

## ON DESIGNING AN INFORMATION SYSTEM APPLIED FOR THE COMMERCIAL COMPANIES

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### ABSTRACT

*This paper attempts to study the designing of the accounting information system to be used and applied in commercial companies. Therefore, the principal and fundamental aim and objective of this paper are to give the best approaches and techniques of modeling a good, robust, and reliable accounting information system that focuses on Transaction Processing System, General Ledger, Financial Reporting System and Management Reporting System in the commercial company. The researchers designed the main charts of the system that will help in the construction of an ideal and robust Accounting Information System (AIS), with the simple and lowest cost methods, techniques, and approaches. In addition, the practical section in this paper depicts the accounts of the company, the financial statements, invoice, income statement, balance sheet, assets, liabilities and the important factor is the relationship between the accounts. The proposed information system is designed to be flexible to suite most of the commercial companies due to the difference among each of them. Therefore, after applying it the information system showed a great relation between accounts. The main conclusion of this paper is that the analyzing and designing process of an accounting information system (AIS) needs a good knowledge about the commercial environment that surrounded the represented company which will be as wisdom in knowledge representation science.*

**Keywords**— *Data Modelling, Accounting System, AIS, Financial Statements.*

### INTRODUCTION

Accounting Information System (AIS) is just like a set, storage, reposition and processing of the financial and accounting information that is always used by the responsible staff who makes decisions (Decision Makers (DMs)). An (AIS) by general, is a computer-based approach to follow the activity of accounting in combination with the resources of information technology (IT). Accounting Information System is in charge to provide timely and correct financial and numerical reports (Amjad Sabir Al-Dalawi, 2015).

Poising AIS is for three main sub-systems (TPS, GL/FRS, and MRS). Transaction Processing System (TPS) that supports day by day business actions, General Ledger/ Financial Reporting System (GL/FRS) that creates financial statements and reports, and the Management Reporting System (MRS) which creates special-goals reports for internal purpose.

## LITERATURE REVIEW

### 1 ACCOUNTING SYSTEM CONCEPTUAL FRAMEWORK

#### 2.1. *The Definition of Accounting System:*

The term of Accounting System (AS) can be defined as a group of structured accounting plans, actions, and controls complete operational with a combination of non-computerized and computerized methods. These systems are designed to collect, trace, categorize, and evaluate timely financial information, which decodes the information can then be into well-informed decisions (Rothberg, 2012).

Many academics describe the accounting system as a system that can be used to run the earnings, expenses, and other financial actions of commerce (Thabit and Jasim, 2017).

As permits trade to remain track of every kind of financial transactions, including purchases, trades, liabilities. Moreover, be able to create complete numerical reports that give administration or interested parties with an understandable group of information to provide aid in the process of decision-making.

Now, the using system of any corporation is mainly computerized or computer-based, using functional software and maybe cloud-based services. On the other hand, historically, (ASs) was a delicate chain of manual calculating, computations, and balances.

#### 2.2. *The definition of AIS:*

The Information System (IS) applied in the shoe store may have components designed particularly for supporting the managerial purpose. For example, the IS in the shoe store to assist stock administration (a logistics purpose) over sustaining records for each shoe stocked in the store. The shoe store information system (IS) as well as assists deals and marketing purposes by investigating transactions in a diversity of methods. Another classic (IS) component contains personnel, manufacture, accounting, and finance. Though, integrated IS processing, such as an enterprise system, has permitted the distinctions in the middle of these separate systems to be fuzzy. So, traditionally, (IS) integrated a separate (AIS), which is a dedicated sub-system of the (IS). The point of this divided (AIS) was to gather, practice, process, and report data associated with the financial characteristics of business actions. As an example, for this, the input vector to any (AIS) could become a sale, like a shoe sale. AIS has been more effective for business firms to acquire raw data and information effectively and applying it for logistic purposes. There are many elements that can develop the performance of AIS (e.g. firm size and technology, etc.) (Alaa, 2017). Making the process to the sale can be by recording the sales information in the sales journal, categorizing the information by using a chart of accounts, and posting the information to the general ledger. Occasionally, the (AIS) will output balance sheet and other financial statements. Though, it specified the integrated nature of (IS) today, rarely is an (AIS) well-known individually from the IS (Gelinias et al., 2009). Technology includes both technology infrastructure and human resources information systems where both are really required if the firm wants to make an e-system. Hence, the greater the technology of a company the more likely it adopts information technology, and vice versa (Manaf, 2016).

