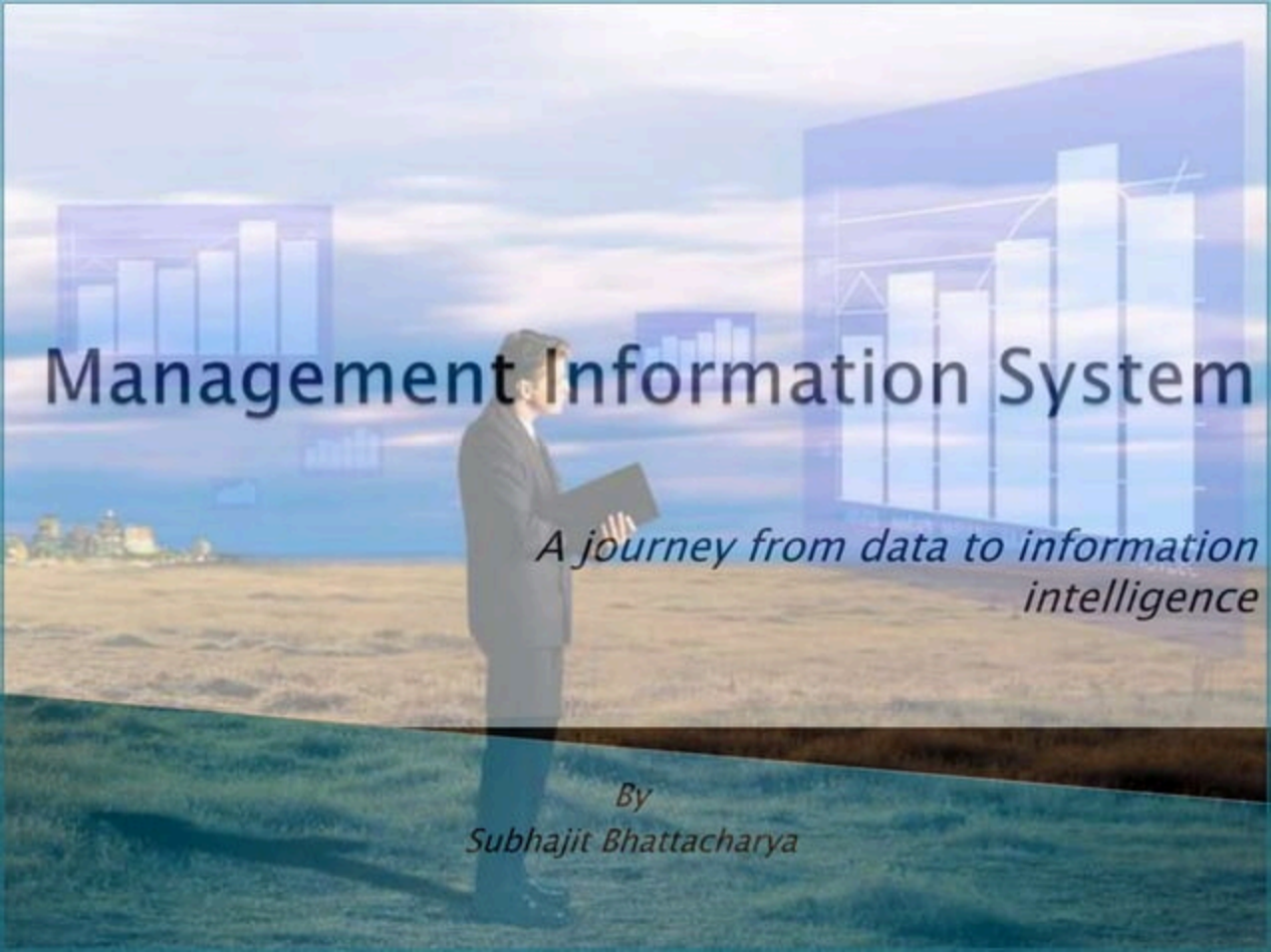

Management Information System
A journey from data to information intelligence
By
Subhajit Bhattacharya

Management – An Art..!

- To make the things done with proper resource at correct cost, place and schedule
- To direct resources (human or material) in order to achieve certain goals

Elements of Management

Levels of Management?

What is information?

- Data are facts, events, and transactions which have been recorded. They are basically the raw inputs which further get processed to become information.
- When facts are filtered through one or more processes (human or system), and are ready to give certain kind of details… they are the **information**.
- Processed data when presented in some useful and meaningful form, it is actually the information we are looking at.

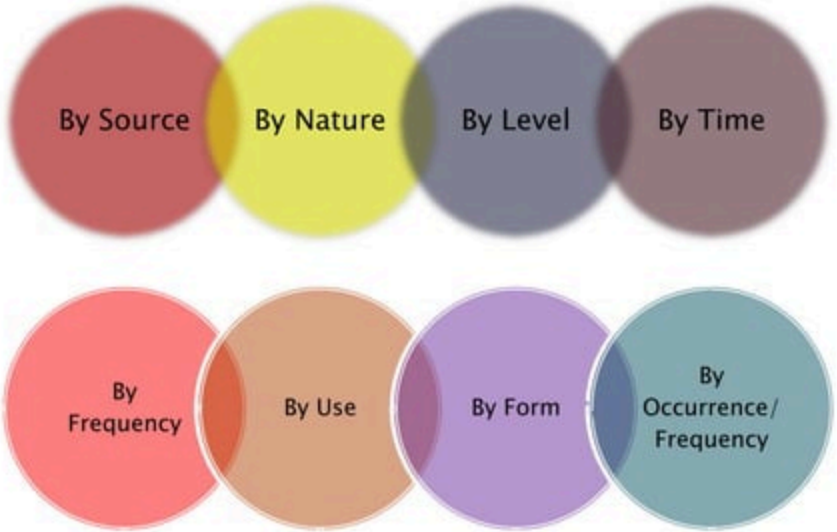
Difference between data & information?

Data	Information
Raw facts	Processed facts
Dead stored facts	Live presented facts
Inactive (only exists in the backend)	Active (being processed data for knowledge base)
Technology oriented	Business oriented

Why do we require information?

- To ensure effective & efficient decision making leading to prosperity of the organization.

Classification of Information



Characteristics of Perfect Information

- Relevant
- Accurate
- Complete
- Understandable

What is System?

- System is a functional unit, which involves set of procedures/functions to produce certain outputs by processing data/information given as input.

What is Management Information

- Useful information for management decisions
- Comprises processed data (information), necessary for making management decisions and generally gives output in the form of tables, matrix, reports, dashboards, graphs, trends, etc for logical and analytical comparisons.
- Viz. Market trend reports, sales report, IT application usage reports, Management dashboards, business information reports, research reports, etc.

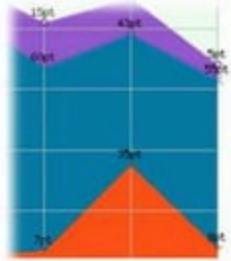
What is MIS?

