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Role of Information Technology in Transaction Processing System

Engr. Faizullah Mahar
Department of Electrical Engineering and Computer Science/IT
Balochistan University of Engineering and Technology, Khuzdar, Balochistan, Pakistan

Abstract: The earlier transaction processing systems were manual systems. Clerks would record transactions in a journal or on numbered multi part forms. These transactions would latter be transferred, manually, to a central system of hand written records or file folders representing individual customers or suppliers. These records would be set up to trigger statements to customers or checks of suppliers. Many small businesses still operate with manual transaction processing systems; however, inexpensive and easy to use computer technology is finding its way into more small businesses. To most businesses, manual systems present numerous problems that are solved by computer and communication technologies. This paper will cover some general properties of transaction processing systems, special transaction processing subsystem-pay roll, order entry, inventory, accounts receivable, accounts payable and others.

Key words: Transaction, data entry, general ledger system, payroll, account receivable, account payable, general ledger system

Information technology fundamental

Computers are an essential part of modern information systems, and it is virtually impossible to study information system today without knowing some thing about them and how they operate. In fact, without computers, it is unlikely that information system would even be considered a serious field of study. Following are the some basic components of computer based information system (Mahar, 2003).

Components of computer based information systems

A computer based information system is an information system in which a computer plays an important role. Such a system consists of the following elements (Mahar, 2002):

Hardware

The term hardware refers to machinery, this category includes computers itself, which is often refer to as the central processing unit (CPU), and all of its support equipments. Among these supporting equipments are input and output devices, storage device, and communication devices.

Software

The term software refers to computer programs and the manuals (if any) that supports them. computer programs are machine readable instructions that direct the circuitry within the hardware parts of the computer based information system to function in way that produce useful information from data. Programs are generally stored on some input output medium often a disk or tape for use by the computer.

Data

Data are facts that used by programs to produce useful information. Like programs, data are generally stored in machine readable form on disk or tape until the computer needs them.

Procedures

Procedures are the policies that govern the operation of a computer system "procedures are to people what software is to hardware" is a common analogy that is used to illustrate the role of procedures in a computer based information system.

People

Every computer based information system needs people if it is to be useful. Often the most overlooked element of the computer based information system; peoples are probably the components that most influence the successor failure of information systems.

Transaction processing system

A transaction processing system (TPS) supports the processing a firm's business transactions. The TPS of a university helps perform such tasks as enrolling students in courses, billing students for tuition, and issuing paychecks to faculty. This transaction processing system associated with large pension fund may assist stockbrokers in executing by and sell orders, then help with accounting for the transaction (Ackoff, 1967).

Transaction processing systems keep an organization running smoothly by automating the processing of the voluminous amounts of paper work that must be handled daily. These systems includes the accurate recording of transactions, as well as control procedures used in using such documents as paychecks, invoices, customer statements, payments reminders, tuition bills and students schedules (Mahar, 2002).

The TPS of an organization may be far-reaching, extending completely through and out of the organization, looking together the entire financial system.

Computer based transaction processing

Computer based transaction processing systems are often considered the bread and Butter MIS application. No matter how nervous upper management in a medium to large organization is about spending in the information system area it knows that it can not pull thee plug on its TPS and Survive.

Many of these organizations have had computer-based transaction processing system since 1950s. Most of these of these systems more than paid for themselves and have justified a full-time support staff consisting of computer professionals. Most transaction processing systems have been and still are main frame –oriented. IBM equipment and their compatibles currently claim the lion's share of the transaction processing market place and are expected to hold onto this lead through the 1990s.

Today, many firms consider transaction processing to be their most important computer application. A surprisingly large number of firms, however, have not carried computer based information processing far beyond the transaction processing stage.

Transaction processing systems in many organizations today are used in this way as competitive weapons. Additionally, the move from dumb terminals intelligent microprocessor based workstations is expected to alter transaction processing in other ways, such as by distributing certain traditionally mainframe-based centralized transactions processing functions closer to their functional area.

Transaction processing system supports the processing of an organization's transactions. This includes accounting for the transactions on its records, as well as providing support activities such as sending out payment reminders. Recently gaining competitive advantage has become a transaction processing concern in some firms, especially those that are working to tie customers and suppliers together more closely with the organization's transactions TPS via Electronic linkages.

Role of information technology and transaction processing

For many business, a transaction refers to an exchange of goods are services for money. The earliest transaction processing systems were manual systems. Clerk would records transactions in journal or on numbered, multi part forms. These transaction would letter be transferred, manually, to a central system of hand written records or files folders responding individual customers or suppliers. These records would be setup to trigger statement of customer or checks to suppliers. Many small businesses still operate with manual transaction processing system; however, inexpensive and easy to use computer technology is finding its way into more small business (Alaxander, 1992).

Most of the businesses, manual system presents numerous problems that are solvable by computer and communication Technologies:

Error level

With manual systems, an uncomfortable level of error often exists. Frequently, look up to the long prices, and prices incorrectly on invoices, or produce garbled journal entries or source documents. Sickness, worry, moodiness, and other inherently human variables can also contribute to high error rates in manual systems.

