Chapter 1: Introduction to Information System

Instructor:
Navin Gautam
Lecturer, Kantipur Engineering College
Email: navingautam84@hotmail.com

Definition

- a system that provides information to the people in organization
- an arrangement of people, data, processes, communications,
- and information technology that interact to support and improve day-to-day operations in a business, as well as support the problem-solving and decision-making needs of management and users
- An information system collects, processes, stores, analyzes, and disseminates information for a specific purpose. Information systems are often at the heart of most organizations. For example, banks and airlines cannot function without their information system. Its importance
- is more crystal clear in this era of e-business.
- Information system accepts input and process data to provide information to decision makers and help them communicate their results

Sources and types of IS (1)

- Sources
  - Data are raw facts about the organization and its business transactions. Most data items have little meaning and use by themselves
  - Information is data that has been refined and organized by processing and purposeful intelligence. The latter, purposeful intelligence is crucial to the definition—People provide the purpose and the intelligence that produces true information.
- Classes
  - Transaction processing systems
  - Management information systems
  - Decision support systems
  - Expert systems
  - Office automation systems
  - Knowledge management systems

Sources and types of IS (2)

- Classes (contd..)
  - Transaction processing systems are information system applications that capture and process data about business transactions.
    - Includes data maintenance, which provides for custodial updates to stored data
    - **Business Process Redesign (BPR)** is the study, analysis, and redesign of fundamental business (transaction) processes to reduce costs and/or improve value added to the business
  - **Management Information System (MIS)** is an information system application that provides for management-oriented reporting.
  - Decision Support System (DSS) is an information system application that provides its users with decision-oriented information whenever a decision-making situation arises. When applied to executive managers, these systems are sometimes called **Executive Information Systems (EIS)**
  - **Expert System** is a programmed decision-making information system that captures and reproduces the knowledge and expertise of an expert problem solver or decision maker and then simulates the "**thinking**" or "**actions**" of that expert.

Sources and types of IS (3)

- Classes (contd..)
  - **Office automation (OA)** systems support the wide range of business office activities that provide for improved work flow and communications between workers, regardless of whether or not those workers are located in the same office.
    - **Personal information systems** are those designed to meet the needs of a single user
    - **Work group information systems** are those designed to meet the needs of a work group
  - **Knowledge management systems** exist to help business create and share information.

IS issues- Playing the game (1)

- Critical Success Factors
  - Factors that must be considered in attaining organizational goals are called critical success factors.
  - Such factors can be strategic, managerial or operational and are derived mainly from three sources- organizational, industrial and environmental
  - Once identified, CSF can be monitored according to
    - Key problem narratives: reports highlight overall performance, key problems and possible reasons for the problem within an organization
    - Highlight charts: These summary displays show high level information based on users' own judgment or preferences
    - Top level financials: These displays provide information on overall financial help of the company in the form of absolute numbers and corporative performance ratios

IS issues- Playing the game (2)

- Global Business Drivers
  - General Cultural Factors:
    - Global communication and transportations
    - Development of global culture
    - Emergence of global social norms
    - Political stability
  - Specific business factors
    - Global markets
    - Global productions and operations
    - Global co-ordination
    - Global workforce

IS issues- Playing the game (3)

- Automated Business Rules
  - Ability to capitalize on market opportunities, re-engineering business process, and implement new business rules with speed and accuracy.
  - Allow not-technical business personnel to modify own business application rules as dictated by changing conditions.
  - Ability to react quickly to change is a key factor for business success

IS issues- Playing the game (4)

- Operational Intelligence
  - Analyze, extract critical business knowledge from data revealing significant factors that can impact organization's success, allowing it to predict future outcomes and achieve the business results needed to stay ahead of the competition.
  - Should deliver real time monitoring, detection and prediction that enable the organization to offer services to customers, suppliers, employees and enhancing user satisfaction

Information System Architecture (1)

