INFORMATION SYSTEMS

DIT-S402

Introduction to information system

What is an information system? →

An information system (IS) can be any organized combination of people, hardware, software, communications networks and data resources that stores and retrieves, transforms and disseminates information in an organization.

People have relied on information systems to communicate with each other using a variety of physical devices (hardware), information processing instructions and procedures (software), communications channels (networks) and stored data (data resources).

Information System & Information Technology

- Information System describes all of the components and resources necessary to deliver its information and functions to the organization.

- Information technology refers to the various hardware components necessary for the system to operate.

For four purpose, however we will concentrate on computer based information systems and their use of the following information technologies -

(i) <u>Computer hardware technologies</u> -

includes microcomputers, midsize servers, and large mainframe systems, and the input, output and storage devices that support them.

(ii) <u>Computer software technologies</u> →

include operating system software, web browsers, software productivity suites, and software for business applications like customer relationship management and supply chain management.

(iii) <u>Telecommunications network technologies</u> →

includes the telecommunications media, processors, and software needed to provide wire based and wireless access and support for the internet and private internet based networks such as intranets and extranets.

(iv) <u>Data resource management technologies</u> →

includes database management system software for the development, access, and maintenance of the databases of an organization.
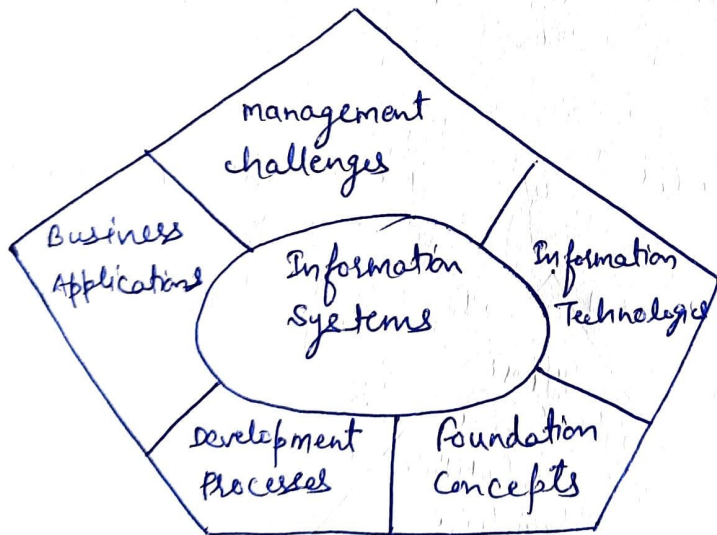
An IS framework for Business Professionals

Business professional should concentrate their efforts in the following five areas of IS knowledge:

(1) Foundation Concepts →

- Fundamental behavioral, technical, business, and managerial concepts about the components and roles of information systems.

- Example include basic information system concepts derived from general system theory used to develop business applications of information technology for competitive advantage.

(ii) Information Technologies →

Major concepts, developments, and management issues in information technology — that is hardware, software, networks, data management, and many internet based technologies.

(iii) Business Applications →

The major use of information systems for the operations, management, and competitive advantage of a business.
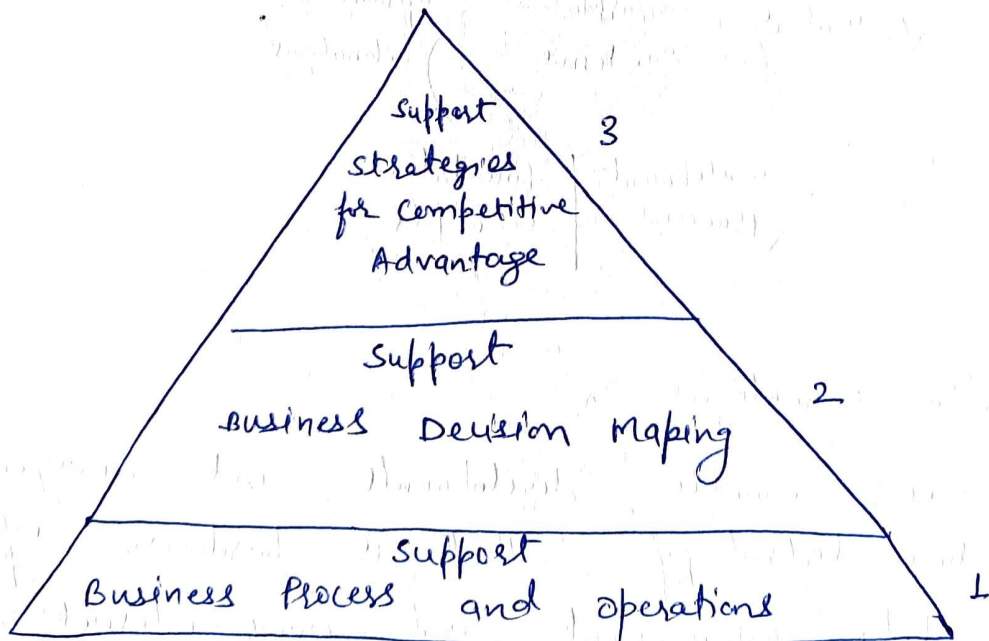
(iv) Development Processes →

