**Strategic Information Systems**

A **Strategic Information System** (SIS) is a system to manage information and assist in strategic decision making. A strategic information system has been defined as, “The information system to support or change enterprise’s strategy.” Simply says, a Strategic Information System is a type of Information System that is aligned with business strategy and structure.

The alignment increases the capability to respond faster to environmental changes and thus creates a competitive advantage. An early example was the favorable position afforded American and United Airlines by their reservation systems, Sabre and Apollo. (American Airlines worked with IBM to develop an improved booking/reservation system, and the Airline Reservation Systems (ARS) and the Semi-Automatic Business Research System (SABRE) launched thereafter in 1960. The network completed set-up in 1964, and it was recognized as the largest data processing system in existence. United Airlines developed the Apollo Reservation System, and shortly after allowed travel agents access. The Apollo system was the foundation for many further developments, which spread from just US airlines to European airlines as well). For many years these two systems ensured that the two carriers’ flights appeared on the first screens observed by travel agents, thus increasing their bookings relative to competitors. A major source of controversy surrounding **Strategic Information Systems**are  their sustainability.

**Strategic Information Systems** are different from other comparable [management information systems](https://www.mbaknol.com/management-information-systems/introduction-to-managment-information-systems-mis/) as:

1. They change the way the firm competes.
2. They have an external (outward looking) focus.
3. They are associated with higher project risk.
4. They are innovative (and not easily copied).

It is mainly concerned with providing and organization and its members an assistance to perform the routine tasks efficiently and effectively. One of the major issue before any organization is the challenge of meeting its goals and objectives. Strategic IS enable such organization in realizing their goals. Strategic Information System (SIS) is a support to the existing system and helps in [achieving a competitive advantage](https://www.mbaknol.com/international-business/achieving-a-sustainable-competitive-advantage/) over the organizations competitors in terms of its objectives. This unit deals with the critical aspects of the strategic information system. This units indicates the theoretical concepts and the way in which the same are realized in practice. The flow of the unit is in such a way that it starts with the development of contemporary theory about strategic uses of corporations’ internal information systems leading to systems which transcend the boundaries of particular organizations. The process whereby strategic information systems are created or identified is then examined. A number of weaknesses in the existing body of theory are identified, and suggestions made as to directions in which knowledge is or may be progressing. A strategic information system is concerned with systems which contribute significantly to the achievement of an organization’s overall objectives. The body of knowledge is of recent origin and highly dynamic, and the area has an aura of excitement about it. The emergence of the key ideas, the process whereby strategic information systems come into being is assessed, areas of weakness are identified, and directions of current and future development suggested.

[Information system](https://www.mbaknol.com/management-information-systems/the-necessity-and-importance-of-systems-design-in-management-information-system-mis/) is regarded as a tool to provide various services to different [management functions](https://www.mbaknol.com/management-principles/most-important-functions-of-management/). The tools have been developing year by year and the application of the tool has become more and more diverse. In management it is now a very power means to manage and control various activities and [decision making process](https://www.mbaknol.com/management-articles/management-decision-making-process/). The original idea of automating mechanical processes got quickly succeeded by the rationalization and integration of systems. In both of these forms, IS was regarded primarily as an operational support tool, and secondarily as a service to management. Subsequent to the development, it was during the last few years that an additional potential was discovered. It was found that, in some cases, information technology (IT) had been critical to the implementation of an organization’s strategy.

An organization’s strategy supported by information system fulfilling its business objectives came to be known as Strategic Information System. The strategic information system consists of functions that involved gathering, maintenance and analysis of data concerning internal resources, and intelligence about competitors, suppliers, customers, government and other relevant organizations.

**Strategic of information system**

What is Strategic of information system?

Strategic Information Systems are computer systems that are used at every level of the organization that change operational objectives, service products and environmental relationships to help organizations gain competitive advantage.

