
# Management Information System

Priti Srinivas Sajja

Professor
Department of Computer Science
Sardar Patel University

URL: http://priti sajja.info

# Enhancing Teaching, Learning and Research though e-Content




- Name: **Dr. Priti Srinivas Sajja**
- Communication:
  - Email : priti_sajja@yahoo.com
  - Mobile : +91 9824926020
  - URL :http://pritisajja.info


- *Academic qualifications* : Ph. D in Computer Science
- *Thesis title*: Knowledge-Based Systems for Socio-Economic Development (2000)
- *Subject area of specialization* : Artificial Intelligence
- *Publications* : **207** in Books, Book Chapters, Journals and in Proceedings of International and National Conferences

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**Unit 1: Introduction**

- MIS: Importance of MIS, Evolution of MIS, Computers and MIS
- Logical foundations of MIS, Typical MIS
- Information and managerial effectiveness
- Business information systems
- Business functions and information needs of business
- Pitfalls in MIS System

# MIS

- **Management information System**.
- Computer based system for **speedy and flexible access to accurate data**.
- Most suitable for organizational system for **large, structured, sophisticated, dynamically evolving and high commercial value** (Also applicable for personal, global and any professional system).
- **Private, public and government** sector.
- At **operational, classical and middle levels** of organization.
- Stack holders of MIS are **managers** at different levels, **systems analysts, programmers, testers, and end users** such as managers.

## Misconception about MIS

- Every computer based system is an MIS.
- Any reporting system is MIS.
- It is a philosophy and a management technique only.
- It is an implementation of organizational procedures.
- It is a bunch of technologies.

- An MIS involve all these perspectives and has many other features mentioned above in three aspects as follows.
  - **Management:** ultimate use of information then technology for decision making
  - **Information:** highlighting on processed data instead of raw observations
  - **System:** Fair degree of integration and holistic view of business

An MIS means a **set of sophisticated system** (may be computer based or conceptual) and procedures **to help managers in decision making** by supporting **collection, organization, distribution and storage** of organization wide **information** for managerial **analysis and control**.

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- **An MIS emphasis on**
  - Organization wide information
  - Decision support and problem solving
  - Managerial emphasis
  - Computer based system
- MIS almost makes **2/3 of all computer applications**.
- It is important to computer science as well as management disciplines.
- **Example domains are many including :**
  - Financial
  - Resource planning
  - Space exploration and earth exploration (oil and gas)
  - Production planning
  - Human recourse management
  - Communication
  - Health and sanitation
  - Manufacturing and service industries , etc.

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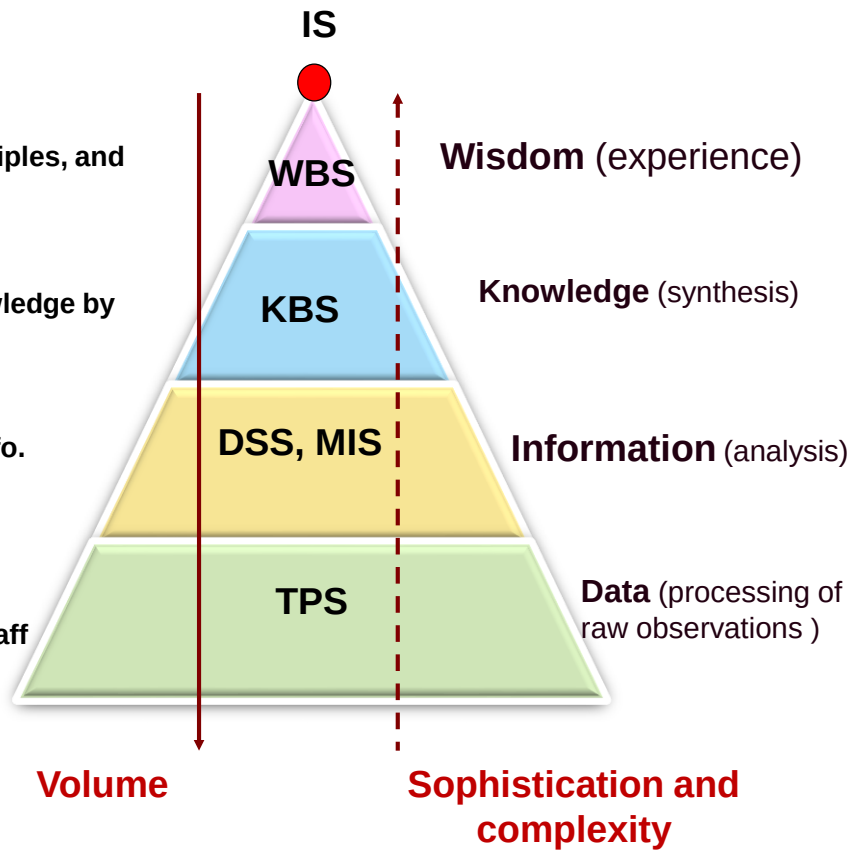
## Evolution of MIS

