CHAPTER 9

Transaction Processing and Enterprise Resource Planning Systems

Goal of Transaction Processing

- Provide all the information needed to keep the business running properly and efficiently.
  - Provide timely documents and reports
  - Provide data for other systems
  - Safeguard information

Characteristics of Transaction Processing

- One of the first business processes to be computerized
- Performs routine operations on a regular basis
- Provides data to other systems
- High level of detail, accuracy, security
- Limited support for decision making
- A lot of input and output; large storage needs
- Limited sophisticated or complex processing
TPS, MIS, DSS, and AI/ES

The Steps in TPS
(Transaction Processing Cycle)

- Data Collection
- Data Editing
- Data Correction
- Data Manipulation
- Data Storage
- Document Production

An Overview of TPS

- The input includes basic business transactions
- The result is that the organization’s records are updated to reflect the status of the operation at the time of the last processed transaction.
Batch vs. On-Line Transaction Processing

**Batch Processing** (original)
A system whereby business transactions are accumulated over a period of time and prepared for processing as a single unit or batch.

**On-Line Transaction Processing (OLTP)**
A system whereby each transaction is processed immediately, without the delay of accumulating transactions into a batch. Always current.

Transaction Processing Cycle

**Data Collection**
- Begins with a transaction (e.g. an order)
- Manual or automated
  - Source Data Automation
    (e.g. bar code scanners)
- Examples of data collection?

**Data Editing**
- Validity and completeness
Transaction Processing Cycle
Data Correction

- Feedback regarding errors
- Opportunity to re-enter

Transaction Processing Cycle
Data Manipulation

- Performing calculations
  - Classifying
  - Sorting
  - Summarizing

Transaction Processing Cycle
Data Storage

- Updating databases
  - An output of TPS
  - Input to all other systems
**Transaction Processing Cycle**

**Document Production**

- Paychecks
- Invoices
- Packing slips
- etc.

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**Control Issues**

- Business Resumption Planning
  - Identify threats
- Disaster Recovery
  - Identify solutions
    - Backups
    - Hot sites
    - Cold sites
- System Audits
  - Create an audit trail

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**Traditional TPS Applications**

- Order Processing
- Purchasing
- Accounting
Order Processing Support Systems

- Order Entry
  - Captures the data
  - Suggests substitute, related, or “add-on” items
- Sales Configuration
  - Ensures that products and services ordered will work together to accomplish customer’s objectives
  - Suggests options and eliminates mistakes

Order Processing Support Systems

- Shipment Planning
  - Determines which open orders will be filled and from which location they will be shipped and by what means.
  - Prepares a pick list
- Shipment Execution
  - Coordinates and confirms the outflow of all products and goods from the organization

Order Processing Support Systems

- Inventory Control
  - Updates the computerized inventory records to reflect the exact quantity on hand of each stock keeping unit.
  - Minimizes cash tied up in inventory
  - Often bar-coded (www.milk.com/barcode)
  - Just as important for service industries (e.g. airlines)
Order Processing Support Systems

• Invoicing
  § Generates customer invoices based on records received from the shipment execution TPS
• Customer Interaction
  § Monitors and tracks each customer interaction with the company.
  • Contact Management

Order Processing Support Systems

• Routing
  § Determines the best way to get goods and products from one location to another.
• Tracking (UPS, FedEx)
• Scheduling
  § Determines the best time to deliver goods and services.

What is Enterprise Resource Planning?

• A collection of software packages, which ties all of an enterprise's various functions into a cohesive database. These packages affect everything from order capture to accounting and procurement to warehousing.
• Employees enter information only once and that information is then available to all systems company-wide.
• This means everyone in the company can make decisions based on accurate, real-time information.
For Example...

• The sales force enters an order on a computer, and the transaction propagates through the entire company.
• Inventory lists and parts supplies are updated automatically, worldwide.
• The ERP system determines whether the product should come from current finished goods in a warehouse, work in process, scheduled production, or new production....

For Example, cont’d.

• Production schedules and balance sheets will reflect the changes.
• Best of all, every employee has only the information necessary for the job at hand…
  • Salespeople can promise firm delivery dates
  • Managers can gauge almost immediately the effects of decisions affecting credit terms, discounts, inventory, or supply-chain management.

Enterprise Resource Planning

• Real-time monitoring of business functions, permits timely analysis of…
  • Quality
  • Availability
  • Customer satisfaction
  • Performance
  • Profitability
ERP Advantages

• Replace dozens of legacy applications with one integrated set
• Ensures *best business practices*
• Provides improved access to integrated, company-wide data
• Simplifies and standardizes technology infrastructure

ERP Disadvantages

• Expensive, disruptive, and time-consuming
• May require dramatic changes in work processes
• Difficult to integrate with other systems
• Wedded to one vendor
• Necessitates consultants