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Computer Information Requirements for Fresh Fruit and Vegetable Wholesalers

by

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Introduction

Produce wholesalers are gradually becoming inundated with a high volume of repetitive clerical tasks and are increasingly aware of the need to have timely, accurate, and flexible analysis to aid them in making decisions at all levels of operations. As a result, and because of the relative lack of clear information available to them, wholesalers are beginning to purchase computer systems that often do not do the jobs for which they were obtained.

The purpose of this article is to describe the present operations of fruit and vegetable wholesalers and define their information requirements. A case study approach was used to develop a composite profile of a typical wholesale fruit and vegetable company and the descriptions and procedures are based on this composite. The twenty firms studied had gross annual sales between \$10 and \$20 million, and generally carried a full line of fruits and vegetables. Ten of these firms had manual office operations and the remaining ten were computerized.

Present System Analysis

The typical wholesale firm studied grossed \$14.5 million in sales annually. Slightly more than half of those sales were titled to the wholesaler and slightly less than half were on consignment. An average of 142 different

fresh fruit and vegetable items were handled per year with nearly 1,000 variations distinguished by size, color, and so forth. The firms' personnel averaged 30 people: 13 administrative and 17 warehouse laborers. Of the administrative personnel, there were two owners, five bookkeepers/clerks, and one office manager. The following information summarizes statistics provided by the sample:

	<u>Average</u>	<u>Maximum</u>
Number of suppliers serving the business	170	230
Shipments received weekly	70	145
Items per shipment	5	14
Active lots in warehouse	65	105
Accounts/payable update weekly	105	185
Checks written weekly	145	195
Customers	265	305
Sales slips processed daily	185	325
Line items per sales slip	5	20
Bills prepared weekly	215	265
Checks received weekly	215	265

The two types of information needs for the wholesale fruit and vegetable business are data processing and decision support. Data processing consists of the basic business functions of financial statements, payroll, purchase, inventory control, and sales. These are labor intensive activities and are presently taking most of the time of administrative personnel. Decision support is an analysis function for which need has not been satisfied in a manual operation. Most decision support has traditionally been performed intuitively by wholesalers. They have not been aided by the sophisticated tools necessary to achieve this management information process most effectively and efficiently.

Figures 1 through 4 cover the present data processing procedures of the wholesalers with manual office operations with an emphasis on purchase, inventory control, and sales. In these figures, inventory control is included under "purchase" and "sales."

Requirements Analysis

A computer system which uses a data base maintained in real time with concurrent access and update capability is the major requirement for the wholesalers described here. The system should capture data accurately at the source and relate it to all the system components, thus providing a data background for all the activities of the company. These data can be used for data processing and decision support. For wholesalers who are contemplating computerization, a complete decision support system may not be desired initially but will eventually be critical to the decision making process, which largely determines profitability. The first priority, however, is to relieve the burden of paperwork and provide more timely, accurate, and productive processing of current transactions.

To be most effective, a computer system for the fruit and vegetable wholesaler should satisfy the following general requirements:

1. Central storage of all relevant data--a data base.

2. Accessibility of all data by key personnel.
3. Ability to enter data into the system the moment any transaction occurs, and to retrieve information instantaneously. This is particularly necessary for inventory levels and prices.
4. Reduction of paper records to a minimum.
5. Ability to track every transaction for audit purposes.
6. Control over the data entered to ensure their accuracy.
7. Clear and accurate reports available in a timely fashion.
8. Simple to operate. Minimal training required.
9. Adequate security to protect computer system from physical damage, loss of data, and unauthorized access.

Although all of these requirements may not be met initially, wholesalers should be sufficiently aware of them to plan accordingly.

Outputs and Inputs

This section will review the basic outputs and inputs required for the major functions of the system. These functions are:

- Purchase and costing (includes accounts payable).
- Inventory control.
- Sales (includes accounts receivable).
- General ledger and financial reporting.
- Payroll.