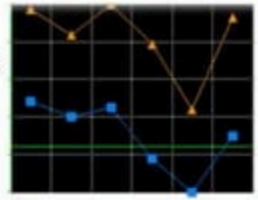
- **Management Information System**
- MIS is basically a software tool which gives a holistic report of processed information based on which management can take certain crucial decision on which strategy and tactics could be figured out
- MIS provides information that is needed to manage organizations efficiently and effectively
- MIS is any organized approach for obtaining relevant and timely information on which managerial decisions are based
- MIS facilitates the decision making process and enable the organizational planning, control, and operational functions to be carried out effectively
- MIS is a study of how individuals, groups, and organizations evaluate, design, implement, manage, and utilize systems to generate information to improve efficiency and effectiveness of decision making, including systems termed decision support systems, expert systems, and executive information systems.

What is MIS?

Role of MIS?

- **Effective decision making based upon:**
  - Quality analysis
  - Cost & budget analysis
  - Risk analysis
  - Market analysis
  - Inventory analysis
  - SWOT analysis
  - Stakeholder analysis
  - Feedback analysis
  - Behavior analysis
- **Report & Dashboard preparation**





Types of MIS

- ***Management information systems (MIS),*** produce fixed, regularly scheduled reports based on data extracted and summarized from the firm's underlying transaction processing systems to middle and operational level managers to identify and inform structured and semi-structured decision problems.
- ***Decision support systems (DSS)*** are computer program applications used by middle management to compile information from a wide range of sources to support problem solving and decision making.
- ***Executive information systems (EIS)*** is a reporting tool that provides quick access to summarized reports coming from all company levels and departments such as accounting, human resources and operations.
- ***Marketing information systems*** are MIS designed specifically for managing the marketing aspects of the business.
- ***Office automation systems (OAS)*** support communication and productivity in the enterprise by automating work flow and eliminating bottlenecks. OAS may be implemented at any and all levels of management.

Advantages of MIS

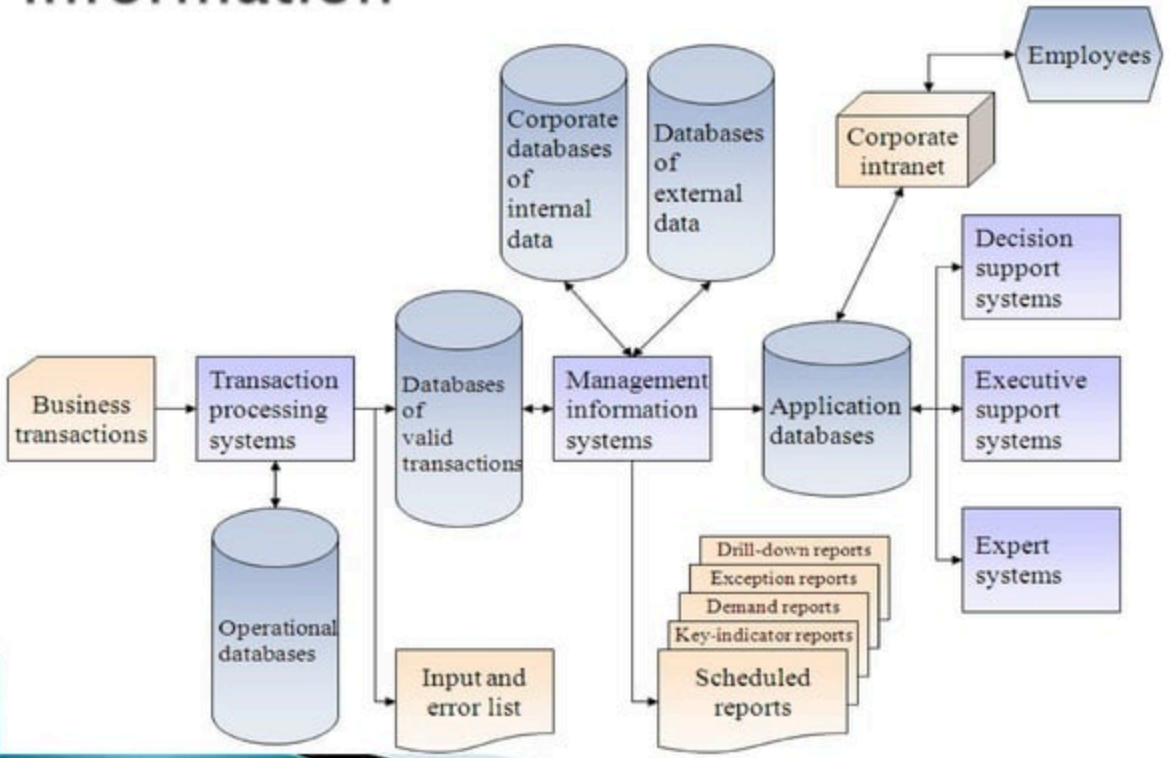
- Companies are able to highlight their strengths and weaknesses due to the presence of revenue reports, employees' performance record etc. The identification of these aspects can help the company improve their business processes and operations.

- Giving an overall picture of the company and acting as a communication and planning tool.

- The availability of the customer data and feedback can help the company to align their business processes according to the needs of the customers. The effective management of customer data can help the company to perform direct marketing and promotion activities.

- Information is considered to be an important asset for any company in the modern competitive world. The consumer buying trends and behaviors can be predicted by the analysis of sales and revenue reports from each operating region of the company.

Sources of Management Information



Outputs of MIS

- Scheduled reports
  - Produced periodically, or on a schedule (daily, weekly, monthly)
- Key-indicator report
  - Summarizes the previous day's critical activities
  - Typically available at the beginning of each day
- Demand report
  - Gives certain information at a manager's request
- Exception report
  - Automatically produced when a situation is unusual or requires management action

Managerial Issues regarding IT

- E-mail, an ERP system, and CAD are certainly different from each other in many ways. But which of these differences, if any, are ***relevant*** for a general manager? Are all systems essentially the same from a managerial perspective? Is each unique? Or are there useful *level of analysis* between these two extremes?

IT is a *general purpose technology*, the value of which is increased when organizational complements are put in place along with the technology itself.

- These complements include : (a) greater interdependence among people and groups, (b) new workflows (processes), and (c) reallocated decision rights. These are also called ***work structures***.

- Different technologies have distinct relationships with these complements, and these distinctions provide the basis for a managerially relevant categorization of Information Technologies.

IT Categorization from Information Prospect

Function IT

- Facilitates standalone tasks
- Spreadsheets, Word processors, CAD/CAM Tools, etc. could be the best examples of this category

Network IT

- Enables unstructured interactions.
- Network technologies let people and groups come together, share information, and collaborate without specifying the terms of the collaboration.
- Network technologies fall into two groups: ***channels and platforms***.
- Channels like email, IM, and SMS allow one party to send information to another privately.
- Platforms, on the other hand, make information visible and permanent. bulletin boards, Usenet groups, and blogs with comments are all examples of NIT platforms.

