

Chapter 9 – Week 8

Transaction Processing and Enterprise Resource Planning Systems

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Traditional Transaction Processing

- 1 **Batch processing system:** Computerised processing in which business transactions are accumulated over a period of time and prepared for processing as a single unit or batch.
- 1 **Online transaction processing (OLTP):** Computerised processing in which each transaction is processed immediately, without the delay of accumulating transactions into a batch.

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An Overview of Transaction Processing Systems

- 1 A transaction processing system (TPS) provides data for other business processes.
 - Management information system/decision support system (MIS/DSS)
 - Special-purpose information systems
- 1 TPSs process the detailed data necessary to update records about the fundamental business operations.
- 1 TPSs include order entry, inventory control, payroll, accounts payable, accounts receivable, the general ledger, and more.

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Traditional Transaction Processing

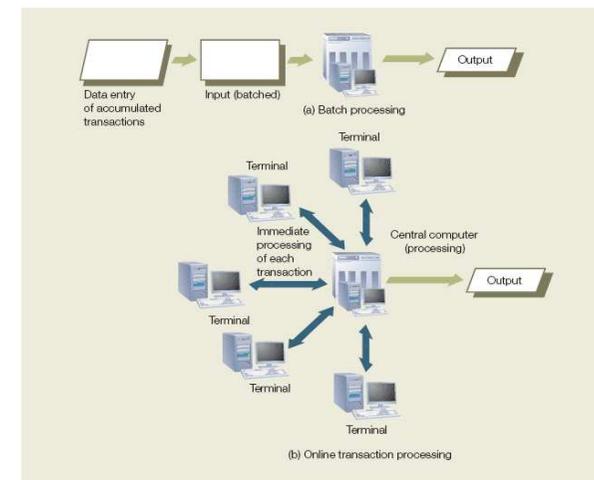


Figure 9.1: Batch Versus Online Transaction Processing

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Traditional Transaction Processing

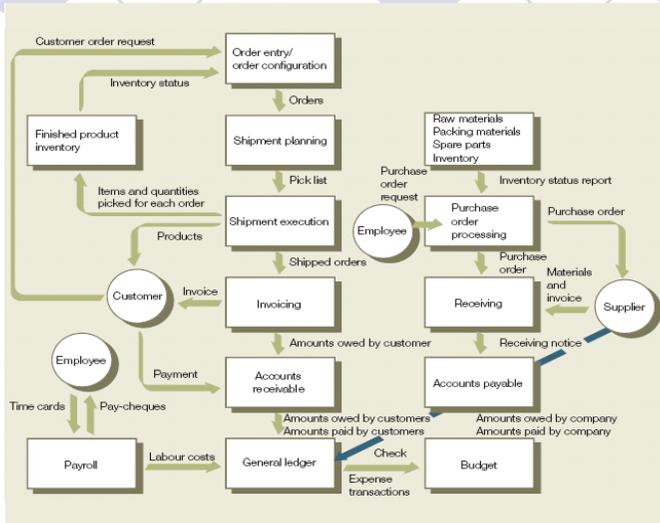


Figure 9.2: Integration of a Firm's TPSs

Transaction Processing Activities

1 TPSs:

- 1 Capture and process data that describes fundamental business transactions
- 1 Update databases
- 1 Produce a variety of reports

1 *Transaction processing cycle*: Data collection, data editing, data correction, data manipulation, data storage, and document production.