The emphasis in this section is placed on purchase/costing, inventory control, and sales. The reports (outputs) are intended to be flexible. Various methods should be avail-

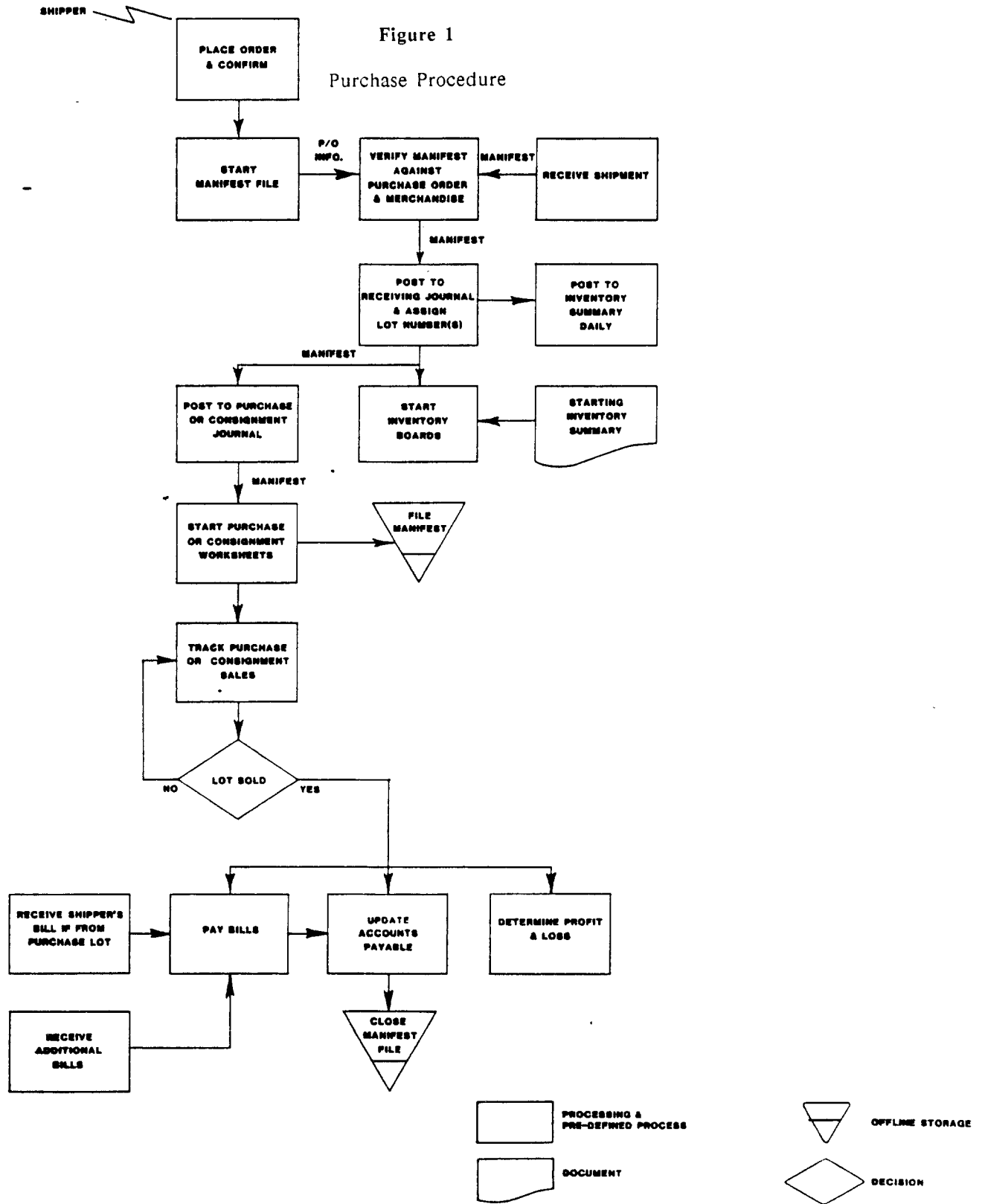
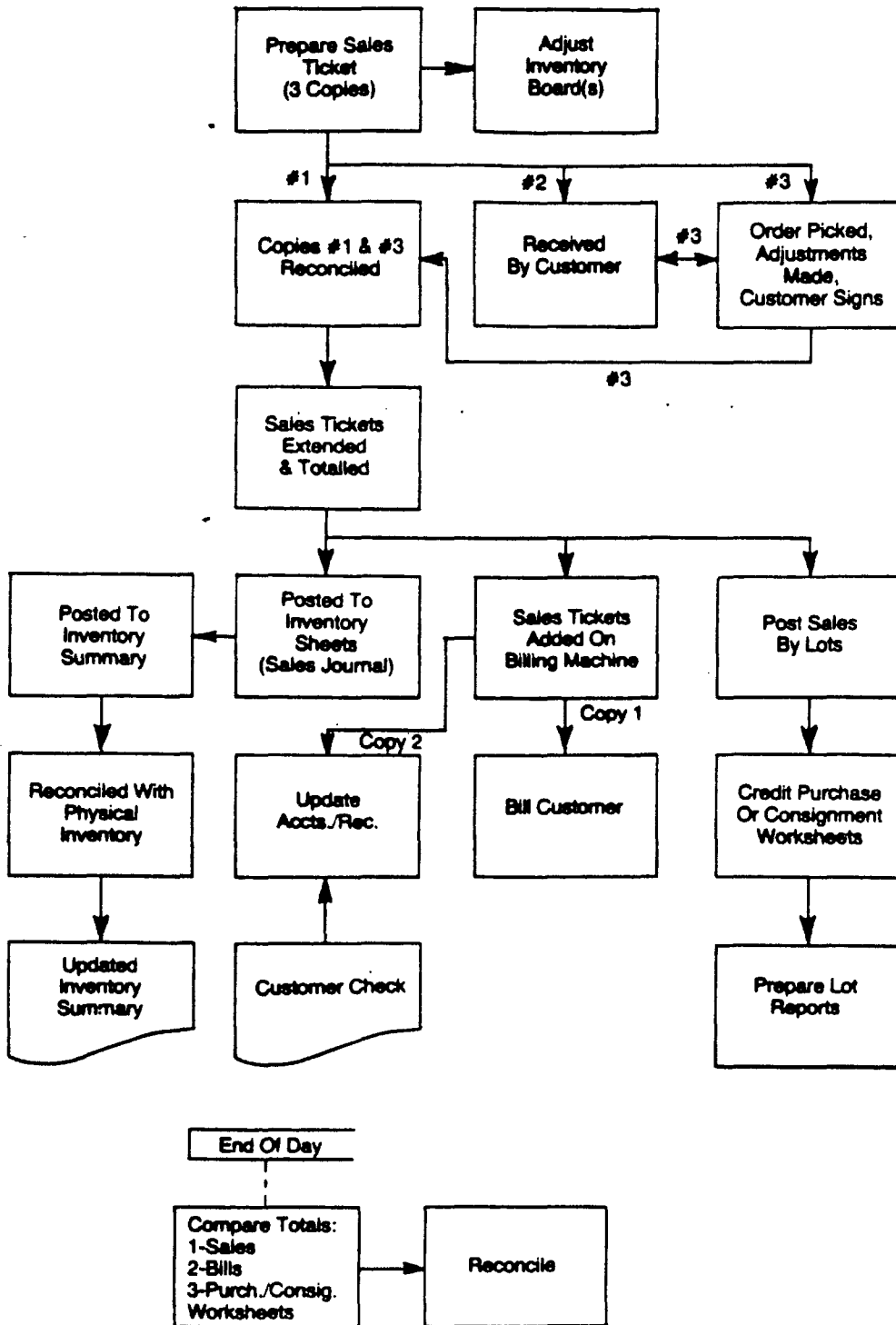