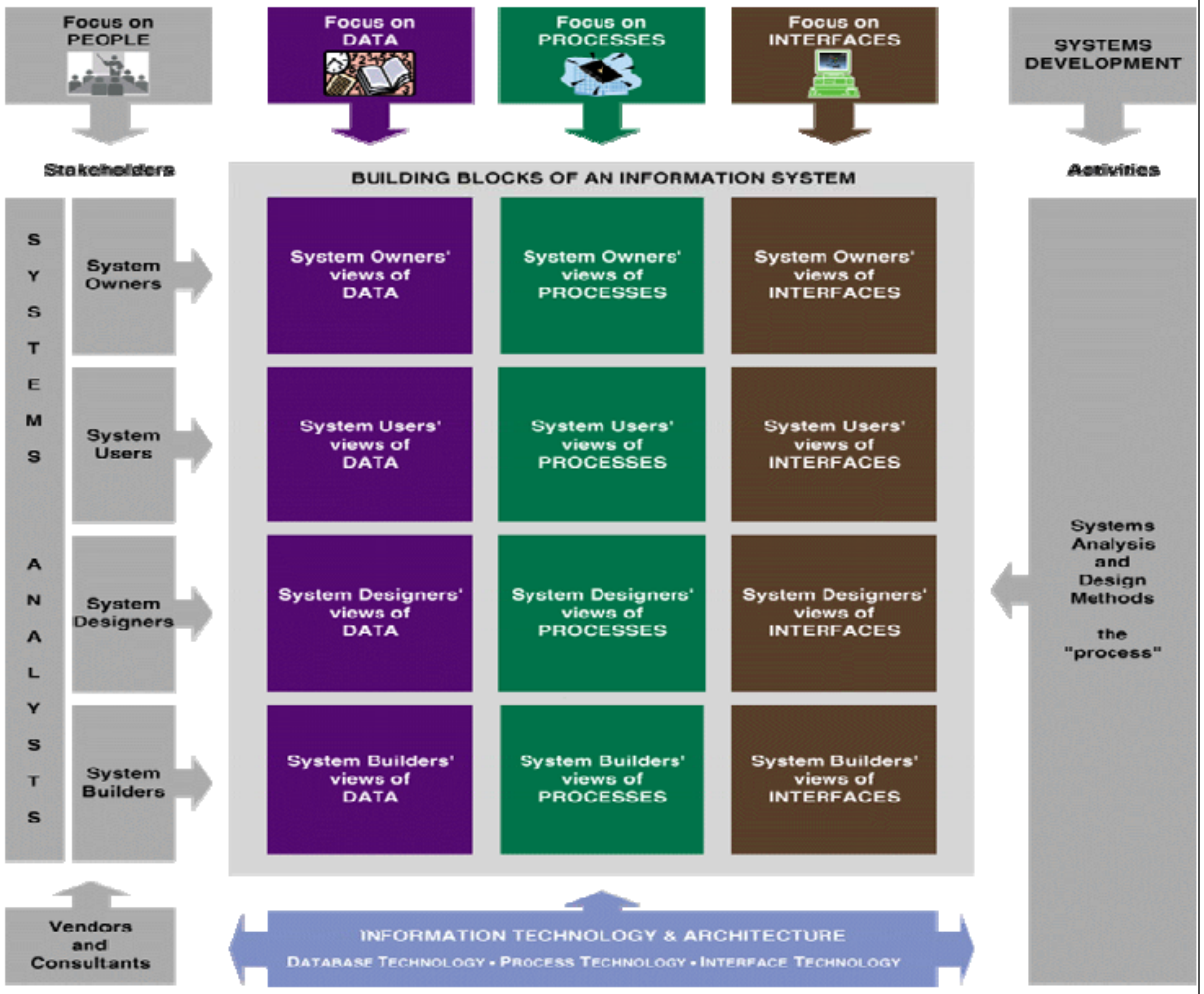
- Information systems architecture provides a unifying framework into which various people with different perspectives can organize and view the fundamental building blocks of information systems
- Information architecture is the art of navigating and accessing information in a logical and intuitive fashion.
  - P: the need to improve Performance
  - I: the need to improve Information (and data)
  - E: the need to improve Economics, control costs, or increase profits
  - C: the need to improve Control or security
  - E: the need to improve Efficiency of people and processes
  - S: the need to improve Service to customers, suppliers, partners, employees, etc

Information System Architecture (2)

- Stakeholders
  - Who are they ?
    - A stakeholder is any person who has an interest in an existing or new information system. In simpler words, stakeholders are lists of peoples you have to please or consider
    - **System owners** pay for the system to be built and maintained.
    - **System users** use the system to perform or support the work to be completed.
    - **System designers** design the system to meet the users' requirements.
    - **System builders** construct, test, and deliver the system into operation.
    - **Systems analysts** facilitate the development of information systems and computer applications by bridging the communications gap that exists between non technical system owners and users and technical system designers and builders.
    - **IT vendors and consultants** sell hardware, software, and services to businesses for incorporation into their information systems.

Information System Architecture (2)

- Stakeholders (contd..)
  - What do they want ?
  - How are they best served ?
  - Need sets ?



Planning and design (1)

- Planning focuses on defining discrete activities and work needed to complete each activity within the single project. We can have:
  - Short term planning or tactical planning
  - Long term planning or strategic planning

Planning and design (2)

- Activities performed during planning
  - Describing project scope alternatives and feasibility
  - Deciding the project into manageable task
  - Estimating resources and creating resource plan
  - Developing a preliminary schedule
  - Develop the communication plan
  - Determining project standards and procedures
  - Identifying and accessing risk
  - Creating a preliminary budget
  - Developing a statement of work
  - Setting baseline project plan

Planning and design (3)

- Feature of long term (Strategic) IS planning
  - Consistent with corporate business model/business plan.
  - Management involvement and commitment.
  - Strategy development.
  - Formulation of steps, timing and cost requirement to achieve strategy.
- Design
  - Feasibility study
  - Requirement analysis
  - Conceptual design
  - Logical design
  - External design
  - Prototyping testing/validation
  - Maintenance

Planning and design (4)

- Feasibility Assessment
  - Operational Feasibility
  - Technical Feasibility
  - Schedule Feasibility
  - Economic Feasibility
- Implementation: Details in chapter 4