Enterprise IT

- Imposes structured interactions
- ERP, SCM, CRM, etc. are few of the best examples of this category

Managerial Issues regarding IT (contd.)

1. What *capabilities* does IT offer to companies? That is, what would companies find it difficult or impossible without IT?

2. FIT, NIT and EIT each provides a different set of capabilities to companies that deploy them successfully.

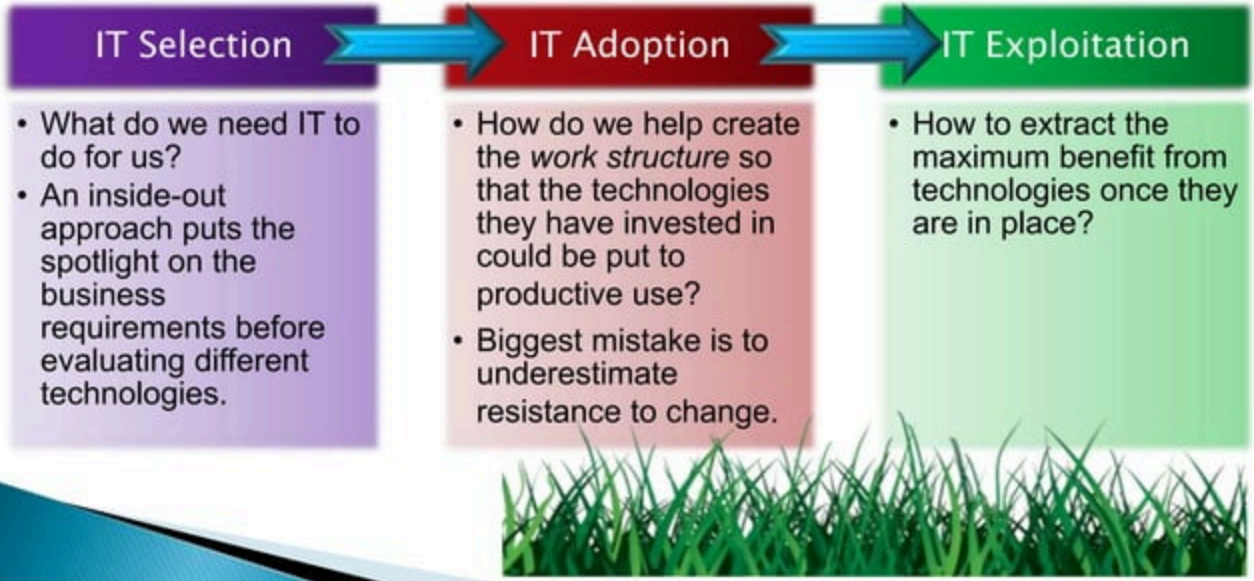
- **FIT** assists in task execution by offering greater ***precision***.

- Some **NIT** allows *self-organization* or the appearance of patterns and structure without centralized direction. NIT also enables new modes of ***collaboration***

- Because **EIT** imposes new business processes, it allows managers to redesign operations and permits the ***standardization*** of work across the enterprise. Also the structured data collected within EIT allows better ***monitoring*** and analysis.

Areas of Involvement – IT Implementation Overview

So where and how can business leaders intervene with IT? They have three main opportunities, corresponding to three different points in the life of an IT project: ***selection, adoption, and exploitation.***

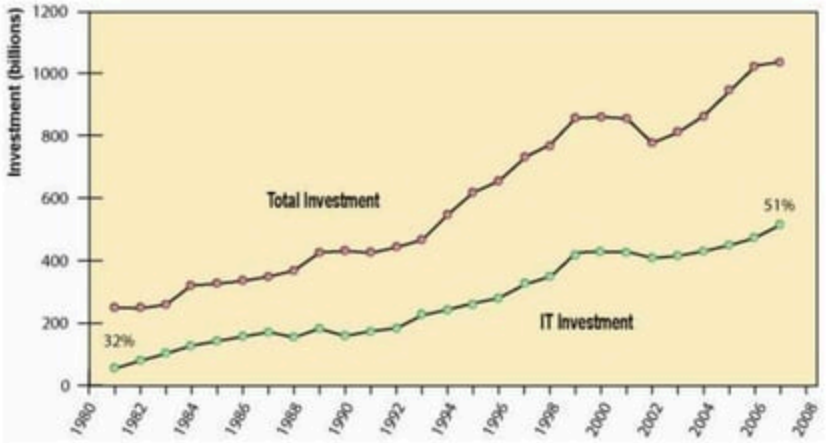


Role of Information System in Current Business Scenarios

- **How information systems are transforming business**
  - Increase in wireless technology use, Web sites
  - Shifts in media and advertising
  - New federal security and accounting laws
- **Globalization opportunities**
  - Internet has drastically reduced costs of operating on global scale
  - Presents both challenges and opportunities

Role of Information System in Current Business Scenarios

Information Technology Capital Investment



Information technology investment, defined as hardware, software, and communications equipment, grew from 32% to 51% between 1980 and 2008.

Source: Based on data in U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts, 2008.

Role of Information System in Current Business Scenarios

- In the emerging, fully digital firm
  - Significant business relationships are digitally enabled and mediated
  - Core business processes are accomplished through digital networks
  - Key corporate assets are managed digitally
- Digital firms offer greater flexibility in organization and management
  - Time shifting, space shifting

Role of Information System in Current Business Scenarios

- Growing interdependence between ability to use information technology and ability to implement corporate strategies and achieve corporate goals
- Business firms invest heavily in information systems to achieve six strategic business objectives:
  - Operational excellence
  - New products, services, and business models
  - Customer and supplier intimacy
  - Improved decision making
  - Competitive advantage
  - Survival

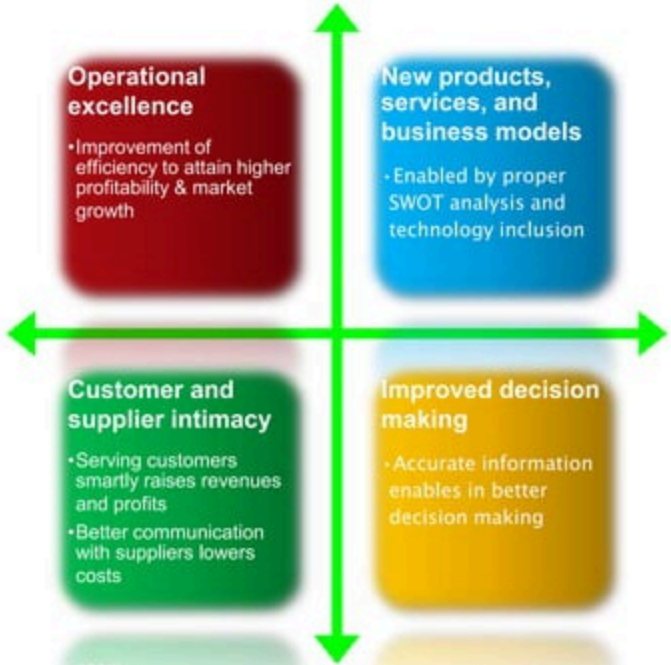
Role of Information System in Current Business Scenarios