Figure 2

Sales Procedure



Processing & Pre-Defined Process

Document

Figure 3

Weekly Payroll Procedure

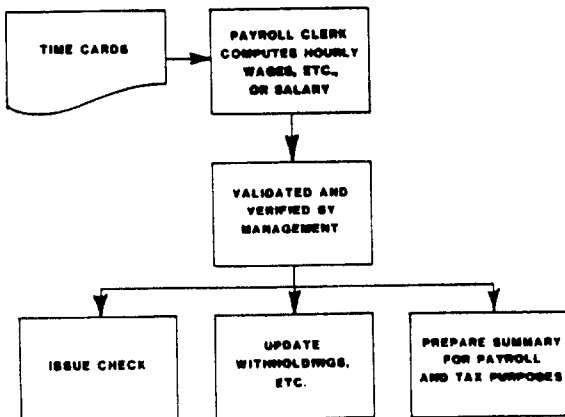
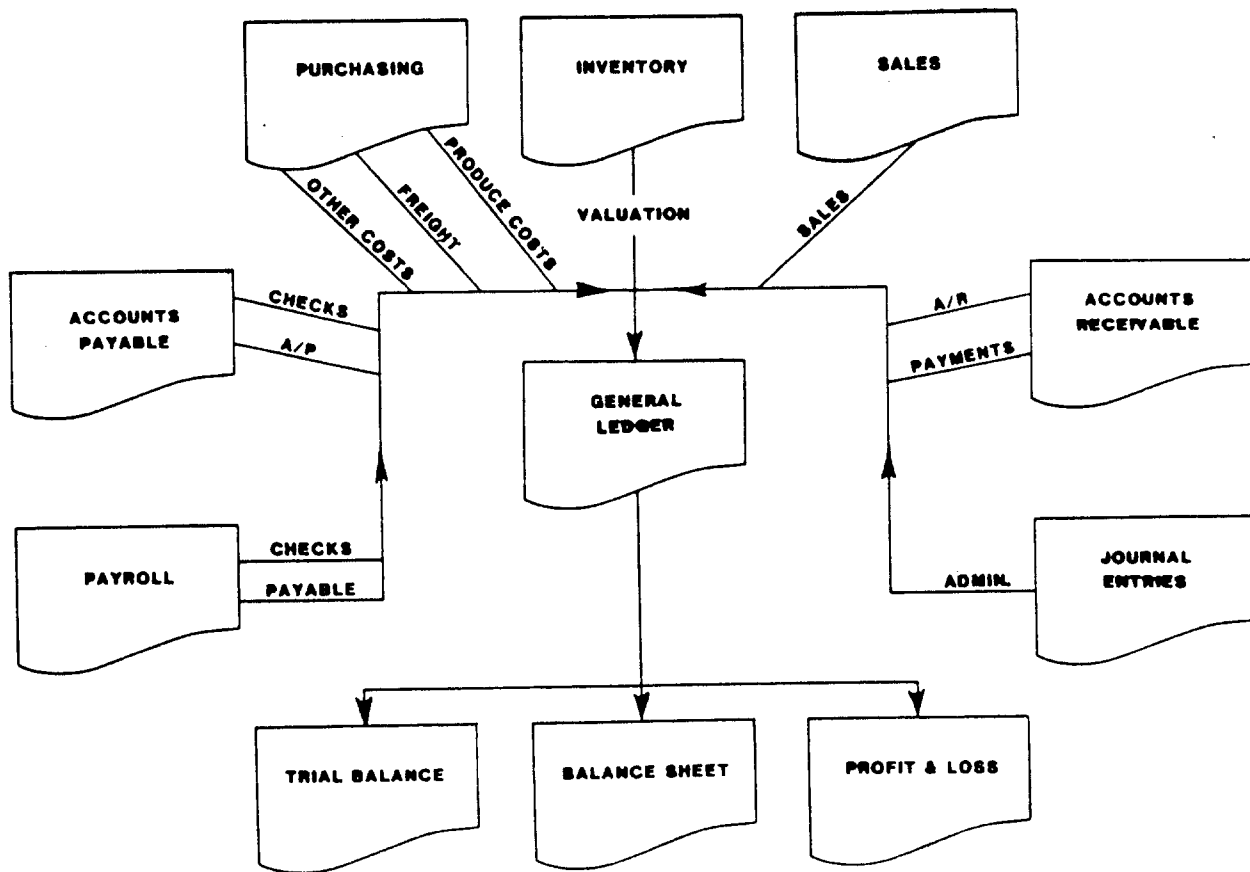


Figure 4

Monthly Financial Statements



able to manipulate the programs that generate these reports to produce the same formatted report by different time periods, by different selected groups of customers, commodities, and so forth. Figure 5 summarizes the basic required inputs and outputs for the three major functions of the wholesaler.[1] This figure may be used as a graphic overview of the following discussion.

Purchase and Costing

Reports can be generated to track the goods before they arrive at the dock. Upon receipt of goods, each lot can be tracked in the warehouse by labeling them by lot numbers. The Lot Profit and Loss report reviews all the costs and sales for a given lot to determine net profits, and finally, the Cash Flow Requirements report determines cash requirements for outstanding purchase orders.

Accurate cost information is the primary input requirement necessary for understanding the true costs of goods received and for maintaining accurate profit and loss reports.