Temporary or permanent loss of data

Source documents and file folders are easily lost are misplaced. This often results in lost customer payments and delayed purchase or payments.

Labor intensity

Manual systems are labor intensive and, therefore, costly. Data from a single transaction often have to be transcribed several times, and many types of low volatility data have to be rerecorded by clerks every time a new transaction takes place (Tromthy and Krasnewch, 1994).

Poor level of service

The level of service support in manual systems is often inferior. Customers like to know immediately if goods are not in stock , when goods not in stock will be arriving , when they can expect an order to arrive , what there current status is regarding payments and so on. This level of information support is difficult to achieve with a manual system. (Wilkinson, 1986).

Poor response

Virtually every thing takes longer to do with a manual system. When orders are taken, the order entry department might have to contact receivable department for credit check before a can be validated. To day many computerized order-entry operations are connected to a centralized database and when a customer telephones, credit status can be verified immediately (Mehler, 1992).

As technologies such as computers and communications become available to handle the transaction processing workload, MIS departments responded to it in different ways. Some organizations simply look their manual systems and coded them directly into the computer. Thus, all of the bugs in their manual systems were inherited by their computer systems. Other organization realized that technology can change the way people work, thus they re –thought their transactions processing system before automating them.

Today, inexpensive computer and communications devices are setting up two new challenges to transaction processing: using the TPS as a competitive weapon and getting better information more quickly to the right people (Coy, 1992).

Transaction processing subsystems

Some of the major transaction processing subsystems found in most firms. In larger organization most of operations are computerized. Each sub system serves a variety of purposes (Thomas, 1993).

Pay roll

The transaction processing subsystems used to produce paychecks for employees are called payroll-processing systems. These systems also must produce data for tax purposes. Additionally, payroll-processing system must keep track of such items as Social Security payments, union dues, and group insurance deductions.

Order entry

The order entry system is transaction processing subsystem that processes customer orders. Orders may come from variety of sources –perhaps by mail, phone, and fax-from customers who are ordering on demand basis.

Inventory

The quantity of product that a merchandising has available to sell at any given time is called inventory. An inventory system monitors the quantity of each product available for sale and helps ensure that proper stock levels are maintained.

Invoicing

The invoicing in the transaction processing subsystem that creates invoices and some times, packing slips. A packing slip shows little more that what products are contained in shipment; prices are either hidden or missing.

Shipping

The shipping system is conceptually simple. Sealed, address packages of goods are received from inventory, often with shipping instructions. Technology has affected the shipping operation in several ways. Computer and communication systems make it much easier to succeed in the over night package delivery business.

Account receivable

In many firms, customers pay by credit card or have goods charged to their accounts. The account receivable system in the transaction processing system that manages customer purchase records, payments, and account balances.

Purchasing

Many companies use a central purchasing department to procure the goods they need. The advantages of centralized purchasing department are cost control, vender control, and taking advantage of discount realized by quantity buying. The major advantage is inconvenience to the other departments in the organization for whom the goods are being purchased.

Receiving

The function of a receiving system in a receiving department is to receive, inspect, and accept or reject goods that vendor's ship. As goods are received, the shipping cartoons are opened, the contents are checked against the information on the purchase order, the price of shipment is verified, and goods are inspected for possible damage. If the goods are satisfactory, they are typically routed either to inventory or to the department initiating the purchase request.

Accounts payable

Most firms have accounts with their major suppliers (Vendors). The accounts Payable (A/P)-or simple "payables"-System is the transaction processing subsystem that handles payments to suppliers. It keeps track of invoices from suppliers, determines the optimum time to pay invoices,

produces checks to pay invoices, and performs cash management activities (thereby ensuring that cash is always available when bills must be paid). Shows a data flow representation of the payables systems. A payable is a liability that is created as soon as goods (or services) are received from vendors. The invoices and statements are validated against the actual receipt of goods found in the receipt file and, if all of the information is in order, the payable is created on the books. At this point, as many as 30, 60, or 90 days may elapse before the bill is actually paid, depending on the terms of the vendor. As soon as the payment is made and recorded, the payable is closed out (Thomas, 1993).

General ledger

The general ledger (G/L) system integrates transaction data from the other major transaction processing subsystems-payroll, accounts receivable, accounts payable, and so on. Besides insuring that the records of the firm balance, the general ledger system is used for budget planning , responsibility reporting , cost allocation and profitability accounting.

Most companies must provide regular support to a number of data-oriented, transaction processing operations that involves a massive amount of record keeping. These operations payroll, order entry, and inventory control, to name just a few where the first business applications of computers in organization and are still among the most important. Without their computer based transaction processing system, most business could not survive in today's fast paced business environment.

Some computer based transaction processing systems have produced a new competitive business weapons: the inter-organizational system (IOS). In many organizations, electronic data interchange (EDI) and imaging system impact the manner in which some transactions are processed. An other important trend in the down sizing of transaction processing –moving transaction processing applications from mainframes to microcomputer , microcomputers to local area net work.

To day, inexpensive computer and communications devices are setting up two new challenges to transaction processing: using the TPS as a competitive weapon and getting better information more quickly to the right people.

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