

## 92.1803 SUPPLEMENTARY NOTES 1

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### COMMON TRANSACTION PROCESSING SYSTEMS

Text, Chapter 3 (plds extra material)

In this handout we will examine common transaction processing systems which are related to accounting in that they store and process transaction data (often financial) related to purchases and sales of goods. Such systems would be implemented, for example, in a distribution company (e.g., a warehouse), but they would also be part of the system support in a manufacturing environment. A number of these systems interact with each other, such that the output of one system is the input to another.

We assume that these systems are in a wholesale, rather than a retail environment, and, thus, credit sales rather than cash or credit card sales are the norm.

#### REVENUE CYCLE SYSTEMS:

##### Order Entry System

An order comes in from a customer (usually a known, regular customer with established credit) for (a) specific quantity (ies) of one or several goods. The order may come in by telephone to the order entry clerk, or it may be mailed in on a purchase order.

Upon entry of customer ID, the system checks if it knows the customer, and, probably, if the customer has available credit. If all is OK, the product information is entered. This system must *interact with the Inventory System* to check if all items ordered are available for sale. If so, the quantity available is decreased appropriately; if not all items are available, a "back order" must be created and stored.

Then, a picking slip is printed, which shows warehouse personnel the locations on the floor of the ordered items and the optimum sequence for picking and packing them. Then, the system prints a packing slip which will identify what goods are being packed and sent. It may also produce a bill of lading for the transportation (trucking) company. As well, an invoice (bill) *may* be printed at this time. However, the invoice is not packed with the goods, but sent to the Accounting Department of the customer company. The invoice information must then be sent to the Accounts Receivable system, which will record that the customer has a debt toward us.

The system can produce a number of reports, e.g. an Order Filling Report and a Back Order Report, on orders that have not yet been filled.

### Key Data Items

#### Entered:

Business Order Number (ours)  
Customer Number  
(Customer) Purchase Order Number

Order-fill date  
Method of payment

Product Number  
Quantity Ordered  
Method of Shipment

#### Retrieved:

Customer name

Customer address  
Credit limit  
Salesperson

Product name  
Product description  
Unit price  
Q. on hand (for sale)  
Q. on back order  
Q ordered fr. vendor

Packing info.

The Order Entry system allows us to *answer customer inquiries about the status of their order*. At times, the OE system might be used by salespersons with laptop computers and a modem connection [sales force automation]. Also, the *Invoice may be produced either by Order Entry, by Accounts Receivable, or a separate Invoicing subsystem*.

### Accounts Receivable System

The A/R system keeps track, in detail, which customer owes us how much money, and *to which invoice the owed amounts belong*. It connects with the summary "Accounts Receivable" controlling account in the General Ledger (central accounting system).

When an invoice is printed and sent, information must be sent (from Order Entry) to the A/R system to create and save the receivable. Here, information such as invoice number, invoice date, total product charge, discount, freight charge, and insurance charge are of key importance.

When the customer sends in a remittance slip (part of the invoice) along with a cheque, the *Customer Cash Receipt section of the A/R* must have input to it invoice number, cheque number, date of cheque, bank number, payment amount and discount amount.

Information on any returns of merchandise from customers is also entered into the Accounts Receivable System.

*The main value of the A/R system is its detailed record-keeping on "who owes what", and in its connecting that information to the General Ledger. Also, the A/R system produce monthly statements to each of the customers, summarizing monthly activity.*

As well, A/R produces valuable reports, especially involving an aging schedule, which shows which customer owes how much for how long. Also, on-screen displays are possible, such as a display which points out whether a credit or payment has been applied to an account.

### Key Data Items

#### Transmitted:

Customer number (upon sale)  
 Invoice number  
 Invoice date  
 Product charge  
 Sales tax  
 Cash discount  
 Total invoice charge

Remittance number (upon payment)  
 Invoice number  
 Date of remittance  
 Cheque date  
 Cash payment  
 Cash discount

#### Retrieved:

Customer name  
 Customer address

### EXPENDITURE CYCLE SYSTEMS:

#### Purchasing & Receiving System

(Purchase Order Processing)

The Purchasing module is used by the Purchasing Department (buyers), after receiving a Purchase Requisition from the Inventory Department (the "floor"). This department is to negotiate the most advantageous terms of purchase. Then, a Purchase Order is produced and sent to the vendor. Product data in the system is updated with "on-order" information.

