DES429 Midterm Summary

Accounting Information Systems
SIIT DE-ASD Y3T2/2021 – By Paphana Yiwsiw (@waterthatfrozen)

Lecture 1 - Fundamentals of AIS

Information is a business resource.

There are 2 types of internal information flows:

- horizontal flow: exchange in same level and capture transaction and operation data
- vertical flow: downward for instructions and budget, upward for reports and aggregated data.

Systems = "a group of interrelated components or subsystems that serve a common purpose."

System is called a subsystem is when it is viewed as a component of larger system, while subsystem is called a system when it is the focus of attention.

System Decomposition is a process of dividing the system into smaller subsystem parts.

System interdependency are distinct parts but not self-contained, reliant upon other parts of systems, must be functioning otherwise it will fail.

AIS is subsystem which process (ex. sales) and non-financial (ex. addition of approved vendors) that directly affect the process of financial transactions.

MIS process involved with non-financial transaction that are not processed by AIS (ex. complaints)

Transaction is an event that affects to organization and is processed by it IS as a unit of work.

AIS has 3 components:

- TPS: Transaction processing system; supports day-to-day business operations.
- GL/FRS: General ledger/Financial reporting system; produces financial statements and reports.
- MRS: Management reporting system; produces internal-use special-purpose reports

(Raw) Data are facts which may or may not be processed and no direct effects on users. (ex. correlation of duck and flower)

Information is processed data and have effects on its users (ex. correlation of gold and stock).

Data sources are financial transactions that enter the IS from internal and external sources.

- Internal transactions involve the exchange or movement of resources within organization. (Ex. movement of raw material into WIP)
- External transactions are the most common source of data. (ex. sales of goods, inventory purchase, cash receipt)

Transformation of data to information, according to general AIS model, are these 4 steps:

1. Data collection: capturing transactions, recording to forms, validating, and editing data.
2. Data processing: classify, transcribe, sort, batch, merge, calculate, summarize, compare
3. Data management: storing, retrieving, deleting
4. Information generation: compile -> arrange -> format -> present

Characteristics of useful information: relevance/timeliness/accuracy/completeness/summarization

Objectives of IS in business context is to support management stewardships (management's responsibility to manage resources properly), support management decision making and day-to-day business operations.

Organization structure helps to allocate the responsibility, authority, accountability. Business segmentation by function is common method of organizing.

Functional areas are inventory management, production, marketing, distribution, personnel, finance, accounting, IT and computer services.

Accounting Independence -> accounting activities must be separated and independent from maintaining resources functional area. Accounting can support others function with their information but DOES NOT ACTIVELY PARTICIPATE. Decision maker in these functions require information supplied by INDEPENDENT SOURCE to ensure integrity.

Computer services

- Distributed services are reorganizing function into smaller information processing units, distributed to users and in their control.
    - Advantages: Cost reduction / improving cost control & user satisfaction & data backup
    - Disadvantages: Loss of control / Mismanagement / Incompatibility of hardware and software / redundancy / lack of standard / etc.
- Centralized services are performed data processing by large computers at HQ. Most can be seen in Database administrator, data processing, system development and maintenance.

Evolution of IS

- Flat file model: 1 unit, 1 database, 1 application -> Problems: data redundancy, integration
- Databased model: shared database with DBMS for all units and users.
- REA (Resource Event Agent) model: generalized accounting model, consists of organizations economic resources, economic events, economic agents, and interrelationships.

Accountants as …

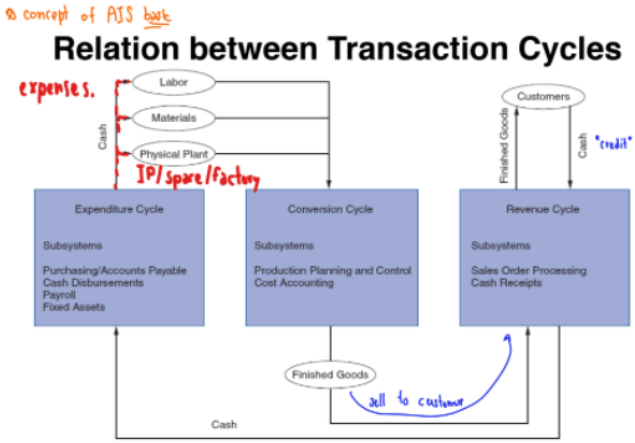
- IS Users: must be convey clearly about their needs to systems designers and professionals & must be actively participate in system developments to ensure appropriate system design.
- System designers: responsible for the conceptual system (determine the nature of the information required, sources, destination, accounting rules), while computer function is for physical system.
- System auditors: external auditor (attest statement fairness, assurance service), IT auditor (evaluates IT), internal auditor (in-house IS and IT appraisal)

Lecture 2 - Transaction Process

Financial transaction is an **economic event** that affects **assets and equities** of the firm, related in its **accounts**, and measured in **monetary terms.**

3 Primary subsystems

- Revenue cycle (วงจรรายได้): time lag between two due to credit relations with customers (sales order processing -> cash receipts)
- Expenditure cycle (วงจรรายจ่าย): time lag between two due credit relations with suppliers (goods acquisitions -> cash disbursements to suppliers)
- Conversion cycle (วงจรการผลิต): provides value added through products or services (production system & cost accounting system)