As being a closed-system recording, accounting includes recognizing, following, determining, processing, recording, systemizing, storing, assessing, regulating and reporting of the appearances which influence on the assets, fiscal and interest position of the project, making sure the circumstances of permanent, uninterrupted action. In this synchronized, blocked system the (AIS) records the economic actions directing the project, next develops them and expresses them to the people or units in charged for decisions. As

well, the system supplies for preparing various reports, financial statements, and reports, operating out an expenditure management system and gathering verifying reports. Accounting as well as the total of completed actions, which is an (AIS) framework by the specialists of the company (Toth, 2012).

### **2.3 Accounting Information System Functions:**

Describing the Accounting Information System can hold a sub-part of the (IS) of the company, and within it refers to a sub-part of the (IS) of the management. Where the fundamental and primary role of (AIS) is to allocate the quantitative assessment of the past, recent, and future developments of economics (Zulkarnain, 2009).

The (AIS) is to convene the information desires of the management information system (MIS) throughout the administration reporting sub-system. So, it supplies data for the managers of the company, accurate, useful fields, and the frame of the holders and the supervisory authorities. The data provided via the AIS possesses a significant task in basing verdicts on the interior or exterior of the company. The AIS is within a cohesion link, including the management information department, the accounting, and administration department, the internal control, and the (IT) team. The consonant and well-organized action of fields characterize the core of the AIS, which fulfills the essential information of the database. The (IS) operates inside the company and contains two, directly associated sub-systems (Thabit and Jasim, 2016a):

- A data processing/information providing sub-system
- A decision-making sub-system.

The data processing system is in charge of getting, storing, coding, processing, and, transmitting the data essential toward the action and function. The important sub-system business has to control, immediately or indirectly, besides the management processes and the action of the system. So, the vital sub-system is unusual, as, in usage, it possesses only a pre-decisive or pro-decisive task. Accounting, being the essential sub-system of IS, can possess a particular task for the reason that the company account as a functional field does not possess important ability associated with the action and function of the company. Though it does have a significant position in arranging and providing the decisions of the management. The accounting system comprises two significant actions according to Schehl's categories about the actions of the company (Dawood et al., 2015):

- The processing information
- Providing information.

According to the preceding categories, the twofold use of the AIS can be described: on the one hand to complete the registration, accounting and reporting responsibilities; on the other hand, to supply data at the maximum achievable level for the manager's decision-making action. This dual-purpose describes the contents of the sub-system, its duties, and its relations. The typical sub-systems of the AIS are the followers in work (Thabit and Jasim, 2017a):

- Ledger and current account sub-system
- Fiscal sub-system
- The sub-system of operation and salary accounting
- Sub-system of investment
- The sub-system of invoice and transactions
- The sub-system of stockpiling.

The essential principles for arranging the sub-systems are the rigorous facts of plans, links, processes, vertical and horizontal dealings, individual aspects, codes, essential data, inputs, transformations, and outputs.

Summarizing the processes of the account (IS) can be into three great sets:

- Income cycle
- Expenditure cycle
- Handling resources.

The revenue cycle implies sales and earning their profits, the expenses cycle includes the processes of receiving the substance to rewarding the fee, and dealing with the supplies means receiving the supplies, using, saving, and optimizing them.