- **Operational excellence:**
  - Improvement of efficiency to attain higher profitability
  - Information systems, technology an important tool in achieving greater efficiency and productivity
  - Wal-Mart's Retail Link system links suppliers to stores for superior replenishment system
- **New products, services, and business models:**
  - Business model: describes how company produces, delivers, and sells product or service to create wealth
  - Information systems and technology a major enabling tool for new products, services, business models
  - Examples: Apple's iPod, iTunes, and iPhone, Netflix's Internet-based DVD rentals
- **Customer and supplier intimacy:**
  - Serving customers well leads to customers returning, which raises revenues and profits
  - Example: High-end hotels that use computers to track customer preferences and use to monitor and customize environment
  - Intimacy with suppliers allows them to provide vital inputs, which lowers costs
  - Example: J.C.Penney's information system which links sales records to contract manufacturer

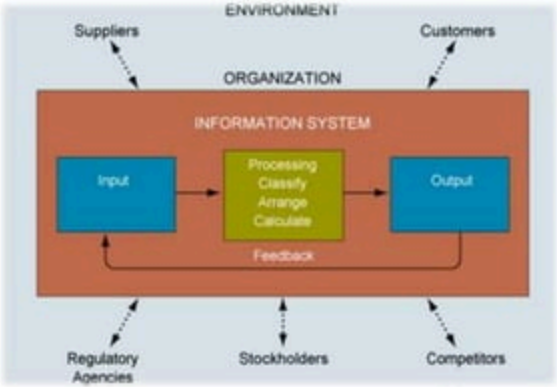
Role of Information System in Current Business Scenarios

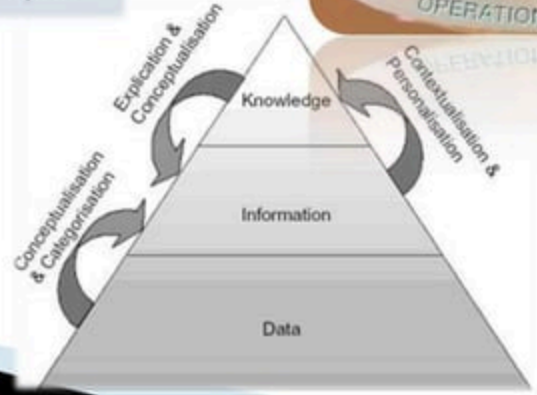
- **Improved decision making**
  - Without accurate information:
  - Managers must use forecasts, best guesses, luck
  - Leads to:
  - Overproduction, underproduction of goods and services
  - Misallocation of resources
  - Poor response times
  - Poor outcomes raise costs, lose customers
  - Example: Verizon's Web-based digital dashboard to provide managers with real-time data on customer complaints, network performance, line outages, etc
- **Competitive advantage**
  - Delivering better performance
  - Charging less for superior products
  - Responding to customers and suppliers in real time
  - Example: Toyota and TPS (Toyota Production System) enjoy a considerable advantage over competitors – information systems are critical to the implementation of TPS
- **Survival**
  - Information technologies as necessity of business
  - May be:
  - Industry-level changes, e.g. Citibank's introduction of ATMs
  - Governmental regulations requiring record-keeping
  - Examples: Toxic Substances Control Act, Sarbanes-Oxley Act

Scope…. Insight



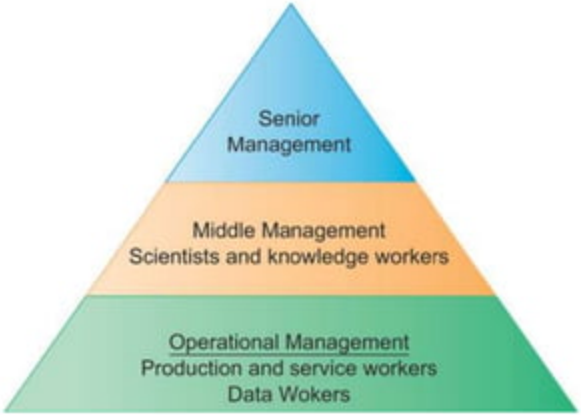
Organization & Information System





Organization Hierarchy

- Senior/Top management
- Middle management
- Operational management
- Knowledge workers
- Data workers
- Production or service workers



UPS – Competes Globally with Information Technology

- What is UPS
- How does it operation (Inputs, Processes & Outputs)
- Technology implementation by UPS
- Business excellence & new road map towards success

UPS – Competes Globally with Information Technology

- United Parcel Service, Inc., American global package delivery company headquartered in Sandy Springs, Georgia, United States.
- It delivers more than 15 million packages a day to 6.1 million customers in more than 220 countries and territories around the world.
- UPS also operates its own airline.
- UPS's primary business is the time-definite delivery of packages and documents worldwide.
- UPS reports its operations in three segments: U.S. Domestic Package operations, International Package operations, and Supply Chain & Freight operations.

UPS – Competes Globally with Information Technology

Organizational	Management	Technology
• Procedures for tracking packages and managing inventory and provide information	• Monitor service levels and costs	• Handheld computers, bar-code scanners, networks, desktop computers, etc.