Transaction Processing Activities

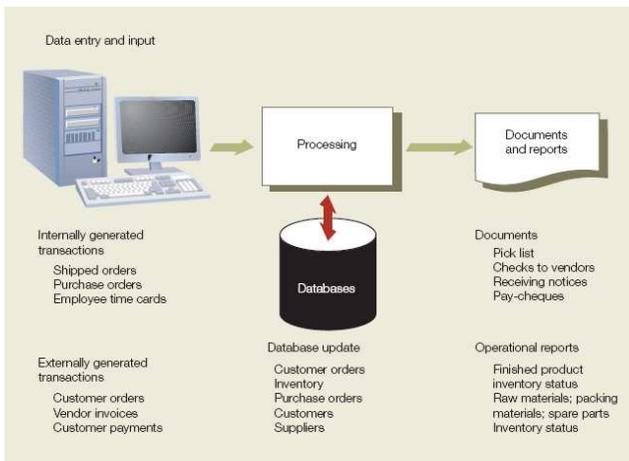


Figure 9.3: A Simplified Overview of a Transaction Processing System

Transaction Processing Activities

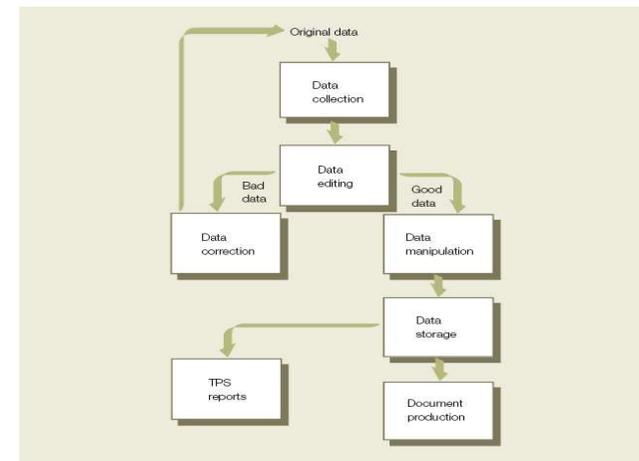


Figure 9.4: Data Processing Activities Common to Transaction Processing Systems

Transaction Processing Activities

- 1 Data collection
 - ┆ Should be collected at source
 - ┆ Should be recorded accurately, in a timely fashion
- 1 Data editing
- 1 Data correction
- 1 Data manipulation
- 1 Data storage
- 1 Document production and reports

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Control and Management Issues

- 1 *Business continuity planning:*
 - ┆ Identification of the business processes that must be restored first in the event of a disaster and specification of what actions should be taken and who should take them to restore operations
- 1 *Disaster recovery:*
 - ┆ Actions that must be taken to restore computer operations and services in event of disaster

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Transaction Processing System Audit

- 1 Does the system meet the business need for which it was implemented?
- 1 What procedures and controls have been established?
- 1 Are these procedures and controls being used properly?
- 1 Are the information systems and procedures producing accurate and honest reports?

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Transaction Processing System Audit

- 1 There are two types of audits:
 - ┆ Internal audit, performed by employees of the company
 - ┆ External audit, performed by accounting firms or separate individuals
- 1 Audit trail:
 - ┆ Allows the auditor to trace any output from the computer system back to the source documents

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Traditional Transaction Processing Applications

Order Processing	Purchasing	Accounting
Sales configuration Order entry Shipment planning	Inventory control (raw materials, packing materials, spare parts, and supplies)	Budget Accounts receivable Payroll
Inventory control (finished product)	Purchase order processing	Asset management General ledger
Invoicing and billing	Receiving	
Customer interaction	Accounts payable	
Routing and scheduling		

Table 9.2: The Systems that Support Order Processing, Purchasing, and Accounting Functions

Order Processing Systems

- 1 'Lifeblood of the organisation'
- 1 Include:
 - ; Order entry
 - ; Sales configuration
 - ; Shipment planning
 - ; Inventory control
 - ; Invoicing

Order Processing Systems

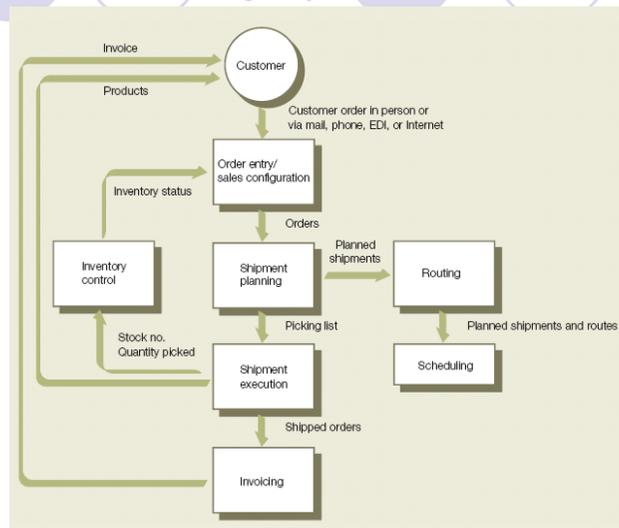


Figure 9.6: Order Processing Systems

Purchasing Systems

- 1 *Purchasing transaction processing systems* include:
 - ; Inventory control
 - ; Purchase order processing
 - ; Receiving
 - ; Accounts payable