#### **2.4 The AIS in Practice:**

Following the recording of a modern company at the forum besides the necessary financial action in close link with it – the configuration of the AIS has significant meaning. Relating to the AIS, the first vital round is to select about realizing the bookkeeping of the company:

- Operating inside the company (internal bookkeeping)
- Making sure a bookkeeping office (external bookkeeping)

The decision is inspired by the volume of the company, in addition to its financial capability. A further forceful part can be how to make sure enough current of information, like the capability to responding and decide thoughtfully much, belongs to the gain data. In the case of shaping AIS, the supplies of the system would illustrate notice to the conventionality of regulations both for setting laws of accounting regulations and to circumstances of the accounting plan and the enrollment and compulsion to the tax executives. The most significant point of the AIS is to endorse the action of the company, to shape a true and real image of it. The AIS endorses the action of the company efficiently in the case of the following intents:

- Organizing up-to-date statements
- Supplying as enormously data as conceivable so that the information must be comprehensible not just for the specialists (book-keepers)
- Supplying to distinct statistics utilizing the relations of the system that
- Following a liquidity point.

## **2 THE FINANCIAL STATEMENTS**

### **3.1. The Meaning of Financial Statements:**

Financial statements indicate to before-mentioned statements, which include financial data regarding a company. It implies the ending result of an accounting job performed throughout the fiscal session quarterly/ half-yearly/annually (Bernstein and Wild, 2000).

Organizing financial statements are in financial conditions. Some note to them as ordered 'Yearly Accounts,' when they are on an annually. On the other hand, brief financial statements are arranged for a more diminutive time, generally a quarter, and consequently called 'Quarterly Financial Statements.'

The financial statements are arranged by the board of directors (BoD) for reporting to shareholders in the removal of their stewardship purpose. Therefore, corporate law charges

upon them the dependability of putting down them ere a yearly standard conference of the shareholders; Where to produce a 'true and fair view' of the cases of the company.

Moreover, Financial reporting in commercial companies is significant; not just to invigilate and observe their accomplishment in perspective of their effectiveness and efficiency via applying public shared resources but also to render and supply information to all relevant interest firms on their economic resources and responsibility (Noraini and Othman, 2009).

The balance sheet can occupy the revenue and loss accounts, and assigning the report of the auditor shall be to it (Bernstein and Wild, 2000).

### **3.2. *The Types of Financial Statements:***

Financial information on companies will be in two primary documents: The Report of Condition and the Report of Income (Benton and James, 2005).

#### **1) *The Balance Sheet***

The balance sheet of the bank reveals that the company's fiscal condition at a particular point a moment in time. Balance sheets of the established companies to be on a particular date- typically the final day of a month, year or quarter. Because balance sheets imprison a circumstance at one spot at a time, it is helpful to evaluate the information for sparse accounting periods. In this method, evaluating propensity in the company's financial situation over time can be (Thabit and Jasim, 2016b).

Assets cash contain safe money, deposits at the Federal Reserve, deposits at other, and cash details in the formula and process of the set. Every category of assets has one general characteristic that company management must try to decrease its investment in these assets.

Interest – attitude company balances, such as short-term documents of deposit at banks and federal or governmental funds traded are extremely liquid receiving assets; applying them mainly as a component of the company's liquidity running record.

The other leading group of company assets is investment securities. While mainly banned companies are from holding equity securities, the securities that come into view on company balance sheets are approximately totally debts. Rules restrict banks as a particular type of company to be lenders rather than investors.

Loans, the smallest amount liquid of company assets and the main supply of jeopardy, are the most prominent asset type for nearly all banking institutions in addition to the leading resource of bank incomes. Procedures for organizing loans and rent are into the subsequent models (Thabit and Jasim, 2017b):

- Securing loans by landed property
- Business and manufacturing loans, containing loans to depository institutions
- Loans to persons for household, family, and other personal outings.
- Loan to finance the agricultural manufacture
- All other loans and rent-financing receivables

The amount in the reserve account reveals an approximation by company management of likely charge-offs for unable collecting loans and rents on the date of balance sheet. Though concerned dogmatic authorities are in the approximation process, company administration eventually concludes the last evaluation of the reserve account. The process of removing real losses occur from the reserve account, and revival is attached back to reserves. The sufficiency of the evaluation reserve is a significant section of the examination of a company's risk.

"Other real estate" is every other real estate occupied by the company and generally characterizes possessions that have acquired through collateral foreclosures on difficult loans.

The last asset group is all other assets. This situation contains; assets without physical substance (intangible assets) such as immeasurable well and trademark

**Liabilities** The company liabilities include mainly of a mixture of kinds of deposit accounts that the institution employs to finance its lending and investing actions.