**Strategy makers apply morals, principles, and experience to generate policies**

**Higher management generates knowledge by synthesizing information**

**Middle management uses reports/info. generated though analysis and acts accordingly**

**Basic transactions by operational staff using data processing**



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## Evolution of MIS

- Data Pyramid
- Electronic data processing (**EDP**) and record keeping
- Personal Computer **(PC) revolution** and ICT advancements
- Trained users and greater expectations
- **Significant advantages** of the above are as follows:
  - **Direct end users involvement**
  - **Steady performance** with **no delay** and Immediate results
  - **User friendly** and graphical interface
  - **Flexible** access
  - **Function oriented** dedicated software for office automation such as
    - Word processing
    - Data base
    - Spreadsheets
    - Graphics
    - Communications and
    - Presentation

## Computers and MIS

- Computer provides **only technological** component .
- For MIS successful **understanding of the underlying business** is needed.
- Information system is people centric needing **many human qualities** such as communication, vision, ability to handle conflicts, values and principles, etc.
- Information system is **an applied area**, requiring ability to solve domain related problem in time (budget and other resources) bound manner. Computer technology is **pure area** with mathematical and logical foundation.
- Information systems are **specific to organizational** nod managerial context. Computing systems are **more generic** in nature.
- Information system call for high conceptual challenge by understanding **domain, people, procedures and their complex relationships**. Computing systems require high **degree analytical skills** of computer knowledge and abstraction.
- Tools for information system are **context and application domain** specific. Computing tools are **more context (domain) independent**. E.g. mainframes and minicomputers systems as well as COBOL are giving way to Web based and client server based technology.

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Difference between Computing Technology and MIS

| No. | MIS | Computing Technology |
|---|---|---|
| 1 | Proper **understanding of business** is needed | Only **technological component** |
| 2 | Information system is **people and procedure centric needing many human qualities** such as communication, vision, ability to handle conflicts, values and principles, etc. | **Technology centric** |
| 3 | Information system is an **applied area**, requiring ability to solve **domain and infrastructure related problem** in time. | Computer technology is **pure area with mathematical and logical foundation.** |

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Difference…

| No. | MIS | Computing Technology |
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| 4 | Information systems are **specific to organizational** and managerial context. | Computing systems are **more generic** in nature. |
| 5 | Information system call for high **conceptual challenge** by understanding domain, people, procedures and their complex relationships. | Computing systems require high degree **analytical skills** of computer knowledge and abstraction. |
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## Logical Foundations of MIS

- With a goal of **fast, accurate and reliable processing** of data
- Reliability can be ensure by **checking & testing methods**
- Examples are check sum, check digit, Cyclic Redundancy Check(CRC), **speed of Online Transaction Processing (OLTP**) as defined by TPC( Transaction Processing Council), TPC-A, TPC-B and TPC-C.
- **What-if** capability with extensive use of **mathematical and statistical tools**. E.g. Overbooking of seats by airlines without any increase in seats.
- **New generation of spreadsheet** with solver, back solver and optimization capability may help too.
- **Fields** like follows may also help.
  - Operation research and Organizational Behavior
  - Database and data & file structures
  - Systems analysis and design /Software engineering
  - Computer networking
  - AI and Machine learning /Data science

# Typical MIS

| | Production | Finance | Personnel | Marketing |
|---|---|---|---|---|
| **Strategic** | New plant location | Alternative financing | Welfare policy | Competitor survey |
| **Tactical** | Production bottleneck | Variance analysis | Performanc e appraisal | Advertising |
| **Operational** | Daily scheduling | Payroll | Leave records | Sales analysis |

## Importance

- **Management oriented** and help in decision making
- **Sophisticated, fast, accurate and flexible**
- **Integrated** and Meets need of **large** organization
- Useful for **planning**

## Future of MIS

- From agriculture and then manufacturing now the paradigm has shifted to **knowledge era via information revolution**. (k-Commerce and information highway via advance Web technology).
- **Service sector** is gaining and taking almost 90% of the jobs (white collar or knowledge based).
  - Banking
  - Finance
  - Health care
  - Entertainment
  - Travel
  - Education
  - Etc.
- In India, one can see
  - Ticket reservation
  - Lang record management
  - Banking and finance services
  - Legal delivery systems and networked educational institutes.