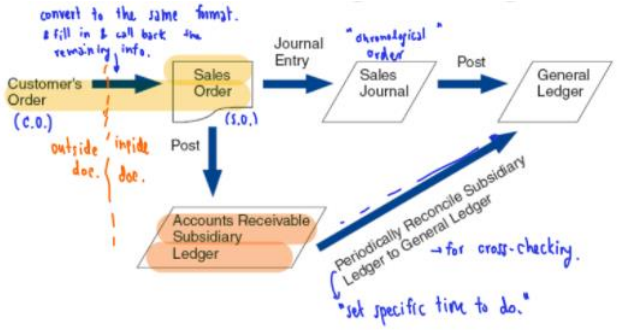
Manual System Accounting Records

- Source documents: evidence of financial transaction (ex. customer order, sales orders)
- Product documents: results from transaction processing (ex. payroll check)
- Turnaround documents: product document of one system becomes source document for another. (ex. bill from the system to cash receipt system)

Records

- JOURNALS (บัญชีรายวัน): chronological entry records
    - Special Journal: specific classes of transaction, high frequency (ex. cash receive, sales)
    - General Journal: nonrecurring, nonfrequent, dissimilar transaction (ex. asset, liability)
- LEDGERS (บัญชีแยกประเภท): Financial account books
    - General Ledger: activity in each account (can be separated in many ways)
    - Subsidiary Ledger: activity by detail for each account, subset of GL

Flow of information - from economic event to general ledger



Audit - role of checking / Audit Trail - route to check the company financial trail

Steps to do audit trails

1. Compare: AR Balance & Master File AR Control Balance (must be equal to GL)
2. Check: Reconcile the AR control with the AR subsidiary account total
3. Select: select sample entries made in AR subsidiary ledger, trace transaction in sales journal.
4. Identify: identify source document, verify, and confirm by contacting customer.

Computer-based (CB) systems record: less observable audit trail than manual system. Data entry are like the physical trail.

Documentation Techniques: ERD, DFD, Document Flowchart, System Flowchart (relationship among processes and documents flows, more detailed than DFD, separation of function)

Computer-based accounting system (CBAS): Batch system & Real-time system

Batch System - Group of similar transactions that are accumulated and processed together.

Steps in Batch Processing:

1. Keystroke: transcribe source documents by clerks.
2. Edit run: find human errors and place in error file
3. Sort run: rearrange files like in master file, using primary key
4. Update run: update new value reflecting transactions to the master file
5. Backup procedure: make a copy of master file.

Advantages: increasing processing efficiency, providing control over transaction via control figures

Batch VS real-time processing

- Info Time Frame: Batch -> Lag / Real-time -> when economic event occurs.
- Resources: Batch -> Fewer / Real-time ->More
- Efficiency: Batch -> Record processed after events / Real-time -> immediately
- Example: Batch -> Payroll / Real-time- > Stock market and Trading

Coding in AIS - assigning numbers or letters to data into create a fast-search database and unique.

Advantages: identify and manage large amount of complex information, support audit trail.

1. Sequential Code: pre-number source documents
   Weakness: Arbitrary Information / Difficult for changes and insertions
2. Block Code: first digits to define group and other digits to define specific type in group.
   Weakness: Arbitrary Information
3. Group Code: represent a complex item with specific meaning data fields.
   Weakness: Arbitrary Information, Overused code
4. Alphabetic Code: represent with 26 alphabets
   Weakness: Arbitrary Information.
5. Mnemonic Code: abbreviations, acronyms
   Weakness: Limited usability and availability.

Balance Sheet

is a statement of **assets, liabilities, and owner's equity** of a company at a particular moment in time.

<table>
<tr><td rowspan="2">Assets
[Increase -> DR / Decrease -> CR]

Cash / Account Receivable: AR / Inventory</td><td>Liabilities
[Increase -> CR / Decrease -> DR]

Account Payable: AP</td></tr>
<tr><td>Owner's Equity
[Increase -> CR / Decrease -> DR]</td></tr>
</table>

Lecture 3 - Ethics and Internal Control

Why ethical issues are concerned in business? - Ethics are needed when **CONFLICTS** arise. Conflicts may arise between employee, management, and stakeholders, or when litigation happens. Ethics involve finding answers in 2 questions: how to decide what is right? and how to achieve it?

4 main areas of business ethics:

1. Equity
    a. Executive salary: prevent conflict between executive and employee
    b. Comparable worth: does hiring employee/buying product worth the price?
    c. Product pricing: monopoly could affect sales (banned from society)
2. Rights
    a. Corporate due process: corporate can check employee work/laptop etc.
    b. Employee health screening: health due by company
    c. Employee privacy: In Japan, cannot leave the office before boss.
    d. Sexual harassment: verbally, physically
    e. Diversity: culture, race, worker (ex. use local executive)
    f. Equal employment opportunity: given job, bonus, promotion
    g. Whistle-blower
3. Honesty
    a. Employee and management conflicts of interest: corruption between them.
    b. Security of organization data and record: responsibility and accountability.
    c. Misleading advertising: effects on business creditability.
    d. Questionable business practice: lead to find problem between each region branches.
    e. Accurate reporting of shareholder interest: clean & clear shareholder.
4. Exercise of corporate power
    a. Political action committee: political POV.
    b. Workplace safety: safe workplace, room number, warning sign
    c. Product safety: reach standard, licensing product, genuine.
    d. environmental issues: ISO9001, recyclable, eco-friendly, carbon footprints.
    e. Divestment of interest
    f. Corporate political contribution
    g. Downsizing and plant closures: lay-off workers?

Computer Ethics - Social Impact of Computer Technology

1. Privacy: need permission on user's data
2. Security: access permission, account
3. Ownership of property: responsible person
4. Equal access: rule to access a report, data, etc.
5. Environmental issue: recyclable?
6. AI
7. Unemployment and displacement
8. Misuse of computer: alteration of computer data

Fraud - **a false representation** of a material fact made by **one party to another** with **the intent to deceive and indue** the other to **justifiably rely on the fact** to his or her detriment.
Fraud acts conditions (cannot miss any): False representation + Material fact + Intent to deceive + Justifiable reliance + loss or injury

Fraud in business is a white-collar crime.