Conditions of concern such as expenses, advancement, verify, and insurability; differ in Depository accounts demand deposits are transaction accounts where they are payable to the depositor on request and return no interest. Momentarily accounts characterize the sum of all deal's financial records fewer request deposits. They are accounts that pay interest and authorize money writing but do not contain cash market deposit accounts. Cash market deposit accounts (CMDAS) are savings accounts toward which the bank pays market interest, and money writing is restricted to a specific number of checks monthly. The other savings deposits group includes all savings deposits other than cash market deposit accounts and incorporates standard passbook accounts, including no set maturity and overdraft safeguard plan accounts.

Capital subordinated comments and debentures are necessarily liabilities but are made known in the capital part for the reason that this sort of debt has the uniqueness of capital in terms of maturity and durability and calculated as capital in gathering assured absolute necessities. Capital is the equality value of every frequent and ideal stock outstanding, extra or additional paid-in, undivided interests or preserved earnings, and capital reserves.

## 2) *The Income Statement*

The income statement, which illustrates all the first groups of revenue and expenditures, the net profit or loss for the phase, and the total of cash extra affirmed, events a company's financial performance over time, such as a year, quarter or month. The income statement and the balance sheet are integrally connected, and preparing both should be when evaluated company act (Samad, 2000).

**Interest Expense:** The expenses of interest are the most significant expense for most companies. Interest expense is into six groups (Thabit and Jasim, 2017a):

- Deposits of interest paid on time
- Other deposits interest
- Federal funds bought and securities sold within settlements to repurchase interest expense.
- Interest on currency balances concerned to the government treasury and on other rented money
- Interest on mortgage debt and funds rent on bank propositions, fixed assets, and other real estate had.
- Interest on subordinated notes and debentures

**Other Expense:** Three other kinds of expenses are taken from accustomed working income to appear at pre-tax functioning income. Overhead expense contains salaries and member of staff profits, premises expenses and fixed assets and other non-interest operating expenses. The condition for loan and rent loss is the year to date value owed to loan and rent loss reserves.

Gains or losses on the purchase, redemption, exchange, or retirement securities other than those detained in dealing accounts are remaining next to pre-tax operating income to conclude pre-tax operating income on a tax-equivalent basis. Security gains and losses can be a significant component in determining the performance of the firm. The analyst must

be conscious that a company can control operating profit for a time through these securities dealings.

Income tax Expense: Income tax in contains the overall predictable federal, state, local, and foreign income taxes on operating income.

Net Income: Income taxes are subtracted from pre-tax operating income to get there at net operating income. If there are in the least remarkable objects, designated as dealings that are both extraordinary and not predictable to happen again, deducting them are net of taxes, to resolve the net income.

### **3) *The Cash flow statement:***

A cash flow statement is a financial statement that demonstrates how adjustments in the accounts of the balance sheet and income effect on cash and cash equivalents, and discloses the analysis down to operating, investing, and financing actions (Saleh, 2006). Fundamentally, the cash flow statements are interrupted by the flow of cash in and out of the company. This statement imprisons both the results of the present operating and the changes of accompanying in the balance sheet. As an analytical tool, the statement of cash flows helps shape the short-term feasibility of a company, mainly its capacity for paying the bills. International Accounting Standard 7 (IAS 7) is dealing with cash flow statements. Community and sets paid attention to cash flow statements (Saleh, 2006). Where the statement of formally recognized cash flow was as the flow of finances declaration. It reflects a company's liquidity (Ross, 2005).

The statement of cash flow is a snapshot of a company's financial income and responsibilities at a single point in time, and the income statement reviews a company's financial dealings over some time. These two financial statements reveal the addition basis accounting applied by companies to contest revenues with the expenses connected with creating those revenues. The statement of cash flow contains simply inflows and outflows of cash and cash equivalents; it keeps out dealings that do not directly impact on cash receipts and payments. These non-cash dealings contain depreciation or write-offs on bad debts or credit losses, to name a few (Ross, 2005).