The Receiving module is used by the Receiving Department, which receives goods previously ordered. It verifies that the shipment from the vendor is correct and tells the warehouse crew where to stock the incoming inventory. By using this system, the company is able to verify that an outstanding purchase order has been filled, an on-order quantity has been received and a vendor invoice can be paid.

A packing slip comes in from the vendor, as part of the packaged order. A receiving slip may be manually prepared summarizing the number ordered, number received, number defective etc. Information is then entered into the Receiving module, and appropriate stored data is later updated. Stock tickets may be printed, with instructions as to where on the warehouse floor the newly received material should be stocked.

Other reports may include an open order report listing all purchase orders not yet received and their expected arrival dates, and, possibly, a back order report listing all stock items on back order.

### Key Data Items

#### Entered:

Purchase Order No. (upon purchase)  
 Date  
 Req. date of delivery  
 Vendor No.  
 Product No.  
 Quantity

Receiving Slip No. (upon receipt)  
 Vendor's Packing Slip No.  
 Date of receipt  
 Purchase Order No.  
 Vendor No.  
 Product No.  
 Quantity Received  
 Quantity Rejected and Returned  
 Inspection No.

#### Retrieved:

Vendor Name  
 Vendor Address  
 Terms of payment  
 Product Name  
 Price  
 Discount  
 Q on order  
 Q on hand

## Inventory System

Note that the inventory is affected by the Order Entry system (taking out) and by the Purchasing / Receiving system (putting in). The Inventory system takes care of re-ordering and adding stock. It produces a Purchase Requisition when the stock level is low. This requisition is forwarded to the purchasing (buyers) department, where the Purchasing System is used to produce a Purchase Order. When the Receiving system sends stock receipts information to the Inventory system it can then update the stored information on the products involved, changing quantities on order to quantities on hand.

This system can be programmed to order stock automatically after the level of stock on hand reaches a specified figure (when to order, how much to order, from whom to order). There can be separate systems for raw materials, work-in-process, and finished goods in a manufacturing organization. The *goals of inventory management are to maintain as low a level of inventory as possible without having stockouts too often.*

The system produces a variety of valuable reports and on-screen displays. The Stock Status Report provides a summary of inventory activity for the period and contains information such as quantity on hand and on order, quantity on hand that has been allocated, average unit cost, for each item.

The Inventory Analysis Report examines the performance of stock items to determine whether the supply of stock is too high, and whether the turnover of stock appears low (t.o. - number of times the stock carried in inventory can be sold during the year).

### Key Data Items

Entered:

Product No.  
Q to release (from OE)  
Q received

Reorder point  
Stock adjustments

Retrieved:

Reorder info.

### Accounts Payable System

The Accounts Payable System is similar to A/R, except it refers to invoices which our company will have to pay, rather than invoices which our customers will have to pay. It is a 'subsidiary ledger', carrying detailed data from every invoice, and connecting the summary to the General Ledger of accounting.

This system provides *vendor* (creditor) account information, and prepares cheques to vendors. It figures out the last day on which an invoice can be paid and still earn the indicated discount. A main issue is the availability of cash. Information from the finance department will advise which discounts can be taken this period etc.

A/P gets information (input) on what has been received and accepted, along with the estimated cost, from the Receiving subsystem. It then matches this information with the contents of the vendor invoice, the second item of input. Differences may result from the actual cost being different than the estimated. Approved payables data are stored, and later, cheques are printed (by the Cash Disbursements section of A/P), along with a variety of reports (e.g., the Accounts Payable Schedule) and displays.

For example, the Cash Requirements Display shows, on the screen, how much cash is needed to pay open invoices and to take advantage of all cash discounts. Another display refers to open invoices (yet unpaid). Note that this type of information relates to detailed daily transactions, and can be quite voluminous.

### Key Data Items

Transmitted:

Product number  
Vendor number  
Q received  
Estimated cost

Retrieved:

Vendor info.

Entered:

Vendor order no.  
Purchase order no. (ours)  
Invoice number  
Invoice date  
Due date  
Dollar total  
Cash discount

### Other Sub-Systems

Two other subsystems related to the expenditure cycle are the Fixed Assets System and the Payroll System.