2 levels of fraud:

1. Employee fraud
   Convert cash/asset to personal benefits; Steal -> Convert -> Conceal
2. Management fraud
   3 Special Characteristics
   1. one who have internal control structures
   2. involves in financial statements
   3. involves misappropriation of assets, related to 3rd party.

Fraud Triangle (Factors affecting fraud)

- Fraud Gauge: **Ethics > Pressure + Opportunity**
- Red flag checklist
  1. Executives have **unusually high personal debt?**
  2. Executives have **living beyond their mean?**
  3. **Gambling?**
  4. Alcohol & drug **addiction?**
  5. **Lack of personal codes** of ethics?
  6. **Economic condition unfavourable** in company's industry?
  7. **Use of several banks,** none see the entire financial picture?
  8. **Close associations** with suppliers?
  9. **Experiencing rapid turnover** either through resignation or termination?
  10. **Individuals dominates** company?

Case study

- **Enron**: Internal whistle blower, fake their profits, fooled regulators with fake holdings, use special purpose entities to hide its debt and toxic assets from investors and creditors.
- **WorldCom**: Internal auditing dept. discovered, admission of improperly accounting for operating expenses as capital expenses.

Sarbanes-Oxley Act of 2002 (SOX)

- Creation of public company accounting oversight board
- Auditor independence: more separation between non-auditing and attestation.
- Corporate governance and responsibility: audit committee must be independent and must oversee the external auditors.
- Disclosure requirements increase issuer and management disclosure.
- New federal crimes for the destruction of or tampering with documents, security fraud, and actions against whistle-blowers.

3 Categories of Fraud Schemes

1. Fraudulent statements
- making financial statement appears to be better than it is
- occurs as management fraud, by managers, tied by short-term financial measure or bonus
2. Corruption
- bribery / illegal gratuities / conflicts of interest / economic extortion
3. Asset misappropriation
- most common type of fraud; employee fraud
- making expense to cover theft / lapping / transaction fraud.

Internal Control Objective

- Safeguard assets of firms
- Ensure accuracy and reliability
- Promote efficiency
- Measure compliance
- Management responsibility
- Reasonable assurance
- Method of data processing

Limitation of Internal Control

- Possibility of honest/human error
- Circumvention via collusion
- Management override
- Changing conditions

Exposure of weak internal control (Risk)

- Destruction of assets
- Theft
- Corruption of information
- Disruption of the information system

5 Internal Control Components

1. Control Environment
    a. ethics of management
    b. organization structure
    c. role of board and committee
    d. management policies and philosophy
2. Risk Management
    a. identify and analyze risk relevant to financial reporting;
    external environment / risk foreign market / rapid growth / new product line
3. Information & Communication
    a. information should be **valid / timely / accurately / in the time of occurrence.**
    b. auditors must obtain knowledge to understood **transaction class / TP steps / reports.**
4. Monitoring
    a. process for assessing quality of internal control design and operations
5. Control Activity
    a. IT controls - related to computer
        i. general Control: Entity-wide computer environment
        ii. application control: specific system
    b. Physical controls - related to human activities
        i. transaction authorization: employee carries only authorized transactions
        ii. **segregation of duties:** separation role clearly (no overlapping)
        iii. supervision: competent employees
        iv. accounting records: provides audit trails
        v. access control: restricting physical access to assets
        vi. independent verification: review with control, program checked itself now.

Lecture 4 - Revenue Cycle

Revenue cycle subsystem: Sales-C-Ship-Billing-Cash
Sales Order -> Credit / Customer Service -> Shipping -> Billing / AR -> Cash Receipts

Customer issues customer order (CO), then convert and company issues sales order (SO)

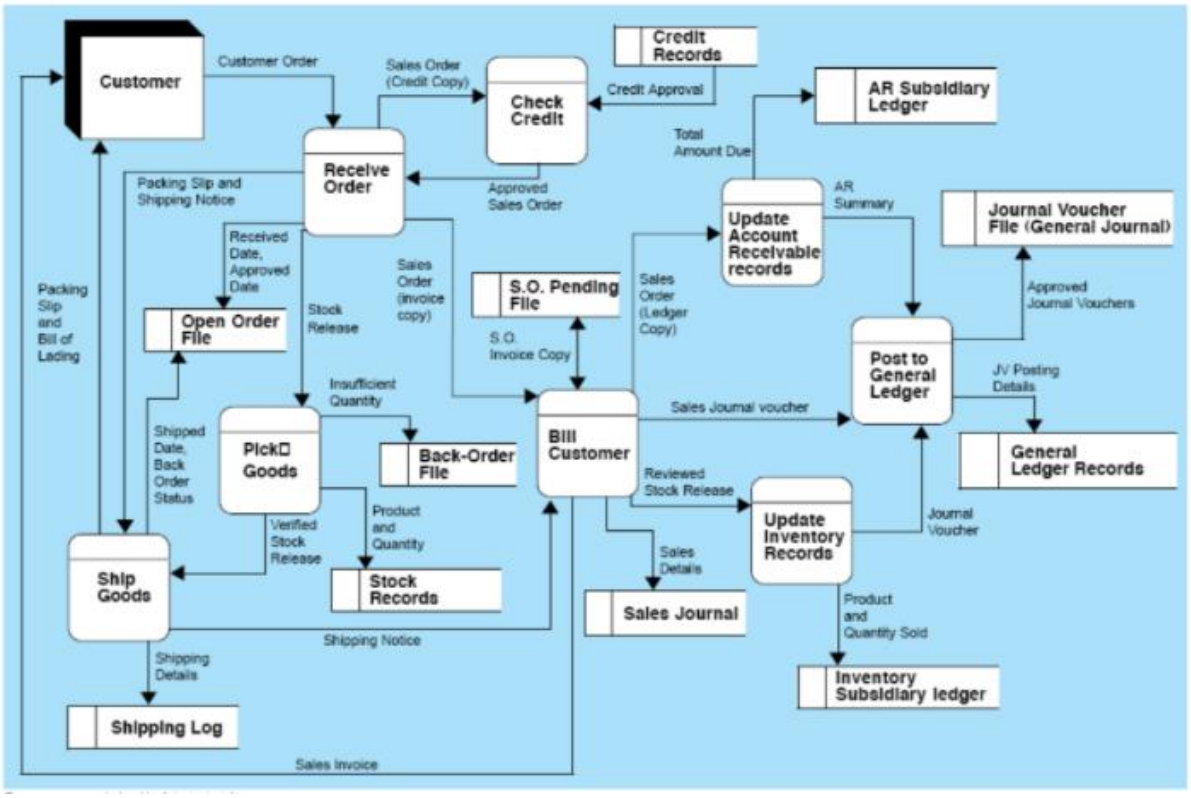
How to get journal vouchers (transaction use for recording financial activity)/entries?
Preparing journal vouchers by:

- Billing Department
  - Account Receivable - Control -> DR
  - Sales -> CR
    (Sell product -> inventory decrease -> CR; AR increase -> DR)
- Inventory Control Department
  - Cost of goods sold -> DR
  - Inventory control -> CR
    (Sell product -> inventory decrease -> CR; value of sold good increase -> DR)
- Cash receipts - already received cash
  - Cash -> DR
  - Account receivable -> CR
    (Receive cash -> cash increase -> DR; already got cash -> AR decrease -> CR)

Revenue Cycle Database

- Master files: customer / AR / Merchandise inventory
- Transaction & open document file: Sales order, Open sales order, sales invoice, cash receipts
- Others: Shipping and price reference, credit reference, salesperson, sales history.

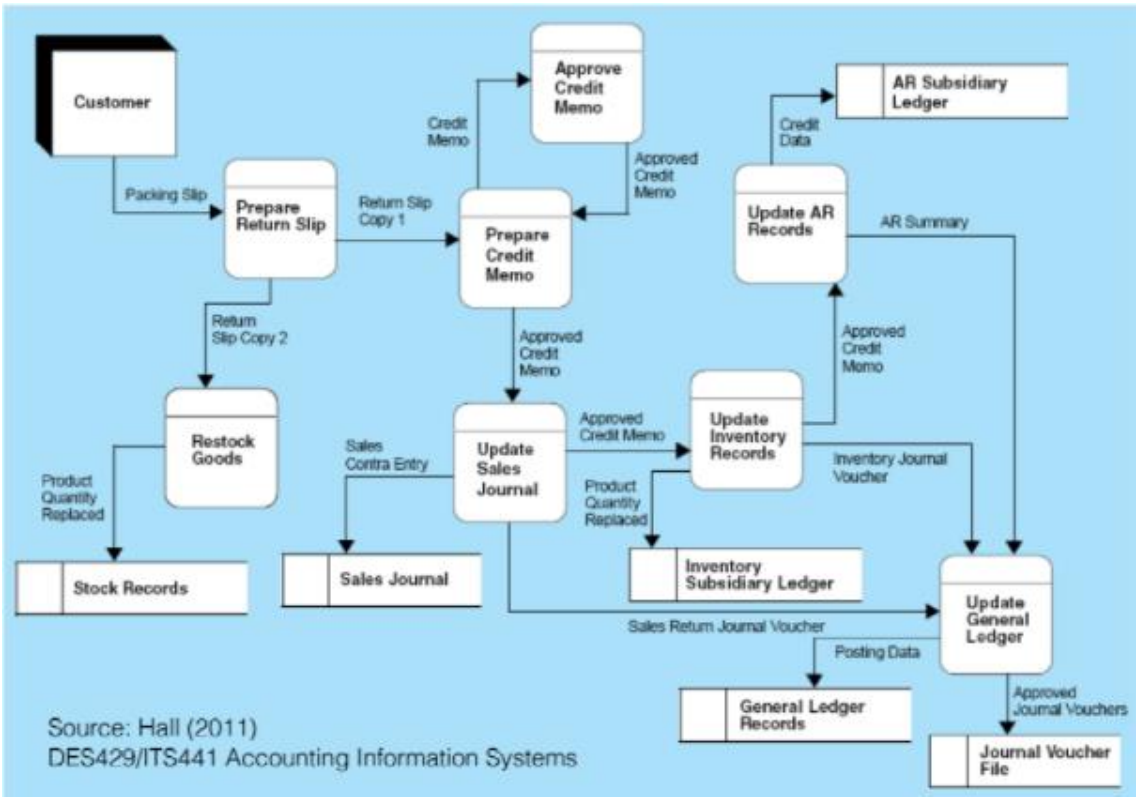
Sales Order Processing System



Sequence of sales order processing

1. [Receive order] Receive order from customer order
2. [Check credit] Check customer credit and obtaining credit approval, by credit department
3. [Pick Goods] Pick merchandise from warehouse and sent to shipping
4. [Ship Goods] Merchandise, packing slip, and bill of lading (evidence, receipt, document of title) are prepared by shipping and sent to customer.
5. [Bill Customer] Shipping info is sent to billing, it complies and reconciles with facts, then issues an invoice to customer and update sales journal.
6. [Update Inventory Records] Inventory control adjust the inventory subsidiary ledger.
7. [Update AR Records] AR records information in customer account in AR subsidiary ledger.
8. [Post to GL] Billing, AR, and Inventory Control submit summary to GL dept, then reconcile and post to GL control account.