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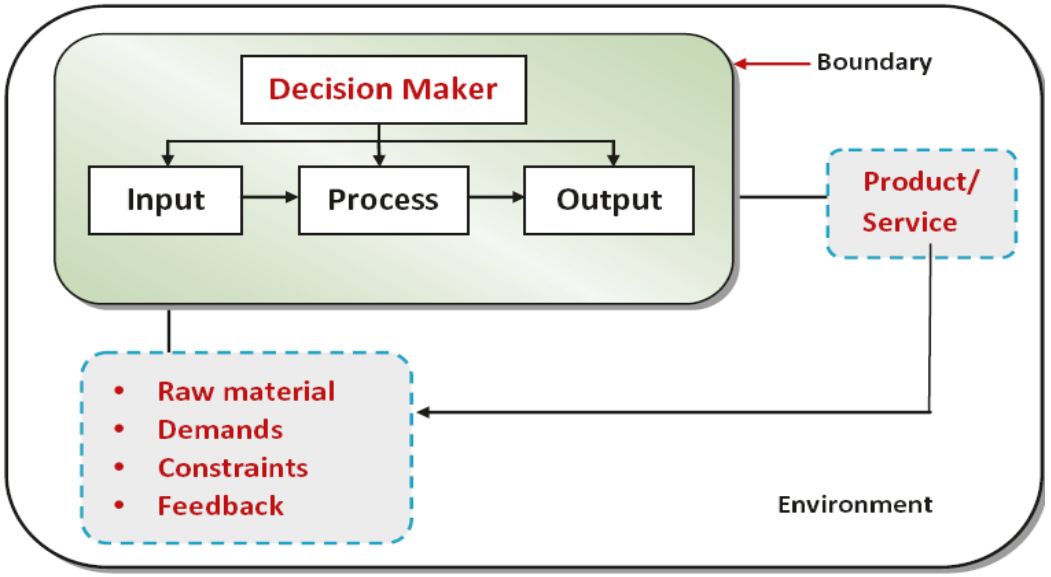
## Business Information System




- Businesses Information System is **set of inter related procedure** using IT infrastructure in business enterprise to **generate and disseminate** desire **information**. Such system is design to support decision making by people associated with enterprise.

## Features of Business Information System

- Should **provide information** that is needed to for decision making in business.
- Should consider **financial and human resources**.
- Should be **proactive**. They should anticipate changes in information needs of users and accordingly adapt themselves to suit their needs.
- Should be **cost effectiveness** to develop and to maintain.
- Should be **flexible** in terms of changing the business process.

# Business Functions

- Marketing function
- Finance function
- Production function
- Human Resource Management function
- Information function

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## Marketing Function and Information needs

Main goals are:

- To **increase the sale** of product and
- To provide **better and timely services**


*https://www.thebalancesmb.com/what-is-marketing-2296057*

## Information Need in Marketing Function

- **Customer contact and promotion information**
  - Advertising and
  - Personal approach handled by marketing division
- **Sales information**
  - Sale support,
  - Sales analysis, and
  - Customer analysis


*https://www.hausmanmarketingletter.com/differences-digital-marketing-traditional-media/*

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- **Market research information**
  - Type of market,
  - Strength and weakness of company,
  - Strategies, competition, and forecasting
- **Product planning, evolution and development information**
  - Analysis and market research information
  - Support of ICT
- **Pricing information**
  - Most important and complex decision
  - Cost of development, circulation, competition, and demand