Purchasing Systems

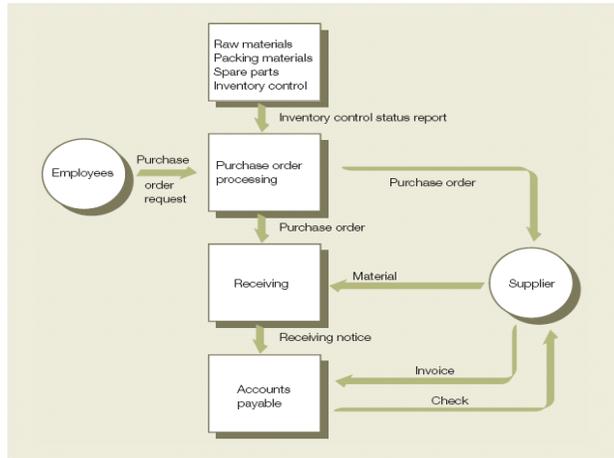


Figure 9.7: Purchasing Transaction Processing System

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Accounting Systems

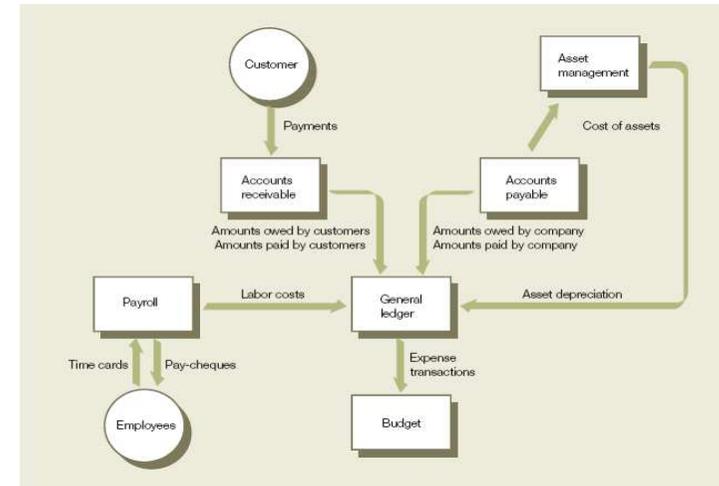


Figure 9.8: Financial Systems

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International Issues

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1 Issues that multinational corporations face in planning, building, and operating their TPSs:

- ‡ Different languages and cultures
- ‡ Disparities in information system infrastructure
- ‡ Varying laws and customs rules
- ‡ Multiple currencies

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Enterprise Resource Planning: An Overview

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- 1 Enterprise resource planning (ERP) systems are used in large, midsized, and small companies.
- 1 Provide real-time monitoring of business functions.
- 1 Timely analysis of key issues such as quality, availability, customer satisfaction, performance, and profitability.

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Enterprise Resource Planning: An Overview

- 1 Steps in running a manufacturing organisation using an ERP system:
 - ‡ Develop demand forecast
 - ‡ Deduct demand forecast from inventory
 - ‡ Determine what is needed for production
 - ‡ Check inventory for needed raw materials

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Enterprise Resource Planning: An Overview

- 1 Steps in running a manufacturing organisation using an ERP system:
 - ‡ Schedule production
 - ‡ Assess need for additional production resources
 - ‡ Financial forecasting

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Advantages and Disadvantages of ERP

- 1 Elimination of costly, inflexible legacy systems
- 1 Improvement of work processes
- 1 Increase in access to data for operational decision making
- 1 Upgrade of technology infrastructure
- 1 Expense and time in implementation
- 1 Difficulty implementing change
- 1 Difficulty integrating with other systems
- 1 Risks in using one vendor
- 1 Risk of implementation failure

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Summary

- 1 *Transaction processing systems (TPSs):* Process the detailed data necessary to update records about the fundamental business operations.
- 1 *Batch processing system:* Transactions are accumulated over a period of time and prepared for processing as a single unit or batch.
- 1 *Online transaction processing (OLTP):* Transaction is processed immediately, without the delay of accumulating transactions into a batch.

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Summary



- 1 *The transaction processing cycle:* Data collection, data editing, data correction, data manipulation, data storage, and document production.
- 1 *Enterprise resource planning (ERP)* systems permit timely analysis of key issues such as quality, availability, customer satisfaction, performance, and profitability.

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What's Next?



- 1 We will now start to discuss Databases.

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