Sales Return Procedures

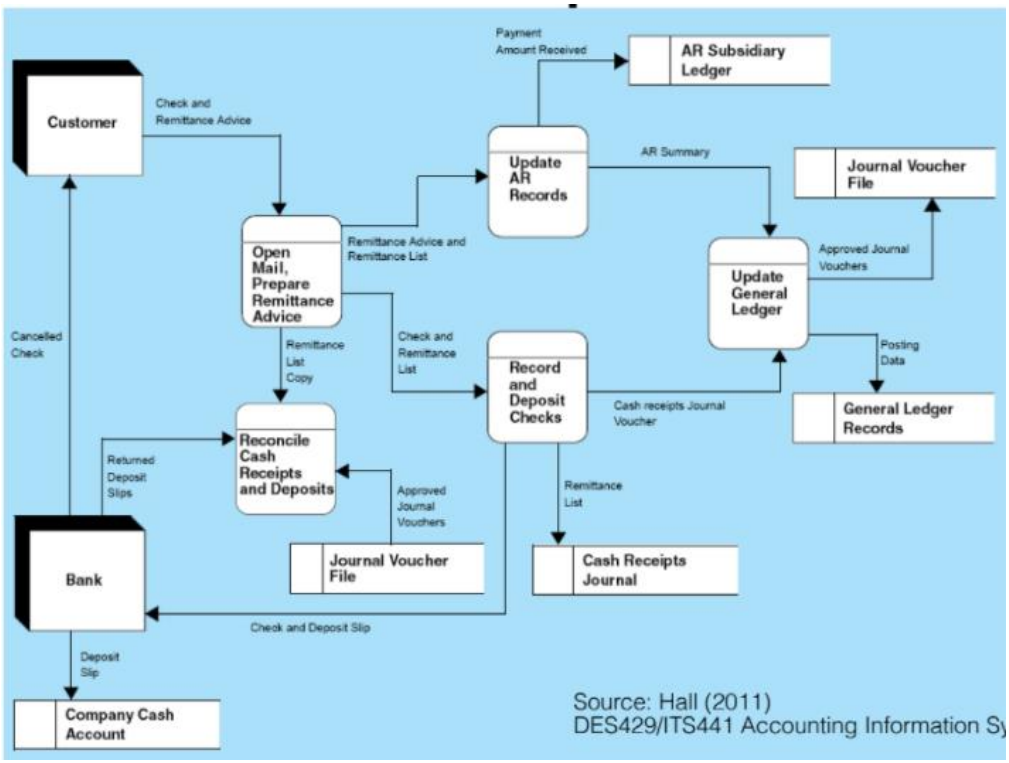


Sequence of sales return procedures
Prepare Return Slip -> Restock Goods -> Prepare Credit Memo -> Approve Credit Memo -> Update Sales Journal -> Update Inventory Records -> Update AR Records -> Update GL

Sales return journal entry: post to control accounts by GL dept.

- Inventory Control -> DR
  (Product returns -> Inventory increase -> DR)
- Sales Returns and Allowances -> DR
  ("record the sales return account" -> sales return increase -> DR)
- Cost of Goods Sold -> CR
  (Sold less product -> revenue decrease -> CR)
- AR Control -> CR
  (Product returns -> We won't receive money anymore -> AR decrease -> CR)

Cash Receipts Process



Sequence of cash receipts process

1. [Open Mail, Prepare Remittance Advice] Customer checks and remittance advices are received in the mail room. A clerk prepares a cash pre-list and checks send to cash receipts. Cash pre-list also sent to AR and Controller.
2. [Record and Deposit Checks] Cash receipts verifies accuracy and completeness of checks, update cash receipts journal, prepare deposit slip, prepare journal voucher to send to GL.
3. [Update AR Records] posts from the remittance advices to AR subsidiary ledger
4. [Update GL] GL dept. reconciles the journal voucher from cash receipts with summary from AR. Then, update GL control accounts.
5. [Reconcile Cash Receipts and Deposits] Controller reconciles the bank accounts

Control Points in the System of Revenue Cycle

Control Activity	Sales Processing	Cash Receipts
Transaction authorization	Credit Check & Return Policy	Remittance List (Cash Prelist)
Segregation of Duties	Credit separated from processing Inventory Control separated from warehouse AR subsidiary ledger separated from GL	Cash receipts separated from AR and Cash AR subsidiary ledger separated from GL
Supervision		Mail Room
Accounting records	SO, Sales Journal, AR subsidiary ledger, AR Control (GL), Inventory subsidiary ledger, inventory control, sales account (GL).	Remittance advice, checks, remittance list, cash receipts journal, cash account, AR subsidiary ledger, AR account.
Access	Physical access to inventory Access to accounting records.	Physical access to cash Access to accounting records.
Independent Verification	Department: Shipping, Billing; General Ledger	Cash receipts, bank reconciliation; General Ledger

Controls Authorization - Should take place when a sale is made on credit, a cash refund is requested, posting a cash payment received to a customer account (aka. cash pre-list = remittance list)

3 Rules of Segregation of Functions

1. Transaction authorization: separated from transaction processing
2. Asset Custody: separated from asset record keeping
3. Organization: structured so that perpetration of fraud requires collusion between >2 individuals.

Segregation of Functions

- Sales Order Processing
    - Credit authorization separated from SO
    - Inventory control separated from warehouse
    - AR subsidiary ledger separated from GL control account
- Cash Receipts Processing
    - Cash receipts separated from account records
    - AR subsidiary ledger separated from GL

Access control: within revenue cycle
the asset to protect are cash and inventory,
the access to record should be restricted are AR subsidiary ledger and cash journal.