The statement of cash flow is a cash basis report on three kinds of financial activities: operating activities, investing activities, and financing activities.

### **3.3. *The Importance of Financial Statements:***

Many trade specialists and accountants advise preparing financial statements each month; or each three months at least. Where some firms initiate them at least weekly, or daily sometimes. The more regularly a company arranges its financial statements, the sooner timely decisions can be.

There are four kinds of financial statements; compiled statement, reviewed statement, audited statement, and unaudited statement (SBDC, 2004)

Small company owners must be conscious that they could be essential to present financial statements in nine conditions (Thabit and Jasim, 2017a):

- Banks might need to be compile or review statements and audited statements. There is a possibility of non-agreement to a company prepared financial statements if not, they are backed up by personal or corporate income. Naturally, as a circumstance of surrendering a loan, a creditor may ask for periodic financial statements to control the prosperity of the company.
- The information that can get from financial statements is essential to arrange federal and state income tax returns.

- Many of the prospective buyers of a company will ask to check financial statements before they will discuss a sale price and entrust to the purchase.
- The balance sheet is crucial when maintains for losses is to insurance companies.
- Financial statements can be precious to show the nature and extension of any loss. Should proceedings occur, the need for such statements may slow down training of the case.
- The four initiated statements must be because owners or creditors require an audit procedure.
- Individual companies, forcefully detaining store, that is, owned by a little number of shareholders, are excused.
- The researchers are approving the sale of stock or other securities to the agency of a corporation or securities.
- The (SEC) requires most widely detained companies to file yearly and interim quarterly financial reports.

## DISCUSSION

### PRACTICAL SECTION

There are many steps to design the accounting system for any commercial company. Therefore, we used the Data Flow Diagram to model it where this diagram is used mainly for modeling information systems, as shown in the following:

#### Step One: The company's primary strategy

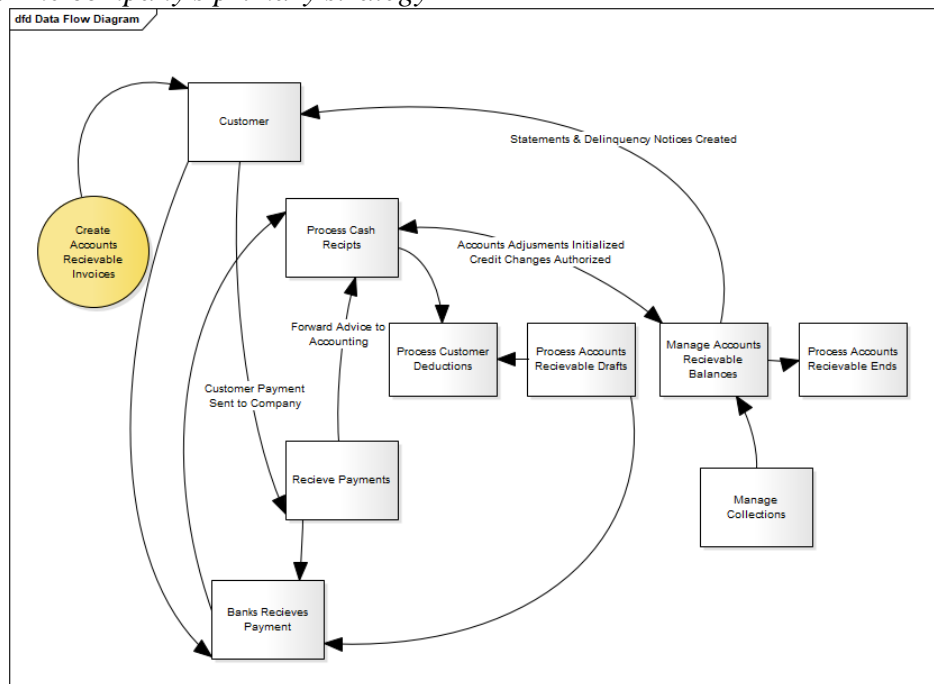
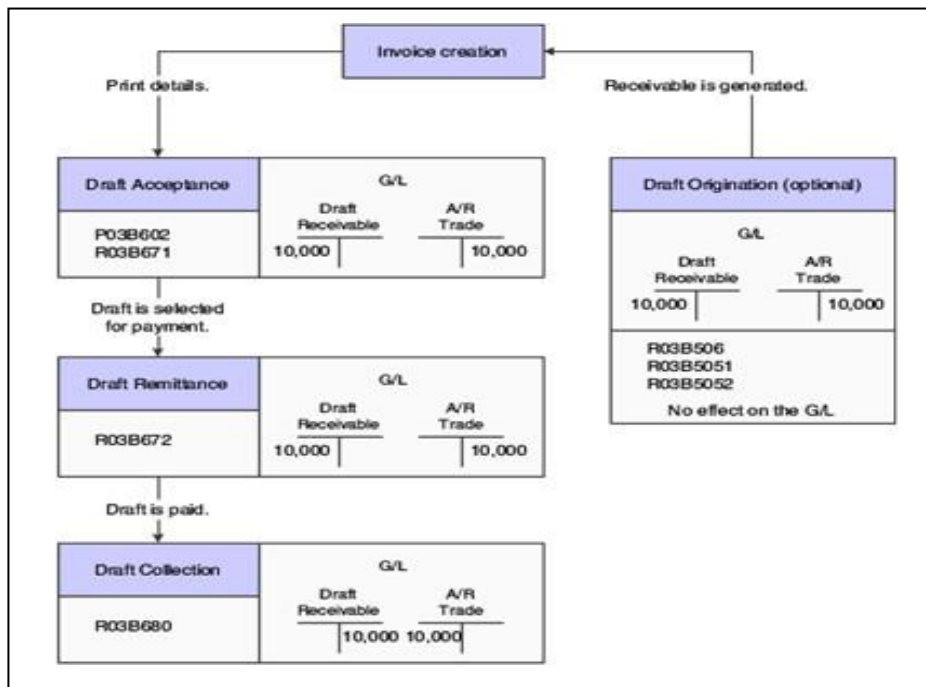
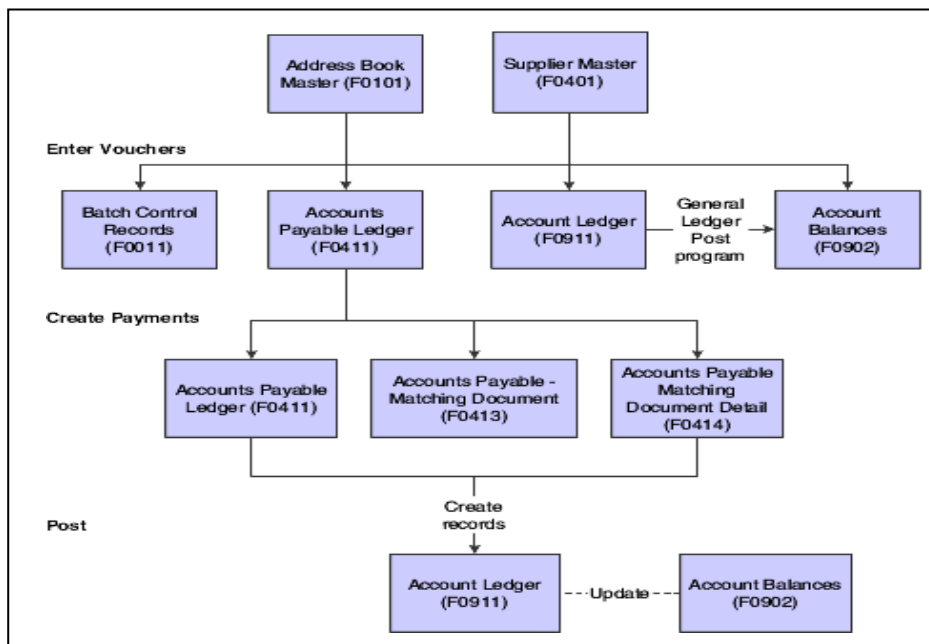