**Importance of Strategic information system**

Strategic information system provides a connection between demands of organization and latest information technology. This tactic helps an organization to get hold of the market by utilizing Information tech to meet its challenging requirements to the continuous variation in the corporate environment.

**Types of Information System strategic:**

***1. Operation support system***

The primary purpose of this system is to keep a check on transactions, operations, control, chain supply, and management. It also helps to facilitate internal and external talks, and it updates the central main database of the organization.

***2. Management Support System***

These systems facilitate and provide precise information and data to the manager for easy routines, decision-making processes. Decision support system which helps to solve particular issues related problems.

**Uses of Strategic information system:**

***1. Cost Leadership Strategy***

Information systems are said to support this strategy if the company able to reach a position lowest costs in the industry, by way of business process engineering, lowering costs from suppliers, and reduce costs to customers. For the example most of retail company who create promotion of the retail product to attract customers to buy the product cheaper than the other companies.

***2. Differentiation Strategy***

Information systems are said to support this strategy if they can provide products or services unique and able to provide more value to customers compared to other competitors, namely by way of: utilizing information technology to create products or services that are different, and reduce the advantages of differentiation from competitors.

***3. Focus Strategy***

Information systems are said to support this strategy if they can help the company focusing on specific products or services within the organization.

***4. Innovation Strategy***

Information systems are said to support this strategy if they can find specific ways in doing business is by providing products or services with the latest innovations. For the example Apple Product that offers a lot of features and high qualities software in their smartphone, smartwatch, or laptop. Even the price is more expensive than similar products, but the people are willing to buy because of the high quality and the innovation.

***5. Alliance Strategy***

Information systems are said to support this strategy if they can create cooperative relationships which benefits both suppliers and other companies even with competitors.

***6. Growth Strategy***

Information systems are said to support this strategy if they able to develop and diversify market.

***7. Quality Strategy***

Information systems are said to support this strategy if they able to help improve the quality of the product or service.

**Transaction Processing and Management Reporting Systems**

**9.1 Functions of Transaction Processing Systems**

A ***transaction*** is an elementary activity conducted during business operations. ***Transaction processing systems*** (TPS) process the company's business transactions and thus support the operations of an enterprise. A TPS records a non-inquiry transaction itself, as well as all of its effects, in the database and produces documents relating to the transaction.

TPS are necessary to conduct business in almost any organization today. TPSs bring data into the organizational databases, these systems are also a foundation on which management oriented information systems rest.

**System Charts** [Figure 9.1]

Systems charts are well-established tools which are used to describe TPSs. These charts show the sources of input into the system, major processing steps, data storage, and systems outputs.

**Transaction Processing Modes** [Figure 9.2 & 9.3]

Transaction processing may be accomplished in one of two modes:

1. On-line mode

2. Batch mode

Characteristics of on-line transaction processing:

1. Each transaction is completely processed immediately upon entry.

2. OLAP is the most common mode of used today

3. More costly than batch processing

4. Database is always up to date

5. Require the use of fast secondary storage such as magnetic disks

Characteristics of batch transaction processing:

1. Relies on accumulating transaction data over a period of time and then processing the entire batch at once.

2. Batch processing is usually cyclic: daily, weekly, or monthly run cycle is established depending on the nature of the transactions

3. Cheaper than on-line processing

4. Easier to control than on-line processing

5. Database is constantly out of date

6. Batch processing is now being captured using disk files

**9.2 Transaction Processing Subsystems in a Firm [Figure 9.4]**

Overall transaction processing, also known as data processing, reflects the principal business activities of a firm. The principal transaction processing subsystems in a firm are those supporting:

1. Sales

2. Production

3. Inventory

4. Purchasing

5. Shipping

6. Receiving

7. Accounts payable

8. Billing

9. Accounts receivable

10. Payroll

11. General ledger

**9.3 Transaction Processing Activities**

The processing of individual transactions, of course, depends to a degree on their nature. The general elements of transaction processing include:

1. Data capture and validation

2. Transaction - dependent processing steps

3. Database maintenance

**Date Capture**

***Direct data******entry*** is commonly employed through source data automation. Increasingly, transaction processing systems rely on electronic data interchange (EDI). By replacing paper documents with formatted transaction data sent over telecommunications networks, these systems provide for computer-to-computer communication without repeated data entry. Although used internally by some firms, EDI primarily serves the needs of intercompany communication.