- How business professionals and information specialists plan, develop and implement information systems to meet business opportunities.

(v) management challenges →

- The challenges of effectively and ethically managing information technology at the end user, enterprise and global levels of a business.

Fundamental Roles of IS in Business

```
              /\
             /  \
            /Support\  3
           /strategies\
          /for competitive\
         /   Advantage    \
        /──────────────────\
       /      Support        \
      /  Business Decision Making\  2
     /──────────────────────────\
    /         Support             \
   / Business Process and operations \  1
  /──────────────────────────────────\
```

(i) **Support Business Processes →**

   • Information systems that support the business processes and operations at the many retail stores. ~~store~~
   • For example most retail stores now use computer based information systems to help them. record customer purchases, keep track of inventory, pay employees, buy new merchandise and evaluate sales trends.
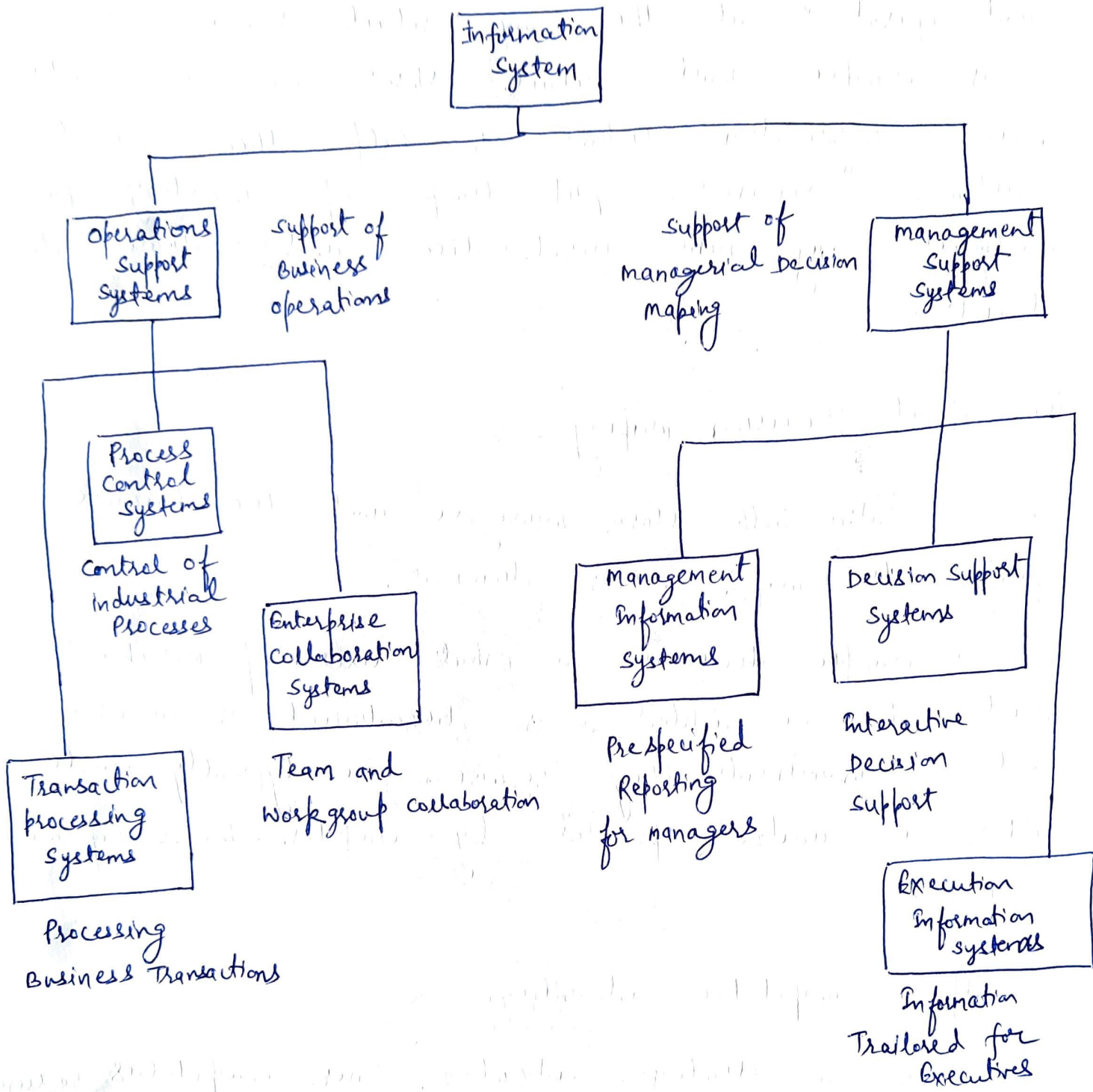
(ii) **Support Decision making →**

