CHAPTER

9

Transaction Processing and Enterprise Resource Planning Systems

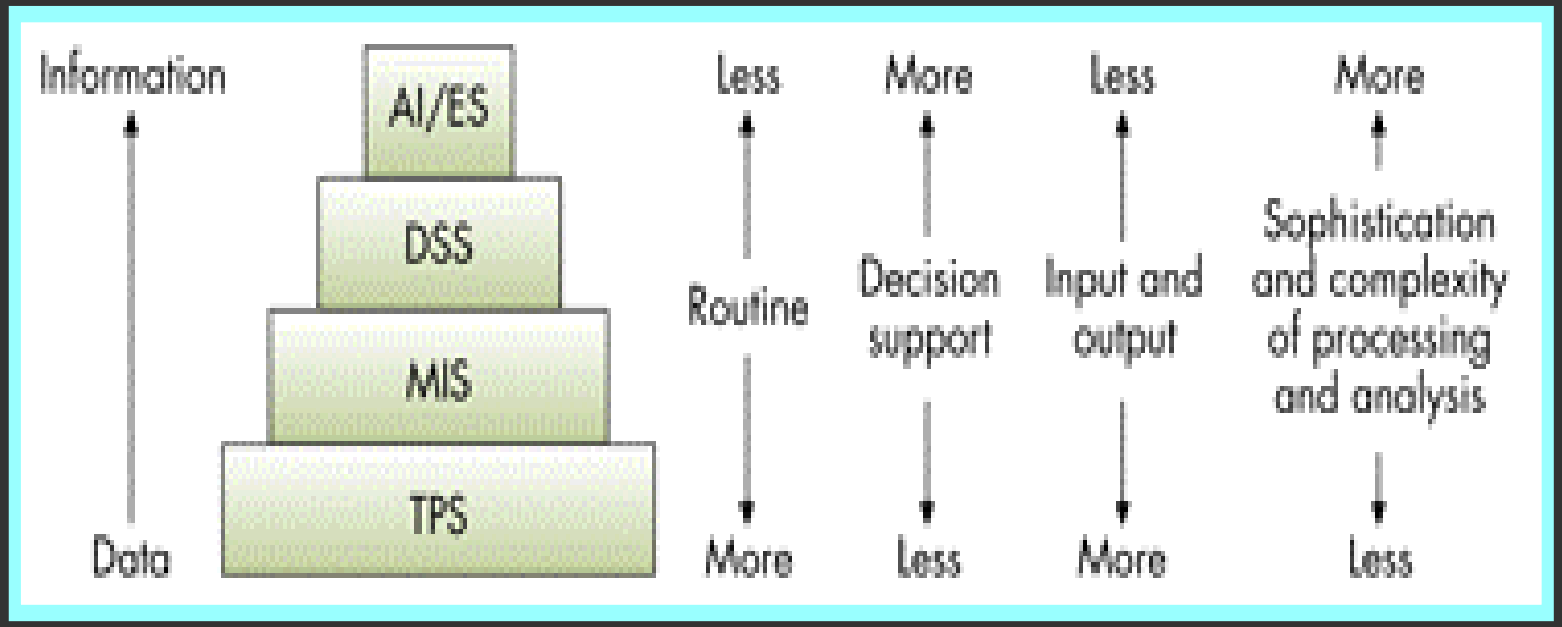
Goal of Transaction Processing

- 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?

Transaction Processing Cycle
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.

Control Issues

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

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