***5Cs model: Cost, Control, Capacity, Communication and Competition***

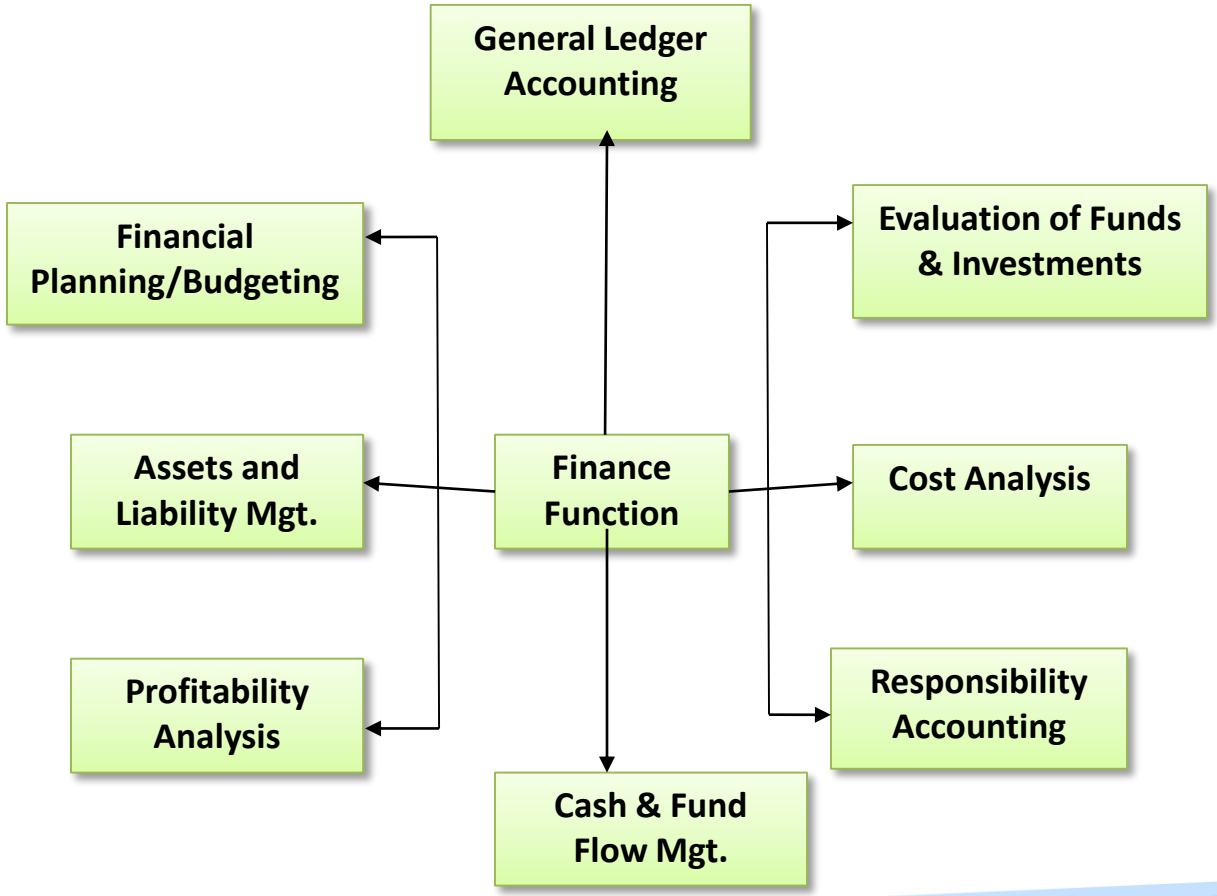
# Finance Function and Information Needs

- ***Life line of every business***
- **Accountants→ Finance manager** handling
  - Allocation of funds to various activities
  - Monitoring and measuring outputs
  - Investment policies
  - Portfolio management
  - Resource management
  - Maintaining proper accounts

**Goals**

- **Major Activities are**
  - General ledger accounting
  - Financial planning and budgeting
  - Assets and liability management
  - Profitability analysis
  - Cash and fund flow management
  - Evaluation of funds and Investments
  - Cost analysis
  - Responsibility and profitability reporting *(financial performance)*