NOTE:

Standard packages available for accounts payable in the software marketplace are sufficient to meet the requirements of most wholesalers. Links to the Accounts Payable from Purchase and Sales (on consignment entries) may be automatic.[2] Initially, however, internal auditing may prefer to see a manual posting to payables to allow the company time to absorb the change to a computer system.

Inventory Control

An inventory control system for the wholesale produce industry presents requirements quite different from those of most other industries because of the speed of transactions during the sales day, volatile prices, supply uncertainties, and a high turnover rate. Overselling by salespeople and inadequate lot tracking are two problems that are consistently present.

The core of the system is the lot accounting function. Simply stated, each lot is assigned its own inventory account as it is received. All costs are associated with that lot. Subsequently, all sales are recorded against the lot along with inventory adjustments. When the lot is sold, accounting reports take place showing the items that were sold, their prices, and profit or loss figure for the lot as a whole.

The major requirement of inventory control is to provide reports which record the correct on-hand quantities. The accuracy of the inventory reports can only be sustained by providing a capability which allows physical inventory to be updated on a daily basis.

Although inventory will be affected primarily by receipts and sales, an adjustment capability is also required to handle write-offs and write-ons, and to correct data entry errors. Another requirement is for effective inventory valuation reports for audit control.

Sales

The sales system information is made up of the data on the sales tickets. Once in the computer, the data from the tickets are processed, and the major sales reports can be generated. These include, but are not limited to: the Sales Journal and Summary, Available to Sell report (Inventory Summary), and the Lot Profit and Loss report. The Pick List and Adjustment reports also flow out of the sales ticket entry.

For decision support considerations, any number of sales reports could be generated from the system. These could highlight sales by commodities, by customers, and by salespersons for various time periods. They also could analyze profitability, growth, and percentage contribution for any of these categories. There is almost no limit to the number and type of sales analysis reports tailored to the needs of individual wholesalers.