**Data Validation**

Typical validation tests include checking for missing data items, valid codes, and valid values. More extensive validation may entail authorization of the transaction based on the customer=s record and available inventory.

**Processing Steps Dependent on the Transaction and on Processing Mode**

Depending on the nature of the transaction and on whether the system operates in on-line or batch mode, the following processing steps may be performed:

1. Classification The system classifies incoming transactions to select further processing steps.

2. Sorting Transaction records are arranged in order of the value of the data item(s) that uniquely identifies each of them.

3. Data Retrieval The purpose of an inquiry transaction is retrieval of data from the database. Other transactions may involve data retrieval as well.

4. Calculation The calculations required depend on the nature of the transaction.

5. Summarization Usually performed to obtain simple reports offered by TPS, this step computes summaries across all or some of the transactions.

**Database Maintenance**

After transactions other than inquiries, system files or databases must be updated. The data accumulated by TPSs thus serve as a source of detail for management oriented components of information systems.

**9.4 Outputs Provided by Transaction Processing Systems**

The outputs provided by TPSs may be classified as:

1. Transaction documents

2. Query responses

3. Reports

**Transaction Documents**

Many TPSs produce transaction documents, such as invoices, purchase orders, or payroll checks. These transaction documents produced by TPS may be divided into two classes: action documents and information documents.

1. ***Action documents*** direct that an action take place. Turnaround documents initiate action and are returned after its completion to the requesting agency. They therefore also serve as input documents for another transaction.

2. ***Information documents*** confirm that a transaction has taken place or inform about one or several transactions. Transaction documents require manual handling and, in some cases, distribution of multiple copies. The process is costly and may lead to inconsistencies if one of the copies fails to reach its destination.

**Query Responses and Reports**

TPS offer certain querying ad simple reporting capabilities, albeit much less elaborate than those of management reporting systems. Most queries produce a screenful of information. However, reports are also often produced as a result of inquiries.

Unlike management reporting systems, TPSs typically provide a limited range of preplanned reports. The content and format of such reports are programmed into the TPS software and the reports are produced on schedule. The TPS reports are often quite long.

The following report types are produced by TPS:

1. Transaction Logs - are listings of all transactions processed during a system run and include purchase order manifests or sales registers.

2. Error (Edit) Reports - error reports list transactions found to be in error during the processing. They identify the error and sometimes also list the corresponding master file or database records.

3. Detail Reports - detail reports are extracts from the database that lists records satisfying particular criteria.

4. Summary Reports - typical summary reports produced by TPSs include financial statements.

**9.5 From Electronic Data Interchange (DEI) to Electronic Commerce**[Figure 9.6]

A prominent means of source data automation is electronic data interchange. Electronic data interchange (EDI) is the computer to computer interchange of electronic transaction documents, involving at least two trading partners. With EDI, paper transaction documents, such as purchase orders or invoices are eliminated and replaced with standardized electronic communications. EDI underlines much of electronic commerce by enabling companies to conclude commercial transactions over telecommunications networks, and the Internet in particular.

EDI components include the following:

1. Transaction standards

- the messages are exchanged in a standard form, agreed on by the participating partners.

2. Industry standard for product identification

- partners have to agree on the standard way to identify their products.

3. Translation software

- translation software converts the incoming EDI messages into a format that can be used by the owner firm's applications.

