.

When systems are used to strengthen the wrong business model or business processes the business can become more efficient at doing what it should not do thus the company becomes vulnerable to competitors.

Management must understand and measure the performance of existing processes as a baseline. If, for example the objective of the process redesign is to reduce time and cost in developing a new product or filling an order, the organization needs to measure the time and cost consumed by the unchanged process.

The conventional method of designing systems establishes the information requirements of a business function/process and then determines how they can be supported by information technology. However information technology can create new design options for various processes because it can be used to challenge long standing assumptions about work arrangements that used to inhibit organizations.

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Today's digital firm environment involves much closer coordination of a firm's business processes with those of customers, suppliers and other business partners than in the past. Organizations are required to make business process changes that span organizational boundaries. These interorganizational processes such as those for supply chain management not only need to be streamlined but also coordinated and integrated with those of other business partners

Process Improvement: Business Process Management, Total Quality Management and Six Sigma

Business process reengineering is primarily a one time effort, focusing on identifying one or two strategic business processes that need radical change. Business process reengineering projects tend to be expensive and organizationally disruptive. Organizations usually have many business processes and supportive processes that must be constantly revised to keep the business competitive. Business process management and quality improvement programs provide opportunities for more incremental and ongoing types of business process change.

Business Process Management

Mergers and acquisitions, changes in business models, new industry requirements and changing customer expectations all pose multiple process-related problems that continually confront organizations. Business process management (BPM) enables organizations to manage incremental process changes that are required simultaneously in many areas of the business. It provides a methodology and tools for dealing with the organizations ongoing need to revise and ideally optimize its numerous internal business processes and processes shared with other organizations. It enables organizations to make continual improvement to many business processes simultaneously and to use processes as the fundamental building blocks of corporate information systems.

Business Process Management (BPM) includes work flow management, Business process modeling, quality management, change management and tools for recasting the firm's business processes into a standardized form where they can be continually manipulated. Companies practicing business process management use process mapping tools to identify and document existing processes and to create models of improved processes that can then be translated into software systems. The process models might require entirely new systems or could be based on existing systems and data. BPM software tools automatically manage processes across the business, extract data from various sources and databases, and generate transactions in multiple related systems.

BPM also include process monitoring and analytics. Organizations must be able to verify that process performance has been improved and measure the impact of process changes on key business performance indicators

Total Quality Management and Six Sigma

Quality management is another area of continuous process improvement. In addition to increasing organizational efficiency, companies must fine tune their business processes to

improve the quality in their products, services and operations. Many are using the concept of total quality management (TQM) to make quality the responsibility of all people and functions within an organization. TQM holds that the achievement of quality control is an end in itself. Everyone is expected to contribute to the overall improvement of quality.

Another quality concept that is being implemented today is six sigma. Six sigma is a specific measure of quality, representing 3.4 defects per million opportunities. Most companies cannot achieve this level of quality but use six sigma as a goal to implement a set of methodologies and techniques for improving quality and reducing costs. Quality improvements not only raise the level of product and service quality but they can also lower costs.

HOW INFORMATION SYSTEMS SUPPORT QUALITY IMPROVEMENT

TQM and six sigma are considered to be more incremental than business process reengineering. TQM typically focuses on making a series of continuous improvements rather than dramatic bursts of change. Six sigma uses statistical analysis tools to detect flaws in the execution of an existing process and make minor adjustments. Sometimes, however processes may have to be fully reengineered to achieve a specified level of quality. Information systems can/will help firms achieve their quality goals by helping them simplify products or processes make improvements based on customer demands, reduce cycle time, improve the quality and precision of design and production and meet benchmarking standards

Benchmarking consist of setting strict standards for products, services and other activities and then measuring performance against those standards.

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