The Fixed Assets System maintains records of long-term assets of the business (e.g., building, machinery). It keeps track of the original cost and the amounts allocated to depreciation (assigned as an expense each year).

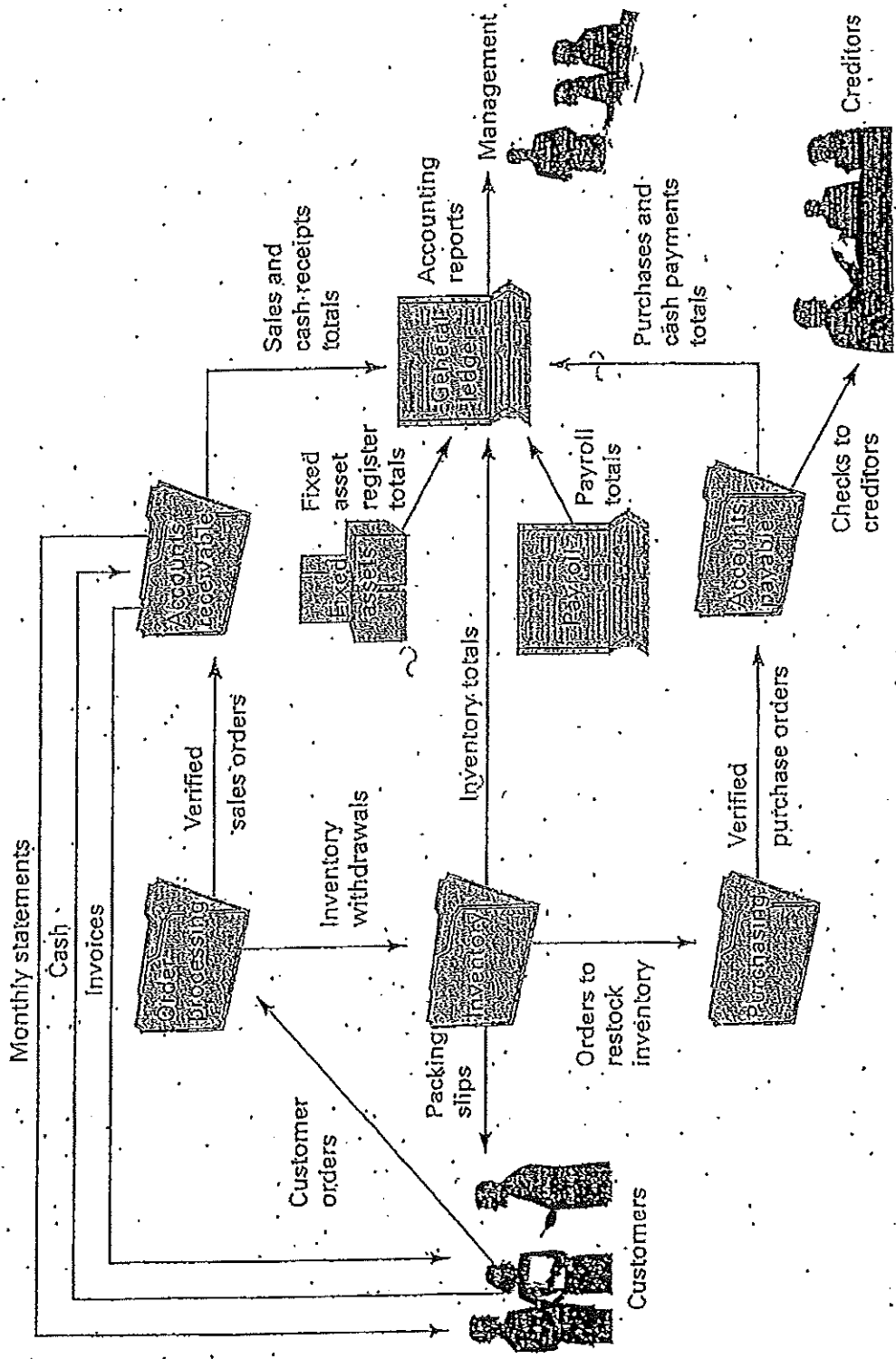
The Payroll System processes detailed wage and salary information and basic employee data. It prints cheques for the employees.

So, when we are trying to answer the question: "*How do computers help a business?*", we have a starting point (here, we consider a merchandising (buy and resell) business). We know about the revenue-related systems: Order Entry / Invoicing, Accounts Receivable / Cash Receipts, and the expenditure-related systems: Purchasing / Receiving, Accounts Payable / Cash Disbursements, Inventory.