4. Telecommunications systems

**-**EDI can be carried out via direct telecommunications links between the partners, using a value-added network (VAN) from a third-party supplier, or over the Internet. Among other services, VANs supply electronic mailboxes that can hold messages for the addressee.

Beyond direct savings, EDI has significant potential in competitive and strategic applications of information technology. Among the principal effects are:

1. Compressing the business cycle by speeding up communications

2. Supporting time-based competitive modes, such as the just in time manufacturing strategy that reduces or even removes inventories, and quick response retail strategies

3. Intensified relationships between trading partners. This is due to the cost of switching to another EDI system after the given one is in place and to avoid misunderstandings because of errors, common in the exchanges of paper documents.

**9.6 Management Reporting Systems**[Figure 9.8]

**Characteristics of Management Reporting Systems**

Management reporting systems are the most elaborate of the management oriented information systems. The main objective of management reporting systems (MRS) is to provide lower and middle management with printed or electronic reports and with inquiry capabilities to help maintain operational and management control of the enterprise.

Characteristics of MRS include:

1. They are usually developed by information systems professionals, rather than by end users, over an extensive period of time, with the use of life cycle oriented development methodologies as opposed to a rapid development by first building a simpler prototype system and then refining it in response to user experience.

2. These systems are build for situations in which information requirements are reasonably well known and expected to remain relatively stable.

3. MRSs do not directly support the decision-making process as a search for alternative solutions to problems and the selection of the solution to be implemented.

4. MRSs are oriented toward reporting on the past and the present, rather than projecting the future.

5. MRSs generally have limited analytical capabilities. They are not built around elaborate models, but rather rely on extraction of data from databases according to given criteria, and on summarization of the data.

6. MRSs largely report on internal company operations rather than spanning the company=s boundaries by reporting external information.

**Reporting by Management Report Systems**

MRSs may produce reports either directly from a database collected and maintained by a transaction processing system, or from databases spun off from the central database for the purpose. Separate spin off databases may be created for several reasons, such as:

1. Avoiding interference and delays in transaction processing

2. Maintaining the security of central databases

3. Economizing by using local databases accessible to local managers to counter heavy telecommunications costs of working with a central database.

MRSs provide the following types of reports:

1. **Scheduled (Periodic) Reports**

- are furnished on a daily, weekly, biweekly, or other regular basis depending on the decision-making need.

- the format and the informational content of scheduled reports are fixed in advance. However, it is crucial to identify the essential informational needs of various managers to facilitate each manager's decision making and to prevent information overload.

- the concept of responsibility reporting is generally applied - managers receive reports within their specific areas of responsibility.

- a hierarchy of performance reports arises, with each report including only the items that the manager can control.

**2. Exception Reports**

- produced only when preestablished Aout of bounds@ conditions occur and containing only the information regarding these conditions**.**Exception reporting helps managers avoid perusal of incident figures and concentrate on deviations from the norm and on unusual events.

3. **Demand (Ad Hoc) Reports**

- the ability of a manager to request a demand report or screen output as needed enhances the flexibility of MRS use and gives the end user the capability to request the information and format that best suit his or her needs. Query languages provided by DBMSs make data accessible for demand reporting.

**9.7 Strategic Potential of Transaction Processing & Management Reporting Systems**

TPS can be enablers of major process innovations. Redesigned business processes, supported by TPS, cut through functional business lines and can ensure rapid and high-quality customer service. Strategic TPSs may become a source of competitive advantage or competitive parity by focusing on the internal or customer oriented processes.

The customer driven nature of many TPSs affords some firms the opportunity to gain a competitive advantage by providing unique systems. Some of the types of information systems based on these capabilities which can be exploited for competitive effect include:

1. Tracking systems - management reporting systems that continuously track the status of a project or a product under development.

2. Locational systems - TPS that monitor the geographic location of materials or vehicles.

3. Asset management systems - TPS and MRS that maintain and report on-line the status of financial inventory, and human resources assets.