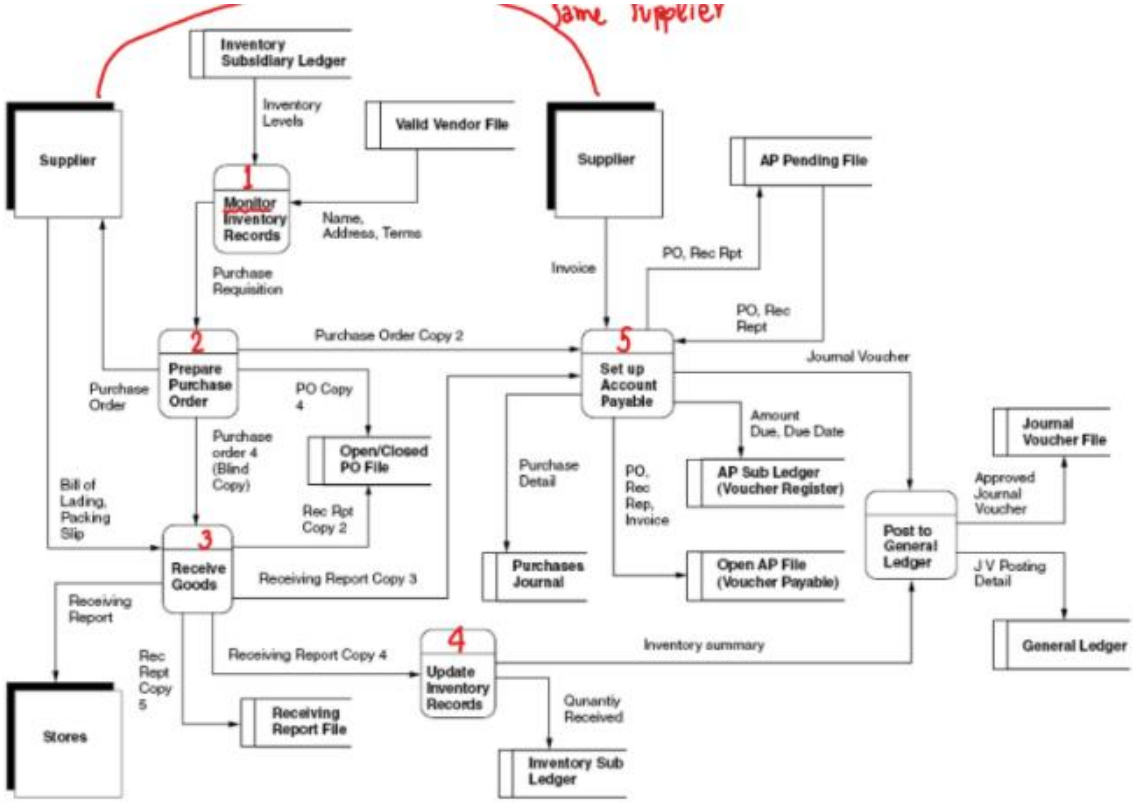
Point-of-Sale System (POS)

- used in retail establishment
- connected to inventory file; inventory levels are updated, and reorder can be detected immediately.
- system computes the amount due
- payment is either cash, check, ATM, or credit card; If not cash are used, online link to receive approval is necessary.
- At the end of the day, the money and receipts in drawer are reconciled to internal cash register tape of a printout from computer's database.
- Case over and under must be recorded.

Lecture 5 - Expenditure Cycle

Expenditure cycle subsystem: PPRAC
Purchase Requisition -> Purchasing -> Receiving/Inspection -> Account Payable -> Cash Disbursement