Also, there is a very important transaction processing system which ties together information from both revenues and expenditures. This is the main accounting system for the business, known as the General Ledger System.

Look now at the diagram on the next page. This summarizes everything very clearly!

An integrated financial accounting system and its major components



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12345						
<b>SALES ORDER</b> Alpha Omega Electronics 2431 Bradford Lane St. Louis, MO 63105-2311						
<b>Sold To:</b> Hardware City 35 Appliance Way Phoenix, AZ 85201			<b>Ship To:</b> Hardware City 6742 Mesa Dr. Mesa, AZ 85284			
<b>Date:</b> March 17, 2003	<b>Customer Purchase Order No.</b> 7291		<b>Salesperson</b> JKL		<b>Shipping Instructions:</b> Rush	
Quantity Ordered	Quantity Shipped	Quantity Back Ordered	Item Number	Description	Unit Price	Amount
100	100		2741	Calculator	17.95	1795.00
50	50		3315	Pager	49.95	2497.50
Thank You!						

Figure 11-5 Sample AOE sales order





ORDER NO.

# PICKING SLIP

DATE TO

DATE TO

CUSTOMER NO.	SALES PERSON	PURCHASE ORDER NO.	SHIP VIA	ORDER DATE	SHIP DATE	ORDER NO.	PAGE NO.

PLACE	ITEM NUMBER	DESCRIPTION	QTY.	UNIT	QTY. SHIPPED	QTY. BACK ORDERED

PACKED BY \_\_\_\_\_

TOTAL QTY \_\_\_\_\_

RECEIVED BY \_\_\_\_\_

TOTAL PACKS \_\_\_\_\_

**STRAIGHT BILL OF LADING—SHORT FORM**      **Not Negotiable.**

Shipper's No. \_\_\_\_\_  
Carrier's No. \_\_\_\_\_

Carrier \_\_\_\_\_

RECEIVED, subject to the description and tariffs in effect on the date of the issue of this Bill of Lading:

of \_\_\_\_\_ 20 \_\_\_\_\_ from \_\_\_\_\_

the property described below, in apparent good order, except as noted (conditions and condition of contents of packages unknown), marked, counted, and declared as indicated below, which said marks (the word "marks" being understood to include the marking on securing any person or corporation in possession of the property under the terms of agreement in force at the place of delivery of said destination, if on its face, whereas to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property, over all or any portion of said route to destination, and as to each party at any time interested in any or all of said property, that every service to be performed hereunder shall be subject to all terms and conditions of the Uniform Domestic Bill of Lading set forth (1) in the Uniform Freight Classification in effect on the date hereof, if this is a rail or a rail water shipment, or (2) to the applicable water carrier classification or tariff if this is a water carrier shipment.

Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted by himself and his assignee.

Consigned to \_\_\_\_\_ (Mail or street address of consignee—for purposes of notification only)  
Destination \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_ County \_\_\_\_\_

Delivery Address \* \_\_\_\_\_ (\* To be filled in only when shipper desires and governing tariffs provide for delivery thereat.)  
Route \_\_\_\_\_

Delivering Carrier	Car or Vehicle Initials	No.
No. Packages	Kind of Package, Description of Articles, Special Marks, and Exceptions	Weight (Sub. to Car)
		Class or Rate
		Check Column
		Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignee, the consignee shall sign the following statement: The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
		(Signature of Consignee)
		If charges are to be prepaid, write or stamp here, "To Be Prepaid."
		Received \$ _____ to apply in prepayment of the charges on the property described hereon.
		Agent or Cashier
		Per _____ (This signature here acknowledges only the amount prepaid.)
		Charges advanced: \$ _____
		Agent, Per _____

\*If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."  
NOTE—Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.  
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding \_\_\_\_\_ per \_\_\_\_\_

\*The fibre boxes used for this shipment conform to the specifications set forth in the box maker's certificate thereon, and all other requirements of Uniform Freight Classification.  
Shipper's Insprint in lieu of stamp; not a part of bill of lading approved by the Interstate Commerce Commission.