Fig. 1. The Main Strategy of The Company

*Step Two: Design the necessary accounts*



**Fig. 2. The Necessary Accounts of the Company – Part 1**



**Fig. 3. The Necessary Accounts of the Company – Part 2**

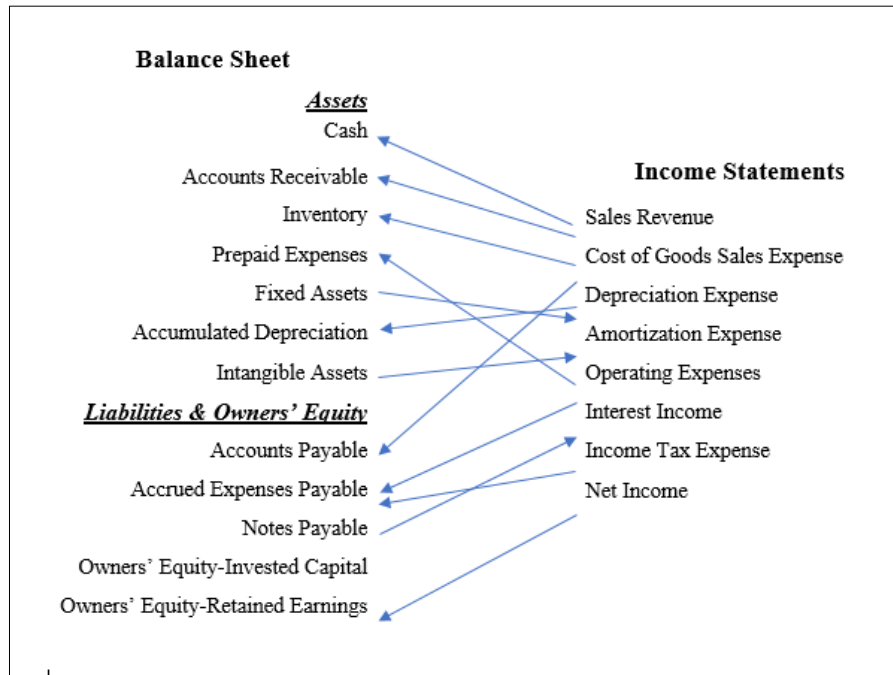
*Step Three: Design the main statements for the company*

<b>Example Company Balance Sheet December 31, 2015</b>	
<u>ASSETS</u>	<u>LIABILITIES &amp; OWNER'S EQUITY</u>
Current assets	Current Liabilities
Investments	Long-term liabilities
Property, plant, and equipment	Total liabilities
Intangible assets	Owner's equity
Other assets	Total liabilities & owner's equity
Total assets	

**Fig. 4. The Main Statements of the Company – Part 1**

<b>Your Company Income Statement For Year Ending Dec. 31, 2012</b>		
<b>Revenue:</b>		
Gross Sales		XXXX.XX
Less: Sales Returns/Allowance		XXXX.XX
Net Sales		XXXX.XX
<b>Cost of Goods Sold:</b>		
Purchases	XXXX.XX	
Delivery Charges	XXXX.XX	
Cost of Goods Sold		XXXX.XX
Gross Sales Profit (Loss)		XXXX.XX
<b>Expenses:</b>		
Expense 1	XXXX.XX	
Expense 2	XXXX.XX	
Expense 3	XXXX.XX	
Total Expenses:		XXXX.XX
Net Operating Income:		XXXX.XX
<b>Other Income:</b>		
Income 1		XXXX.XX
Income 2		XXXX.XX
Income 3		XXXX.XX
Total Other Income:		XXXX.XX
<b>Net Income (Loss):</b>		XXXX.XX

**Fig. 5. The Main Statements of the Company – Part 2**

**Step Four: Determine the relations between accounts****Fig. 6. The Relation among Accounts****CONCLUSIONS**

The researchers concluded many results according to this study:

- There are strong relations between the accounts of the accounting system of any company.
- The accounting system in each company differs from that company to another according to its activities.
- The accountant must have strong skills in IT to design a capable software or program for the company. So, the departments of accounting must teach students all the necessary skills and knowledge related to IT accounting.
- New departments must be available in the Iraqi universities to deal with IT accounting because the external markets are so eager to get such as these outcomes.

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