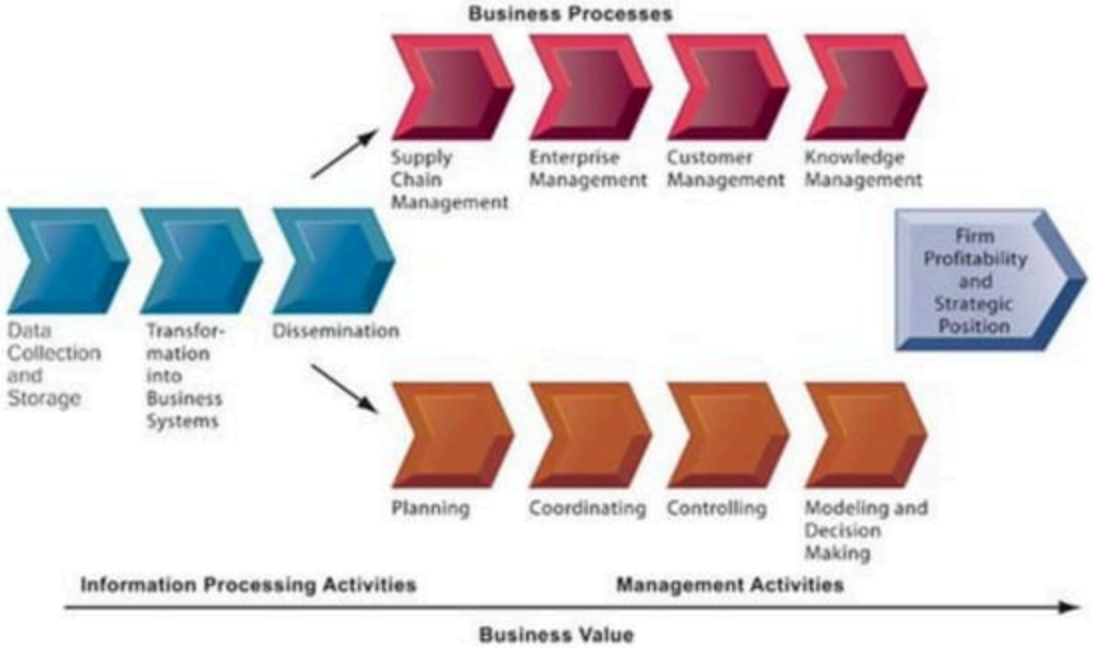
Why Information System…!

- Information system is instrument for creating value
- *Investments in information technology will result in superior returns:*
  - Productivity increases
  - Revenue increases
  - Superior long-term strategic positioning

Business Information – Value Chain

- Raw data acquired and transformed through stages that add value to that information
- Value of information system determined in part by extent to which it leads to better decisions, greater efficiency, and higher profits
- ***Business perspective:*** Calls attention to organizational and managerial nature of information systems

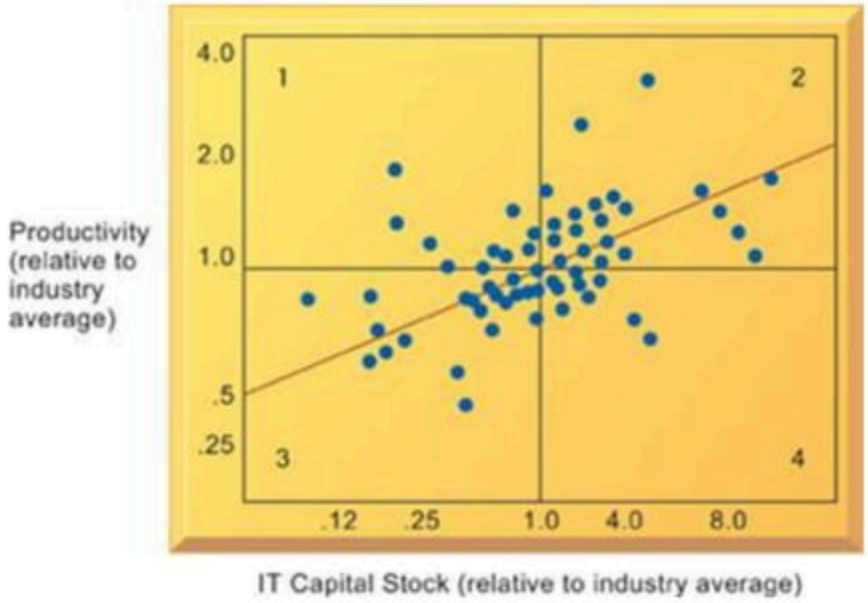
Business Information – Value Chain



Internals… Marks Distribution!

Case Study (Group)	15
Project (Group)	15
Class room presentation (Individual)	10
Quiz (Individual)	7
Class room interaction & Attendance (Individual)	3
Total:	**50**

Variation in Returns on Information Technology Investment



- *Although, on average, investments in information technology produce returns far above those returned by other investments, there is considerable variation across firms.*

Variation in Returns on Information Technology Investment

- Investing in information technology does not guarantee good returns
- Considerable variation in the returns firms receive from systems investments
- ***Factors:***
  - Adopting the right business model
  - Investing in complementary assets (organizational and management capital)
- ***Complementary Assets:***
  - Assets required to derive value from a primary investment
  - Firms supporting technology investments with investment in complementary assets receive superior returns
  - E.g.: invest in technology and the people to make it work properly

Variation in Returns on Information Technology Investment

- Complementary assets include:
  - Organizational investments, e.g.
    - Appropriate business model
    - Efficient business processes
- Managerial investments, e.g.
  - Incentives for management innovation
  - Teamwork and collaborative work environments
- Social investments, e.g.
  - The Internet and telecommunications infrastructure
  - Technology standards

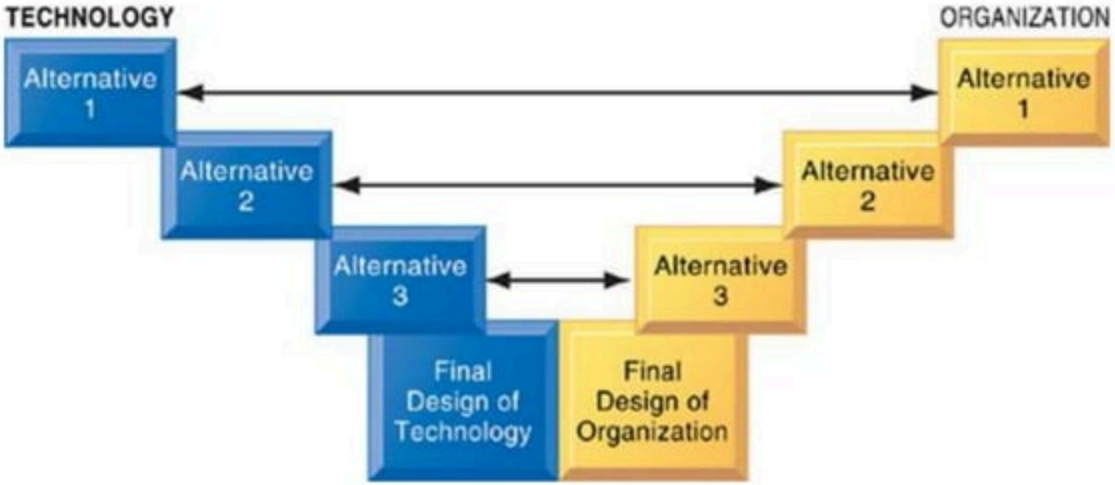
Contemporary Approaches to Information Systems

➢The study of information systems deals with issues and insights contributed from technical and behavioral disciplines.

