Chapter 2

Types Of Management Information Systems

MIS is a system or process that provides the information necessary to manage an org. effectively.

The important type of information systems are:

1. Transaction processing system. (TPS)
2. Decision support system. (DSS)
3. Group decision support system. (GDSS)
4. Executive information system. (EIS)
5. Expert systems. (ES)
6. Management Reporting system. (MRS)

1. TRANSACTION PROCESSING SYSTEM (TPS)

It is the earliest type of information system. A TPS collects, stores, modifies and retrieves

the transactions of an org.

A business event takes place in the business is called a transaction. A transaction is any event or activity that affects the org. which occur as part of doing business, such as sales, purchases, deposit, withdrawals, refunds and payments.

TPS are the basic business systems that process day to day transactions of an org. to carry on its business operations.

Definition

Laudon and Laudon define TPS as "Transaction processing systems are computerised systems that perform and records the daily routine transactions necessary to conduct the business."

Features of TPS

1. Rapid Response : The response time of TPS is important because a business cannot afford to have their customers waiting for long periods of time before making a transaction. TPS systems are designed to process transactions virtually instantly.

2. Reliability : TPS are designed to ensure that no mistake occur in transaction processing. Therefore, it should contain sufficient safety and security measures.

3. Inflexibility : Transactions must be processed in the same way each time to maximise efficiency. If a TPS was flexible, different types of data would be entered in different orders.

4. Controlled Access : It must be able to allow only authorized employees to access it at any

time.

5. Distribution of information to other systems:

TPS produces information and distributes it to the other type of systems.

For Eg: Sales processing systems supply information to the general ledger systems.

6. Historical Data: TPS produces information on the historical basis because TPS generate information taking into account transactions already taken place in the org.

7. Link with External Environment

Org. Establishes the relation with External Environment through the information generated from transaction processing system.

Eg: TPS distributes information to its customers and suppliers.

8. Provide information to other functional subsystems: TPS is highly essential for other functional areas of business org. such as product mix, marketing, finance and human resources. This is because for the effective functioning of these subsystems, some kind of transaction processing is essential.

9. Meet the requirements of operational level of organisation: Most of the decisions made at the operational level are structured or programmed. This is done with the help of transaction processing.

Key Properties of Transactions Processing

ACID refers to the key properties of a transaction. Atomicity, consistency, isolation, and durability.

1. Atomicity : means that a transaction is either completed in full or not at all. Transactions are known as atomic, meaning that transaction will either happen or not happen.

For Eg: If one a/c is debited and the corresponding credit is not ~~happen~~ given to other a/c. It does not qualify as a transaction.

2. Consistency : TPS must always be consistent to follow its own rule. If errors occur in the transaction on either side, then the transaction will fail. TPS systems exist with in a set of operating rules.

3. Isolation : Isolating transaction means that other processes never see information during the transaction. They may see information before or after the transaction, but not during the transaction.

4. Durability : The transaction must be durable. After a transaction successfully completes, changes to data persist and are not undone, even in the event of a system failure.

Components of a TPS

1. Input : The 1st component in the production of information from TPS is the capturing and feeding data in to the computer. In TPS various source documents are used as input documents. For Eg : purchase orders, Sales orders etc. Various input devices such as keyboard, secondary storage devices etc. through which data can be given to the computer system.

2. Processing : The greatest use of computer in data processing is its ability to process data quickly. Millions of pieces of data can be

processed at a great speed with greater accuracy. Transactions entered in Journals and registers in the order of its occurance. All transactions are then grouped together according to its nature and recorded at one place.

3. Storage : One of the greatest advantages of using computers in data processing is its ability to store large volume of data and information. Data can be stored both on the internal and external memory. Generally 2 types of files are used for storing info. They are;

→ transaction file : used to record each transaction takes place in the org.

→ Masles file : Contains data that are permanent nature.

4. Output : Output is the info. produced by an information system. Many of the output

come is the form of documents and reports.

Some of the output can be used as input for further processing.

Transaction processing cycle.

TPS capture and process business transactions. TPS generally consist of 5 stage cycle.

1. Data entry : in this process, data is captured or collected by recording, coding and editing activities. Then the data may be converted to a form that can be entered in to a computer system.

2. Transaction processing : TPS proces data through 3 methods - They are : online processing, batch processing, real-time processing.

3. File and database processing : means, that an organisation's files and databases must be maintained by its TPS so that they are always

correct and up to date.

4. Document and Report generation : The final stage is the transaction processing cycle is the generation of information products such as documents and reports.

5. Inquiry processing : Many transaction processing allows to use Internet and web browsers or database mgt query languages to make inquiries and receive responses concerning the result of transaction processing activity.

Methods for Processing Transactions

1. On-line processing : In online processing, transactions are entered on-line validated and if found valid, are processed immediately. After processing

the input data, the system gives ~~from~~ some signal or confirmation to the user as to the completion of processing. Online processing is that type of processing in which data can be directly entered into the system and results are available immediately.

Eg: It is highly suitable for processing banking transactions.

Railway ticket reservation system.

2. Batch processing

In a batch processing system, transactions are collected and accumulated over a period of time and processed periodically.

Batch processing usually involves the following

a) Collection of source documents such as sales orders invoices or purchase orders

en to groups called batches.

b) The collected data in these documents are transferred to some input medium such as magnetic disks.

c) sorting the transactions in the same order as the records in a sequential master file.

d) Input data is processed and output data such as documents and reports are obtained. Master files are also updated.

Batch processing is a more economical method of data processing. The method is suitable especially when larger volume of data to be processed. The method is also suitable where immediate file updating is not necessary and reports are to be generated only at fixed intervals.

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For Eg: Customer stmt may be prepared on a monthly basis, where as payroll processing might be done on a weekly basis.

However batch processing is also not free from defects. Most often masters files are remain outdated and therefore immediate responses are not obtained.

3. Real time processing

Here data is processed immediately after they are eg originated and provide immediate output to the users. Data is fed directly is to the system from online terminals. files and databases are always up to date since they are updated whenever the data is originated. The essential feature of real time Systems is that the input data to be processed quickly so that further action can be taken

immediately on the basis of output.

Eg: Traffic signal control, flight control etc.

Real time systems of data processing can be effectively used in the following application areas.

1. The method can successfully use for inventory mgt since latest positions of stock can be displayed at any time.

2. Sales analysis can be made and masterfiles can be updated.

Real time processing systems provides immediate updating of files and immediate responses are obtained.