   • IS also help store managers and other business professionals make better decisions.
   • For example decisions on what lines of merchandise need to be added or discontinued or on what kind of investment they require, are typically made after an analysis provided by computer - based information systems.

(iii) **Support competitive advantage →**

   • Gaining a strategic advantage over competitors require innovative application of information technologies.
   • For example store management might make a decision to install touch - screen kiosks in all of their stores, with links to their e-commerce website for online shopping.
   • This ease of shopping and buying merchandise provided by IS.

Types of Information Systems

```
                    ┌─────────────┐
                    │ Information │
                    │   System    │
                    └──────┬──────┘
         ┌─────────────────┴──────────────────┐
┌──────────────┐                       ┌──────────────┐
│  Operations  │  support of           support of     │  management  │
│   Support    │  Business    managerial Decision     │   Support    │
│   Systems    │  operations      maping              │   Systems    │
└──────────────┘                       └──────────────┘
```

┌──────────────┐
│   Process   │
│   Control   │
│   Systems   │
└──────────────┘

Control of
industrial
Processes

┌──────────────┐
│ Enterprise │
│ Collaboration│
│   Systems   │
└──────────────┘

┌──────────────┐
│ Transaction │
│ processing │
│   Systems   │
└──────────────┘

Team and
workgroup collaboration

Processing
Business Transactions

┌──────────────┐
│ Management │
│ Information │
│   systems   │
└──────────────┘

Prespecified
Reporting
for managers

┌──────────────┐
│Decision Support│
│   Systems   │
└──────────────┘

Interactive
Decision
support

┌──────────────┐
│ Execution   │
│ Information │
│   systems   │
└──────────────┘

Information
Trailored for
Executives

(i) Operation Support Systems →

- IS have always been needed to process data generated by, and used in, business operations.
- Such operations support systems produce a variety of information products for internal and external use.

.The role of business firm's operations support systems ⑦
is to efficiently process business transactions, control
industrial processes, support enterprise communications and
collaboration, and update corporate databases.

(a) <u>Transaction processing systems</u> →

. It record and process data resulting from business
transactions.

. They process transactions in two basic way

In <u>batch processing</u> transactions data are accumulated
over a period of time and processed periodically.
In <u>real time (or online) processing</u> data are
processed immediately after a transactions occurs.

. For example point of sale (POS) systems at many
retail stores use electronic cash register terminals
to capture (electronically) and transmit sales data over
tele communications links to regional computer centers
for immediate (real-time) or nightly (batch) processing.

(b) <u>Process Control Systems</u> →

. monitor and control physical processes.

. for example a petroleum refinery uses electronic
sensors linked to computers to continually
monitor chemical processes and make instant (real
time) adjustments that control the refinery process.

(c) Enterprise collaboration systems →

- Enhance team and work group communications and productivity and include applications that are sometimes called office automation systems.

- For example knowledge workers in a project team may use electronic mail to send and receive electronic messages. and video conferencing to hold electronic meetings to coordinate their activities.

(ii) Management Support Systems →

- When information system applications focus on providing information and support for effective decision making by managers, they are called management support systems.

- Several major types of information systems support a variety of decision making responsibilities.

(a) Management Information system (MIS)
(b) Decision support system (DSS)
(c) Executive information system (EIS)

(a) Management Information System (MIS) →

- Provides information in the form of reports and displays to managers and many business professionals.