# Finance Function and Information Needs



## Production Function and Information Needs

- **Men, material and machines**
- **Basic functions are**
  1. Materials management
  2. Productions planning and control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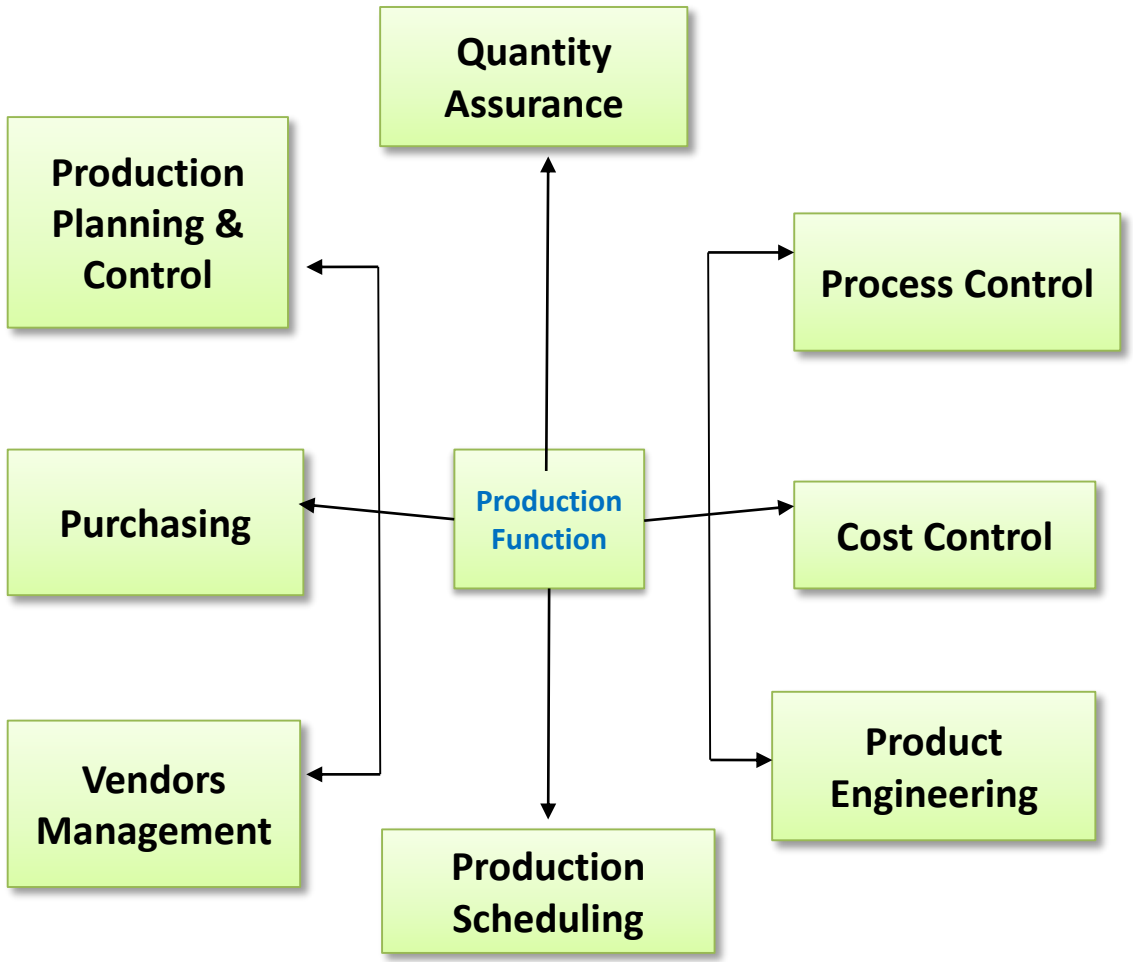
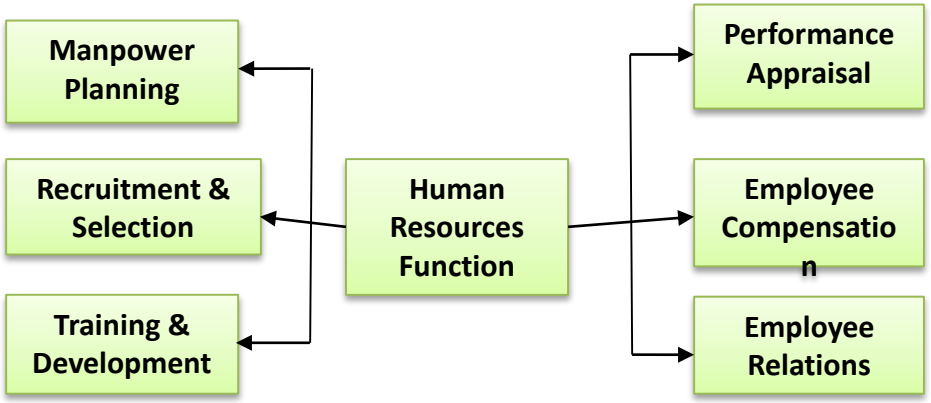