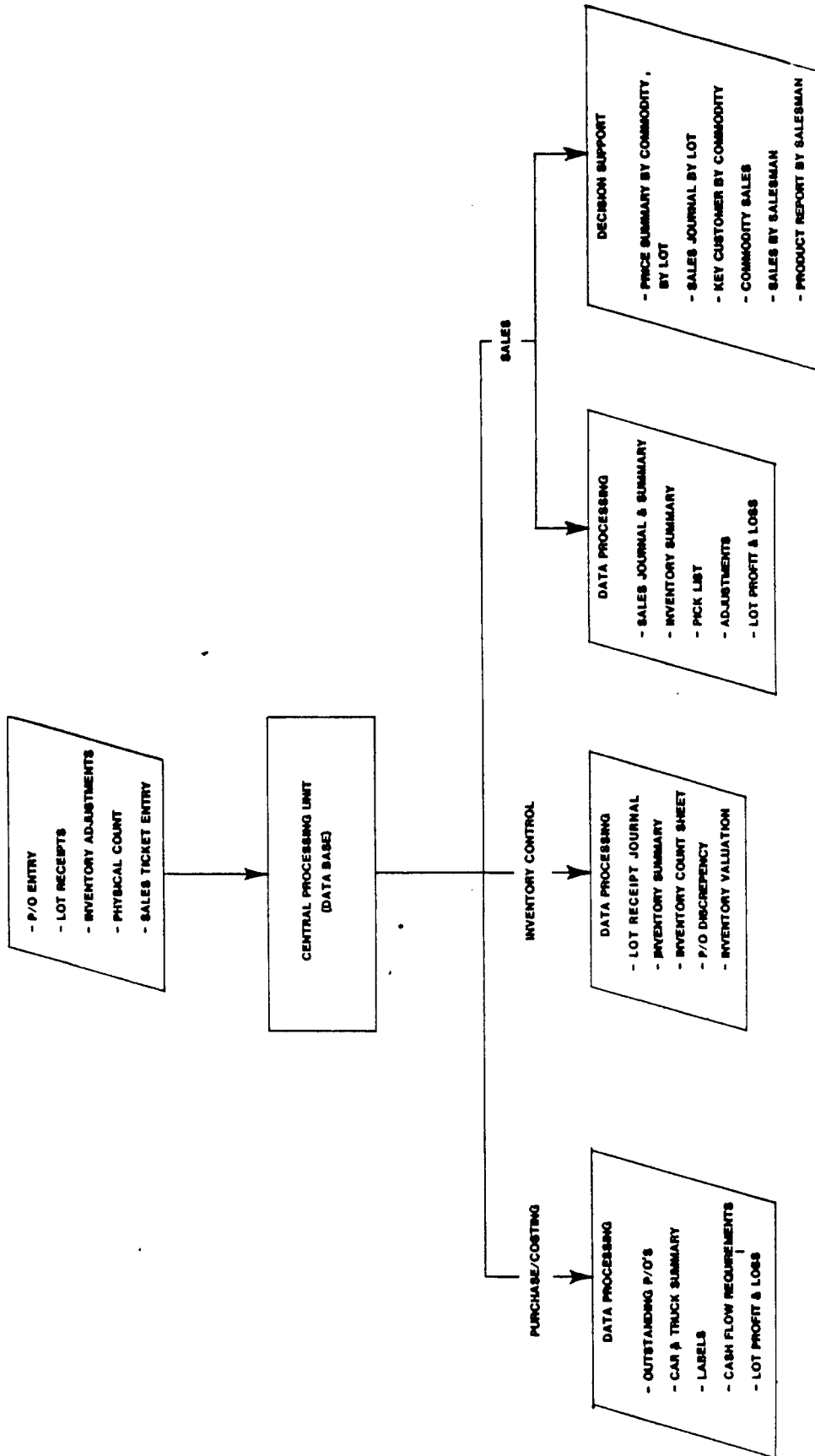


Figure 5

Basic Required Inputs and Outputs for the Three Major Functions
Of the Wholesaler: (1) Purchase/Costing; (2) Inventory Control;
and (3) Sales

NOTE:

Many standard accounts receivable software packages will satisfy the requirements of the industry.[2] The major requirements are to find packages that can be adapted to 7, 14, and 21 day cycles. The requirements for billing, credit checking, and maintaining customer records are also standard. The only requirement is the ability to print statements weekly.

Payroll

Most wholesalers studied employ 20 to 40 people. The payroll functions are standard and there is no need to elaborate on any special requirements of the industry.[2] Automation of the function at the present time is not a major concern.

General Ledger

A standard software package that is tailored to handle lot accounting data, and provides a trial balance, profit and loss reports, and a balance sheet meets the requirements of the industry.[2]

Files Description

A computer file, like a paper file, is a repository of information. The major files involved in the system are closely linked to the functions they are required to support. A list of these files will include: (1) Customer master; (2) accounts receivable transactions; (3) sales ticket transactions; (4) lot inventory master; (5) vendor master; (6) accounts payable transactions; and (7) general ledger journal.

Figure 6 shows the interrelationship of the major files with the primary functions they support. These files are separated here for illustrative purposes; but, in fact, they are components of an integrated data base.

Proposed System Data Flow Overview

Figure 7 shows the required basic system data flow by function and personnel involved.

Once the master files discussed above have been loaded initially, the system should operate as a mirror image of all transactions that occur in the company. The process is circular in that, at any one time, all these transactions will be occurring at once.

On the purchasing side, everything begins with the purchase order, which is priced as completely as possible and processed internally. When the goods arrive, they are verified against the manifest and the purchase order, discrepancy reports are sent to the auditors, and inventory is updated. Checks are issued upon receipt of bill from vendor (purchases) or upon sale of lot (consignments).

Before sales begin, salespersons will update prices for each item on hand or on order. As sales tickets are processed, inventory is updated as are the accounts receivable to be processed through the invoicing statements, and aging modules.

General Objectives of a Proposed System

The objectives of a proposed computer system for mid-sized (\$10-\$20 million) fruit and vegetable wholesalers are twofold:

1. Less paperwork, fewer labor intensive functions, and faster, more accurate, and more productive processing of daily transactions. At the operations level, everything should flow more smoothly because information is more timely, more automatic. Labor should be shifted from mundane clerical tasks to more productive management and sales-oriented ones.
2. More accurate and sophisticated management information to the firm's executives. Resources should now be available to prepare and analyze the comprehensive sales reports, e.g., by salesperson, by commodity, by customer, by lot profitability, etc.