Contemporary Approaches to Information Systems

- *Technical approach:*
  - Emphasizes mathematically based models
  - Computer science, management science, operations research
- *Behavioral approach:*
  - Behavioral issues (strategic business integration, implementation, etc.)
  - Psychology, economics, sociology
- *Management Information Systems:*
  - Combines computer science, management science, operations research and practical orientation with behavioral issues
- *Four main actors:*
  - Suppliers of hardware and software
  - Business firms
  - Managers and employees
  - Firm's environment (legal, social, cultural context)
- *Sociotechnical view:*
  - Optimal organizational performance achieved by jointly optimizing both social and technical systems used in production
  - Helps avoid purely technological approach

A Sociotechnical Perspective on Information Systems



- In a sociotechnical perspective, the performance of a system is optimized when both the technology and the organization mutually adjust to one another until a satisfactory fit is obtained.

Global E-Business: How Business Uses Information System

Learning Objectives

- Define and describe business processes and their relationship to information systems.
- Evaluate the role played by systems serving the various levels of management in a business and their relationship to each other.
- Explain how enterprise applications, collaboration and communication systems, and intranets improve organizational performance.
- Explain the difference between e-business, e-commerce, and e-government.
- Assess the role of the information systems function in a business.

The Tata Nano Makes History Using Digital Manufacturing

- **Problem:** Outdated manufacturing processes, time-consuming manual labor.
- **Solutions: Digital manufacturing systems** allowed Tata to create a $2,500 car without sacrificing safety or value.
- **Dassault Systems' Digital Enterprise Lean Manufacturing Interactive Application** drastically reduced development cycle.
- Demonstrates IT's role in fostering innovation and improving efficiency.
- Illustrates the benefits of updating manufacturing-related business processes.

Business Processes and Information Systems

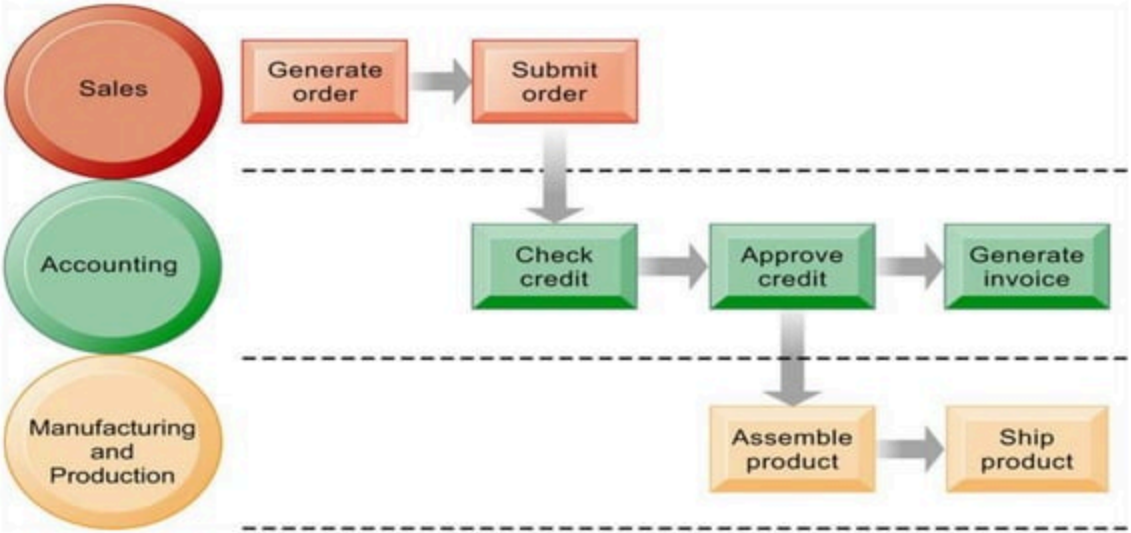
- Business processes:
  - Workflows of material, information, knowledge
  - Sets of activities, steps
  - May be tied to functional area or be cross-functional
- Businesses:
  - Can be seen as collection of business processes
  - Business processes may be assets or liabilities

Business Processes and Information Systems

- Examples of functional business processes:
  - Manufacturing and production
    - Assembling the product
  - Sales and marketing
    - Identifying customers
  - Finance and accounting
    - Creating financial statements
  - Human resources
    - Hiring employees

Business Processes and Information Systems

- Order Fulfillment Process:



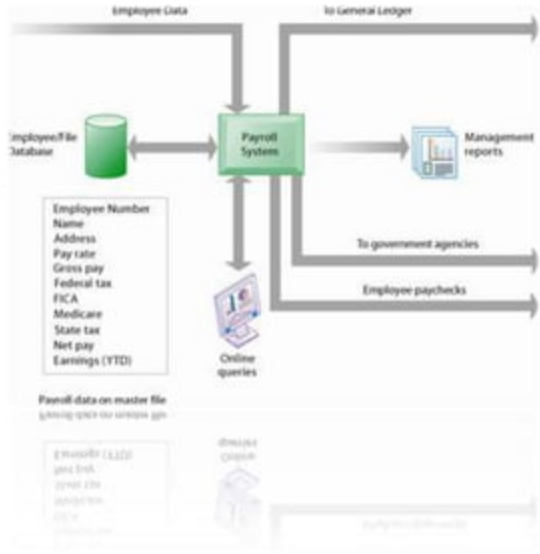
Fulfilling a customer order involves a complex set of steps that requires the close coordination of the sales, accounting, and manufacturing functions.

Business Processes and Information Systems

- Information technology enhances business processes in two main ways:
  - Increasing efficiency of existing processes
    - Automating steps that were manual
  - Enabling entirely new processes that are capable of transforming the businesses
    - Change flow of information
    - Replace sequential steps with parallel steps
    - Eliminate delays in decision making

Types of Business Information Systems

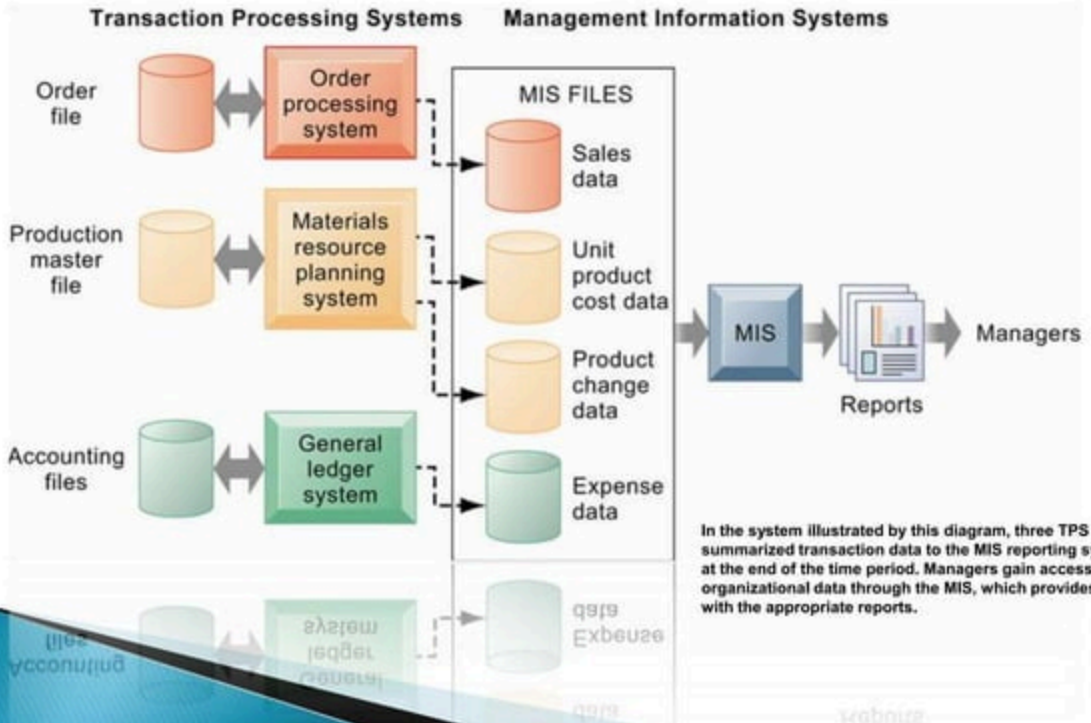
- **Transaction processing systems**
  - Perform and record daily routine transactions necessary to conduct business
    - Examples: sales order entry, payroll, shipping
  - Allow managers to monitor status of operations and relations with external environment
  - Serve operational levels
  - Serve predefined, structured goals and decision making