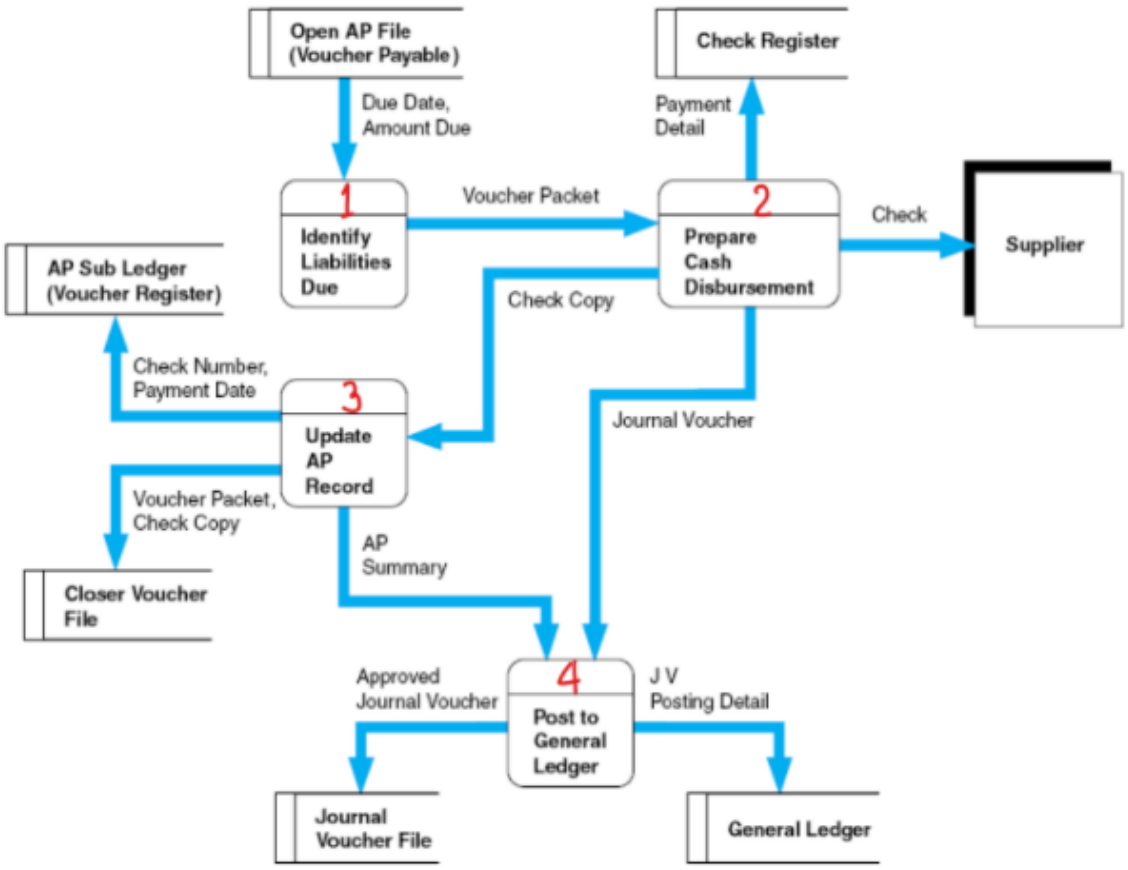
Purchase System



Sequence of purchase system:

1. [Monitor Inventory Records] Starts in inventory control when inventory drops to reorder levels. Purchase requisition (PR) is prepared and send to purchasing and AP.
2. [Prepare Purchase Order] Purchasing prepares a purchase order (PO) for each vendor, and sends to Inventory Control, AP, Receiving
3. [Receive Goods] Upon receiving goods, a blind copy of PO is used to workers to count the goods when receiving counts and inspect the goods. A receiving report is prepared and sent to raw materials storeroom, Purchasing, Inventory Control, and AP.
4. [Update Inventory Records] Update in inventory subsidiary ledger.
5. [Set up AP] AP receives copies of PR, PO, receiving report, and supplier invoice. AP reconciles these document and posts to the purchase journal, records the liability in AP subsidiary ledgers. AP summarize entries in the purchase journal as journal voucher, later sent to GL department. AP also prepares a cash disbursements voucher and posts it in voucher register
   Purchase System Journal entry:
   - Inventory Control or Purchase -> DR
     (Received product -> Inventory increase -> DR)
   - Account Payable Control -> CR
     (Received product -> Debt increase -> Liabilities increase -> CR)
6. [Post to GL] GL department posts from AP journal voucher to the GL and reconciles the inventory amount with the account summary from inventory control.

Cash Disbursement (CD) System



Sequence of cash disbursement system:

1. [Identify Liabilities Due] AP searches open vouchers payable files for items with payment due. AP sends the voucher and supporting documents to Cash Disbursement. AP updates the AP subsidiary ledger.
2. [Prepare Cash Disbursement] CD prepares check, records in a check register, returns paid voucher to AP, mails the check to supplier, send journal voucher to GL.
   Cash Disbursement Journal entry:
   - Account Payable -> DR
     (Pay for inventory -> AP decrease -> Liabilities decrease -> DR)
   - Cash -> CR
     (Pay for inventory -> Cash decrease -> Assets decrease -> CR)
3. [Update AP Records] AP update in AP subsidiary ledger, and update in closer voucher file using voucher packets and check copy.
4. [Post to GL] GL department receives the journal voucher from CD, receives summary from AP subsidiary ledger, update the GL, and AP control account is reconciled with the subsidiary summary (to prevent fraud).

Manual -> Automated

- Computer generates PR -> Purchase generates PO manually.
- Computer generates PO (no PR needed) -> PO is not sent until manual review -> automatically sent without manual review.
- EDI auto from us & supplier; everyone in chain must change, reduced cost in long term.

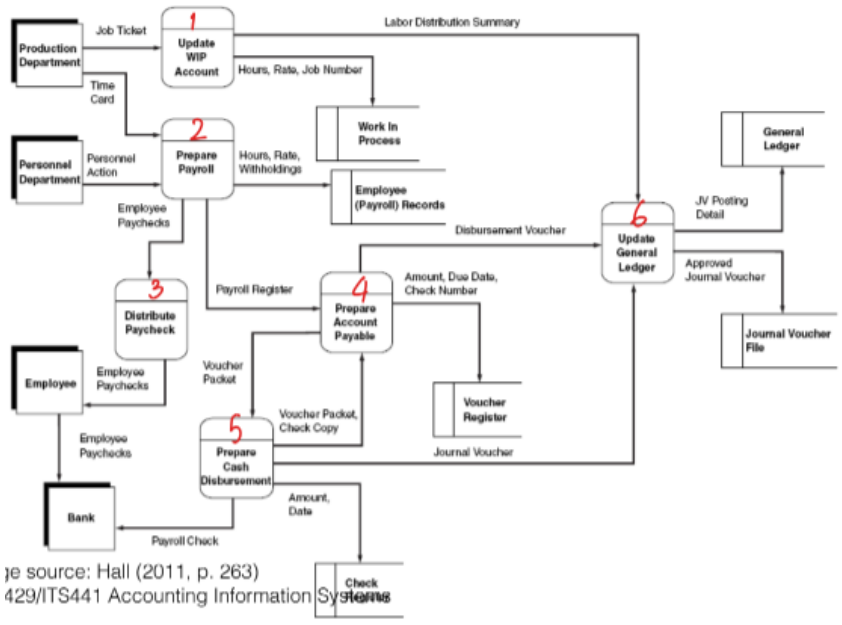
Payroll Procedures

HR actions to activate new employees, change pay rate, change marital status and number of dependents, terminate employees.