Most firms do not presently have the resources to prepare these decision support reports, and even if they devoted the manpower, the accuracy of the information would be in question. The only way to ensure

Figure 6

Interrelationship of the Major Files
With the Primary Functions They Support

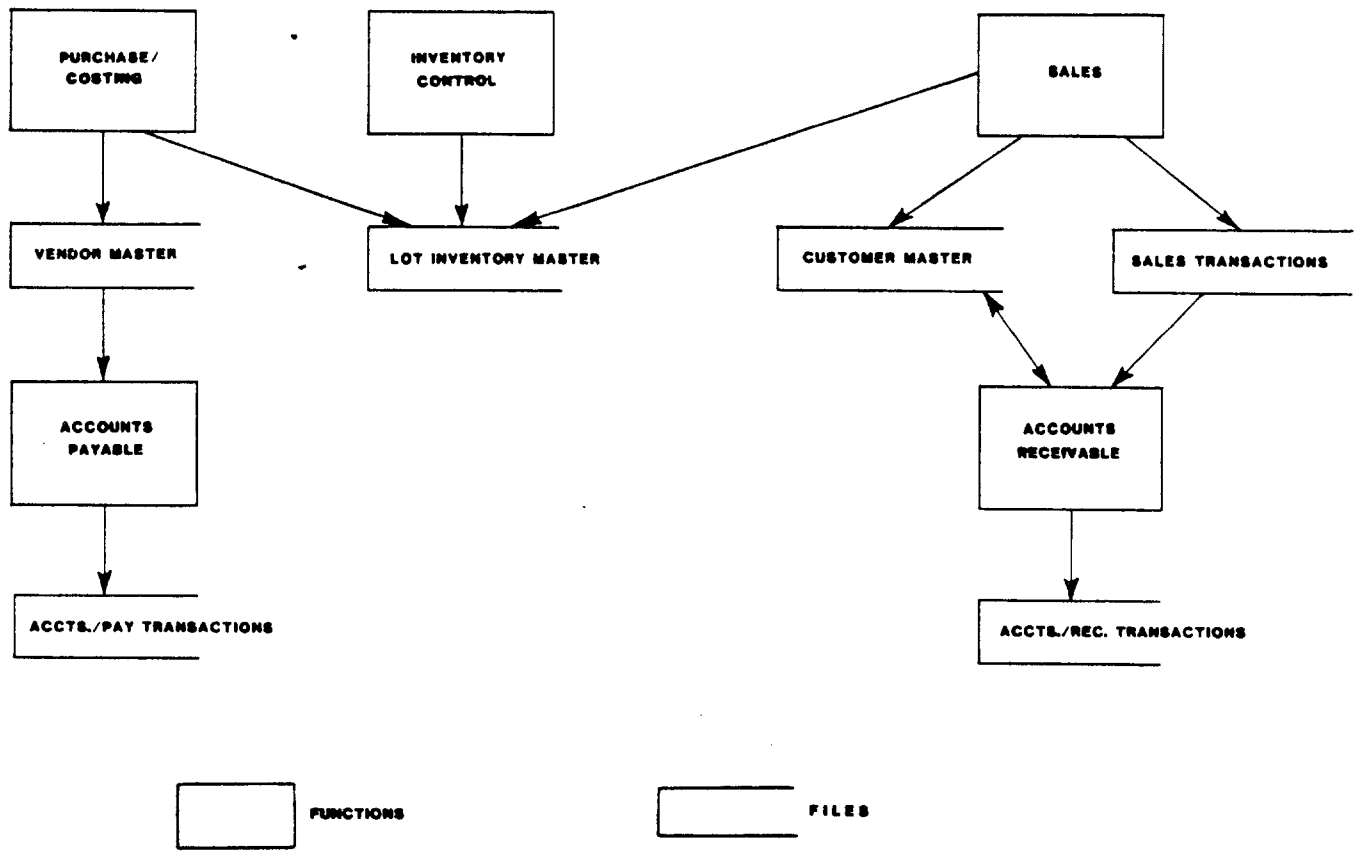
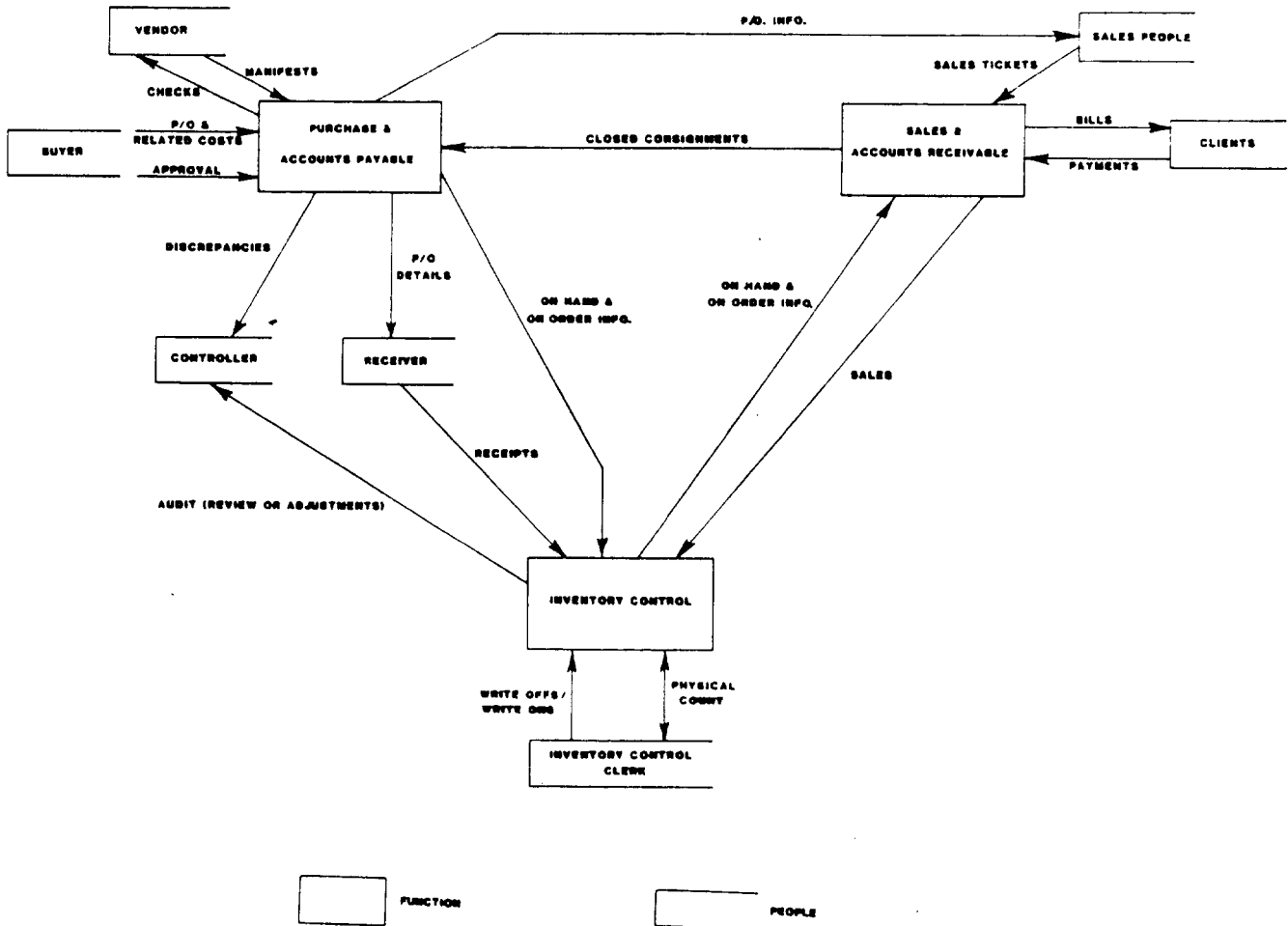


Figure 7

Required Basic System Data Flow
By Function and Personnel Involved



accuracy is to provide a comprehensive system that will validate the data as they are processed. Once these data are available, the executive has the ability to review all aspects of the operation and to extract reports from the data base on an ad-hoc basis.

According to a Pennsylvania wholesaler who has successfully implemented a computer system: "Let wholesalers know that computers will not save money by getting rid of employees. Money is made on analysis and reports. Computers will help to substantiate the results of wholesalers' knowledge."

Endnotes

- [1] Accounts payable, accounts receivable, general ledger, and payroll are not shown here because they have no particular requirements except as mentioned in the text.
- [2] Do not assume that the automatic link of standard accounts/payable, accounts/receivable, general ledger, and payroll application packages to an existing fruit and vegetable package will be easy to implement. Interfaces must be planned and verified to work.