Types of Business Information Systems

- Management information systems
  - Serve all levels of management
  - Provide reports on firm's current performance, based on data from TPS
  - Provide answers to routine questions with predefined procedure for answering them
  - Typically have little analytic capability

How Management Information Systems Obtain Their Data from the Organization's TPS



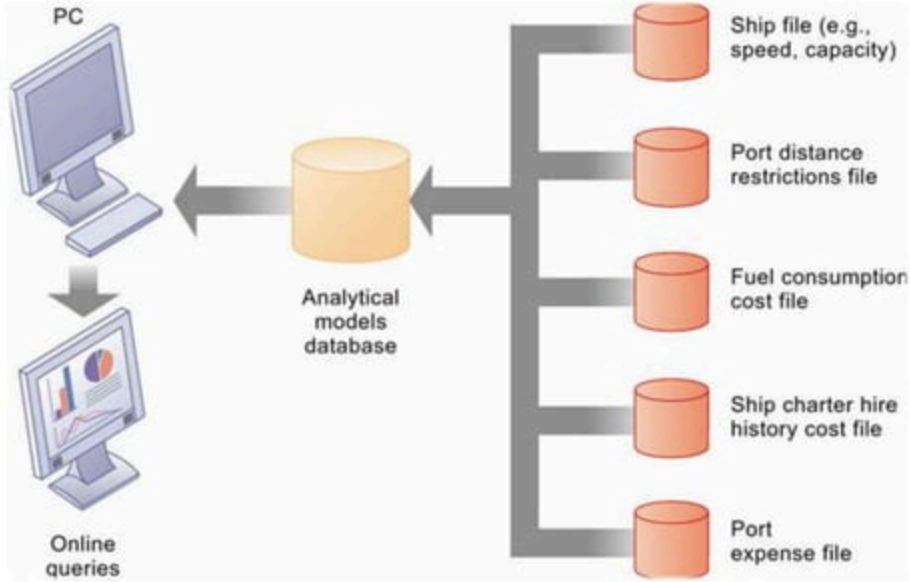
In the system illustrated by this diagram, three TPS supply summarized transaction data to the MIS reporting system at the end of the time period. Managers gain access to the organizational data through the MIS, which provides them with the appropriate reports.

Sample MIS Report

Consolidated Consumer Products Corporation Sales by Product and Sales Region: 2009

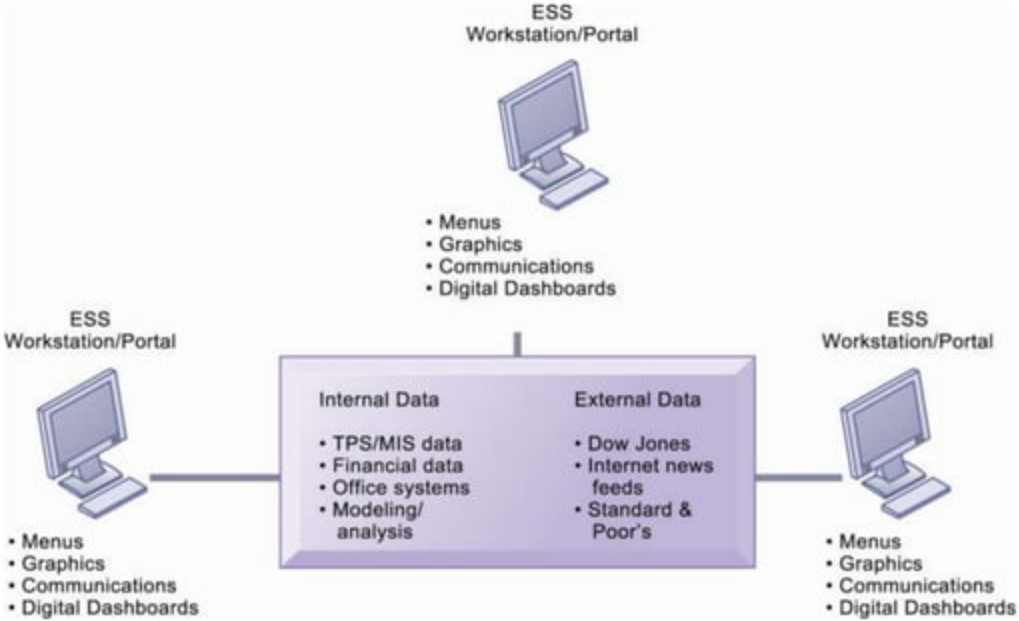
PRODUCT CODE	PRODUCT DESCRIPTION	SALES REGION	ACTUAL SALES	PLANNED	ACTUAL versus PLANNED
4469	Carpet Cleaner	Northeast	4,066,700	4,800,000	0.85
		South	3,778,112	3,750,000	1.01
		Midwest	4,867,001	4,600,000	1.06
		West	4,003,440	4,400,000	0.91
	TOTAL		16,715,253	17,550,000	0.95
5674	Room Freshener	Northeast	3,676,700	3,900,000	0.94
		South	5,608,112	4,700,000	1.19
		Midwest	4,711,001	4,200,000	1.12
		West	4,563,440	4,900,000	0.93
	TOTAL		18,559,253	17,700,000	1.05

Voyage-Estimating Decision Support System



This DSS operates on a powerful PC. It is used daily by managers who must develop bids on shipping contracts

Model of an Executive Support System



This system pools data from diverse internal and external sources and makes them available to executives in easy-to-use form.