Shipper, per \_\_\_\_\_ Agent, Per \_\_\_\_\_

Permanent post office address of shipper, \_\_\_\_\_

Figure 11-7 Sample bill of lading





Item Number		Quantity	Description	Price/Unit
32047		15 boxes	Xerox 4200 paper, 20 wt., 10 ream box	\$33.99
80170		5 boxes	Moore 2600 continuous form, 20 lb	\$31.99
81756		20 boxes	Dysan 100 HD diskettes, box of 10	\$ 6.49
10407		10	IBM 4207 Proprinter ribbon, black	\$ 8.99

Date Prepared:		Prepared by:	Suggested Vendor:
07/02/2003		Harold Brown <i>HJB</i>	Best Office Supply
Deliver To:		Attention:	Date Needed:
Copy Center		Harold Brown	7/15/2003

ALPHA OMEGA ELECTRONICS				No. 89010
PURCHASE REQUISITION				
Approved by:		Department:	Date Approved:	Account No.:
Susan Chen		Admin. Services	07/02/2003	91887

Figure 12-3 Sample AOE purchase requisition (items in bold are preprinted)

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Alpha Omega Electronics			No. 2463	
<b>Billing Address:</b> 2431 Bradford Lane St. Louis, MO 63105-2311 (314) 467-2341			Reference the above number on all invoices and shipping documents	
<b>PURCHASE ORDER</b>				
<b>To:</b> Best Office Supply 4567 Olive Blvd. St. Louis, MO 63112-2345			<b>Ship To:</b> AOE, Inc. 1735 Sandy Dr. Dayton, OH 33421-2243	
<b>Vendor Number:</b> 121	<b>Order Date:</b> 07/03/2003	<b>Requisition Number:</b> 89010	<b>Buyer:</b> Fred Mozart	<b>Terms:</b> 1/10, n/30
<b>F.O.B. Destination</b>	<b>Ship Via:</b> Your choice	<b>Delivery Date:</b> 07/15/2003	<b>Remarks:</b>	
Item	Item Number	Quantity	Description	Unit Price
1	32047	15 boxes	Xerox 4200 paper, 20 wt., 10 ream box	\$33.99
2	80170	5 boxes	Moore 2600 continuous form, 20 lb.	\$31.99
3	81756	20 boxes	Dysan 100 HD Diskettes, box of 10	\$6.49
4	10407	10	IBM 4207 Proprinter ribbon, black	\$8.99
<b>Approved by:</b> Susan Beethoven				

Figure 12-4 Sample AOE: purchase order (items in bold are preprinted)

<b>Alpha Omega Electronics</b>		<b>No. 3113</b>
<b>RECEIVING REPORT</b>		
<b>Vendor:</b> Best Office Supply		<b>Date Received:</b> 07/13/2003
<b>Shipped via:</b> UPS		<b>Purchase Order Number:</b> 2463
<b>Item Number</b>	<b>Quantity</b>	<b>Description</b>
32047	15	Xerox 4200 paper, 20 wt., 10 ream box
80170	5	Moore 2600 continuous form, 20 lb.
81756	20	Dysan 100 HD diskettes, box of 10
10407	10	IBM 4207 Proprinter ribbons, black
<b>Remarks:</b> Two boxes of Moore 2600 paper received with water damage on outside, but the paper appears to be okay		
<b>Received by:</b> <i>Nathan Hale</i>	<b>Inspected by:</b> <i>Nathan Hale</i>	<b>Delivered to:</b> <i>Harold Brown</i>

Figure 12-6 Sample AOE receiving report (items in bold are preprinted)

Alpha Omega Electronics				No. 16123	
DISBURSEMENT VOUCHER					
Date Entered: 07/22/2003			Debit Distribution		
Prepared by: BC			Account No.	Amount	
Vendor Number: 109			22-140	\$868.33	
Remit To: Avalon Electronics 1401 East Grand St. Louis, MO 63106-2211			22-145	629.01	
			20-699	30.56	
			20-799	98.45	
Vendor Invoice		Amount	Returns & Allowances	Purchase Discount	Net Remittance
Number	Date				
5386	07/15/2003	\$984.50	\$98.45	\$17.72	\$868.33
5389	07/20/2003	641.85	0.00	12.84	629.01
<b>Voucher Totals:</b>		\$1,626.35	\$98.45	\$30.56	\$1,497.34

Figure 12-8 Sample AOE disbursement voucher (items in bold are preprinted)