Employees fill out 2 forms:

1. Job Tickets: time spent by the worker on each production job -> Job tickets to allocate labour costs to WIP accounts
2. Timecards: Capture total time worked -> Payroll calculation, signed by supervisor.

Cost accounting dept. summarizes charges in labour distribution summary, forwarded to GL dept.



Sequence of payroll procedures:

1. Prepare the payroll register, enter information to employee payroll records, & prepare paycheck
2. Send paycheck to CD, copy of payroll register to AP (not paid yet)
3. AP dept. prepares CD vouchers for total amount of the payroll.
4. AP send CD vouchers to CD and GL.
5. CD department review & sign paycheck, the forwards to paymaster
6. CD department write checks for payroll, deposit to payroll imprest account
7. GL make journal entry

- From the labour distribution summary (Not pay yet)
    - WIP (Direct Labour) -> DR
    - Factory overhead (Indirect Labour) -> DR
    - Wages Payable -> CR

  (Labour Increase -> DR; Payroll increase -> WP increase -> Liabilities increase -> CR)

- From the distribution voucher (Pay the salary)
    - Wages payable (WP) -> DR
    - Cash -> CR

  (Pay out the salary -> WP decrease -> Liabilities decrease -> DR; Cash decrease -> CR)

8. GL transfer cash from operating account to imprest account.

- Payroll imprest account
    - Cash - Payroll Imprest Account -> DR
    - Cash - Operating Account -> CR

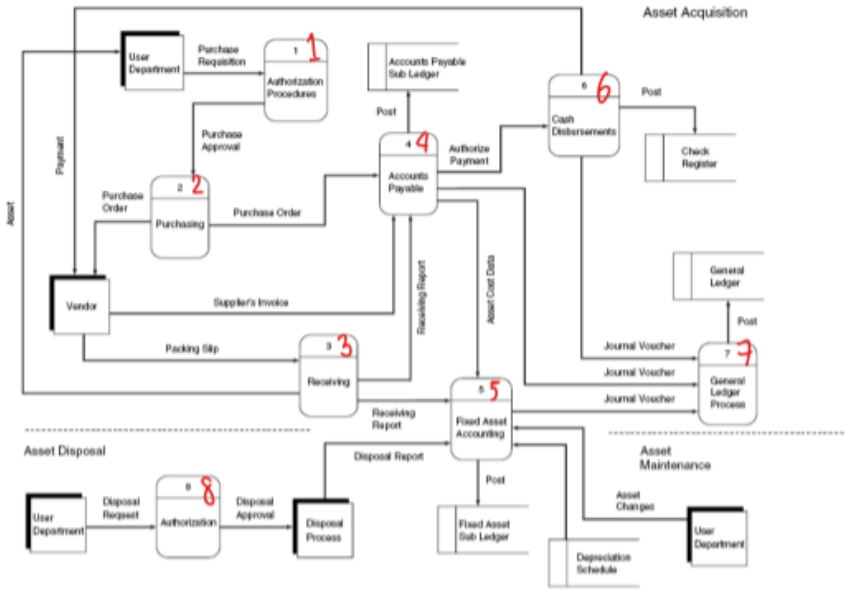
  (Cash in imprest account increase -> DR; Cash in operating account decrease -> CR)

Fixed Assets System (FAS)

Fixed assets: Property, plant and equipment used in business operation
All assets reduced their value and service potential over time. (Acquisition -> Depreciation -> Disposal)

FAS Objectives

1. Acquire fixed assets properly with approval and procedure.
2. Maintain accounting records of asset (acquisition, cost, description, and location)
3. Maintain depreciation record for depreciable assets with acceptable method.
4. Provide management with info to plan future FA investment
5. Properly record retirement and disposal of FA



Asset Acquisition

- When old FA need to be replaced or new FA is warranted, Purchase requisition (PR) is filled out to purchased new asset.
- FAS dept perform record-keeping function

Asset Maintenance

- Adjust FAS subsidiary account balance as assets depreciates.
- Depreciation calculation are internal transaction.
- Physical improvement must be recorded to increase the subsidiary account balance and depreciation schedule.

Computer-based FAS: CBFAS

Computerize FAS automatically.

- Maintenance
    - Calculate current period depreciations
    - Update depreciation & book value in subsidiary record
    - Post total depreciation to the affected GL account
    - Record Depreciation transaction, by adding records to journal voucher file
- Disposal
    - Post adjusting entries to FA control account in GL
    - Record losses and gains associated with the disposal transaction
    - Prepare journal voucher records

Expenditure Cycle Database

- Master files: Supplier, AP, Merchandise Inventory
- Transaction and open document files: PO, Open PO, Supplier invoice, Open voucher, CD
- Other files: Supplier reference and history, buyer, AP detail.

Expenditure Cycle Control Points

Control Activity	**Purchase Processing**	**Cash Disbursements**
Transaction authorization	Inventory Control	AP
Segregation of Duties	Inventory control separated from purchasing and inventory custody AP subsidiary ledger separated from GL	Separate AP subsidiary ledgers, CD, GL functions
Supervision	Receiving Department *Fraud can happen here	
Accounting records	AP subsidiary Ledger, GL, PR, PO, receiving report	Voucher payable, AP subsidiary ledger, CD journal, GL cash account
Access	Security of physical assets. Limited access of accounting records	Proper security over cash. Limited access of accounting records
Independent Verification	AP reconciles source documents before liability is recorded. GL reconciles overall accuracy of process	Final review by CD. Overall reconciliation by GL. Periodic bank reconciliation by controller.