*Created By Priti Srinivas Sajja*

## Human Resource Function and Information Needs

- Right people in right job
- Basic Functions are
  - Manpower planning
  - Selection and recruitment
  - Training and development
  - Compensation and incentives planning
  - Performance appraisal



## Information Technology Function and Information Needs

- Planning development and IT infrastructure management

- Basic Functions are
  - Identifying information need of organization
  - IT technology tracking
  - Planning for IT infrastructure
  - Procurement of suitable IT resources
  - Ensuring proper utilization and security of IT infrastructure

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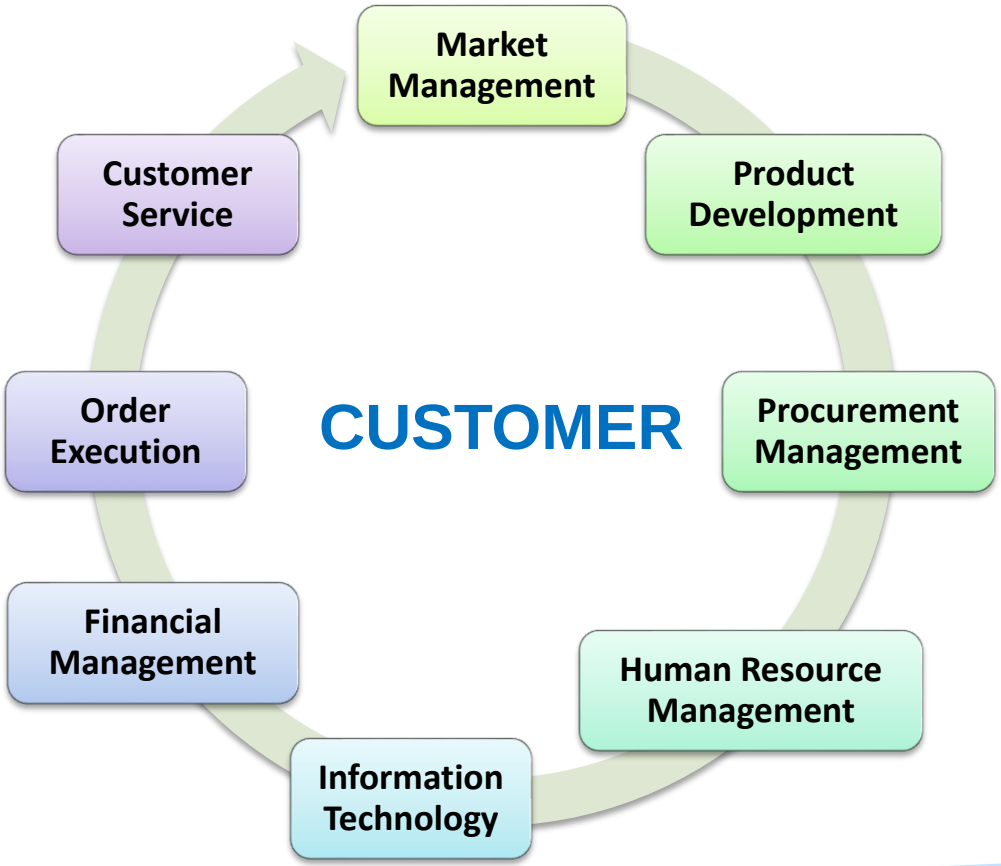
## Integration of Business Functions



## Pitfalls of MIS

- Many **earlier MIS** lacked the facilities of exception reports, key indicator reports and on-call **reports**.
- MIS has been the non-availability of **decision oriented reports**. Because of the predefined periodicity of MIS reports, it is possible that information
- Reaches the manager quite **late** and sometimes too late.
- MIS are generally, quite **slow** in responding to the dynamics of the market situation
- Highly **sensitive** and requires constant **monitoring**.
- MIS requires constant **maintenance** of database, hardware and software.
- It is quite **costly** to create and implement an MIS.

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