- Systems from a constituency perspective
  - Transaction processing systems: supporting operational level employees
  - Management information systems and decision-support systems: supporting managers
  - Executive support systems: supporting executives
- Relationship of systems to one another
  - TPS: Major source of data for other systems
  - ESS: Recipient of data from lower-level systems
  - Data may be exchanged between systems
  - In reality, most businesses' systems only loosely integrated

Enterprise Applications

- **Enterprise applications**
  - Span functional areas
  - Execute business processes across firm
  - Include all levels of management
  - Four major applications:
    - Enterprise systems
    - Supply chain management systems
    - Customer relationship management systems
    - Knowledge management systems

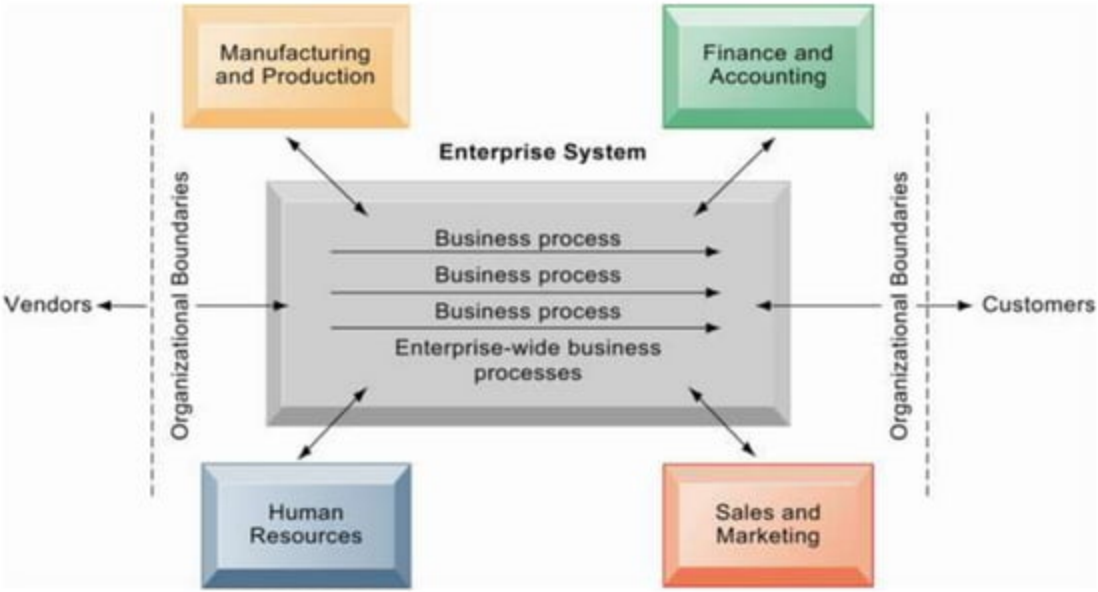
Enterprise Applications Architecture

Enterprise applications automate processes that span multiple business functions and organizational levels and may extend outside the organization.

Enterprise Systems

- **Enterprise systems**
  - Collects data from different firm functions and stores data in single central data repository
  - Resolves problem of fragmented, redundant data sets and systems
  - Enable:
    - Coordination of daily activities
    - Efficient response to customer orders (production, inventory)
    - Provide valuable information for improving management decision making

Enterprise Systems

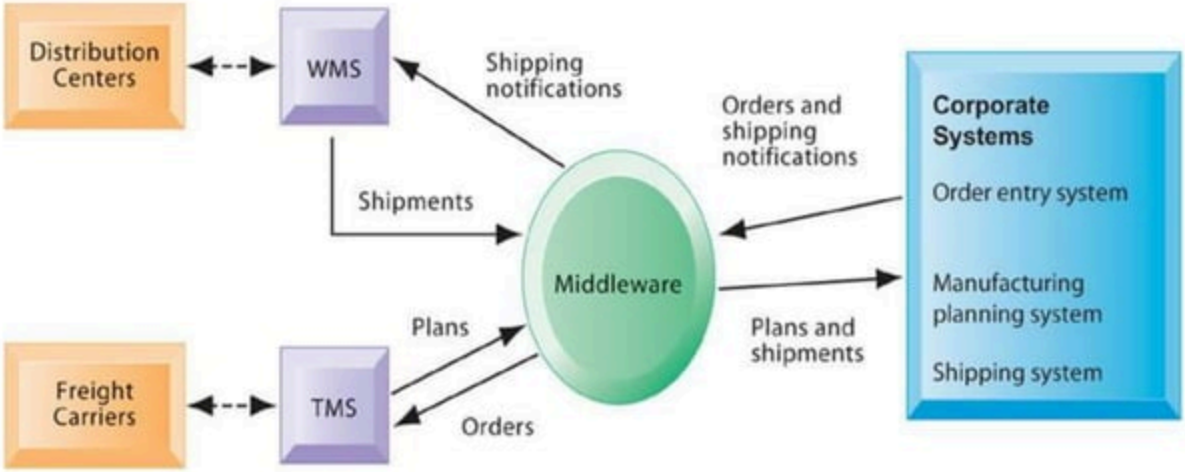


Enterprise systems integrate the key business processes of an entire firm into a single software system that enables information to flow seamlessly throughout the organization. These systems focus primarily on internal processes but may include transactions with customers and vendors.

Supply Chain Management – *Systems That Span the Enterprise*

- Supply chain management systems
  - Manage firm's relationships with suppliers
  - Share information about
    - Orders, production, inventory levels, delivery of products and services
  - Goal: Right amount of products to destination with least amount of time and lowest cost

SCM Framework



Customer orders, shipping notifications, optimized shipping plans, and other supply chain information flow among Haworth's Warehouse Management System (WMS), Transportation Management System (TMS), and its back-end corporate systems.

Customer Relationship Management- *Systems That Span the Enterprise*

- **Customer relationship management systems:**
  - Provide information to coordinate all of the business processes that deal with customers in sales, marketing, and service to optimize revenue, customer satisfaction, and customer retention
  - Integrate firm's customer-related processes and consolidate customer information from multiple communication channels

CRM – *Salesforce.com Executive Team Dashboard*

Illustrated here are some of the capabilities of Salesforce.com, a market-leading provider of on-demand customer relationship management (CRM) software. CRM systems integrate information from sales, marketing, and customer service.

Thanks..!

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MANAGEMENT INFORMATION SYSTEM

Unit 1 BBA 6 sem


MANAGEMENT INFORMATION SYSTEM

Role of MIS

By,

MEGHA NAIR

MANAGEMENT INFORMATION SYSTEM (MIS)

(TEAM MANAGEMENT OF IS)

Presented By : RAJESH S

PGDeG 2015-16

Chapter 3

Information Systems in Organizations

MANAGEMENT INFORMATION SYSTEM


Management
Information System

MANAGEMENT INFORMATION SYSTEM

Presented By

Siddhesh S. Palkar