Evolution of Systems

The evolution of Information System function can be summarized as follows:

1950 – 1960: Electronic Data Processing, Transaction Processing System

During this period, the role of IS was mostly to perform activities like transaction processing, recordkeeping and accounting. IS was mainly used for electronic data processing (EDP).

EDP is described as the use of computers in recording, classifying, manipulating, and summarizing data. It is also called information processing or automatic data processing. Transaction Processing System (TPS) was the first computerized system developed to process business data. TPS was mainly aimed at clerical staff of an organization. The early TPS used batch processing data which was accumulated over a period and all transactions were processed afterward.

TPS collects, stores, modifies and retrieves day-to-day transactions of an organization. Usually, TPS computerize or automate an existing manual process to allow for faster processing, improved customer service and reduced clerical costs. Examples of outputs from TPS are cash deposits, automatic teller machine (ATM), payment order and accounting systems. TPS is also known as transaction processing or real-time processing.

1960 to 1970: Management Information Systems

During this era, the role of IS evolved from TPS to Management Information Systems (MIS). MIS process data into useful informative reports and provide managers with the tools to organize evaluate and efficiently manage departments within an organization. MIS delivers information in the form of displays and pre-specified reports to support business decision-making. Examples of output from MIS are cost trend, sales analysis and production performance reporting systems.

1970 to 1980: Decision Support Systems

In this era, a major advancement was an introduction of the personal computers (PC). With the introduction of PCs, there was the distribution of computing or processing power across the organization. IS function associated strongly with management rather than a technical approach in an organization. The role focused on “interactive computer-based system” to aid decision-makers in solving problems.

This new role of information systems to provide interactive ad-hoc support for the decision-making process to managers and other business professionals is called Decision Support Systems (DSS). DSS serve the planning, management and operations level of an organization usually senior management.

1980 to 1990: Executive Information Systems

This period gave rise to departmental computing due to many organizations purchasing their own hardware and software to suit their departmental needs. Instead of waiting for indirect support of centralized corporate service department, employees could use their own resources to support their job requirements. This trend led to new challenges of data incompatibility, integrity and connectivity across different departments. Further, top executives were neither using DSS nor MIS hence executive information systems (EIS) or executive support systems (ESS) were developed.

EIS offers decision making facilities to executives through providing both internal and external information relevant to meeting the strategic goals of the organization. These are sometimes considered as a specific form of DSS. Examples of the EIS are systems for easy access to actions of all competitors, economic developments to support strategic planning and analysis of business performance.

1990 to 2000: Knowledge Management Systems

During this era, the rapid growth of the intranets, extranets, internet and other interconnected global networks dramatically changed the capabilities of IS in business. It became possible to circulate knowledge to different parts of the world irrespective of time and space.

This period also saw an emergence of enterprise resource planning (ERP) systems. ERP is an organization-specific form of a strategic information system that incorporates all components of an organization including manufacturing, sales, resource management, human resource planning and marketing.

Moreover, there was a breakthrough in the development and application of artificial intelligence (AI) techniques to business information systems. Expert systems (ES) and knowledge management systems (KMS) interconnected to each other.

2000 – Present: E-Business

The Internet and related technologies and applications changed the way businesses operate and people work. Information systems functions in this period are still the same just like 50 years ago doing records keeping, reporting management, transactions processing, support management and managing processes of the organization. It is used to support business process, decision making and competitive advantage.

The difference is greater connectivity across similar and dissimilar system components. There is great network infrastructure, higher level of integration of functions across applications and powerful machines with higher storage capacity. Many businesses use Internet technologies and web-enable business processes to create innovative e-business applications. E-business is simply conducting business process using the internet.