3.1 Accounting as an Information System

The American Accounting Association (AAA) defines accounting as "the process of identifying, measuring and communicating economic information to permit informed judgments and decisions by the users of the information."

According to American Institute of Certified Public Accountants (AICPA) it is defined as "the art of recording, classifying and summarizing in a significant manner and in terms of money, transactions and events which are in part at least of a financial character and interpreting the result thereof."

The accounting function is critical in the successful operation of today’s businesses. This function provides individuals and groups both within and outside a company with relevant information for decision making. The process of accounting platform for recording and tabulating the distribution of financial data, and these data restrict the historical aspect, where most attitudes Created are for transactions and arranged so that the accounting occupied a unique position in the organizations as a source of data information.

In 1970, the Accounting Principles Board of The American Institute of certified Public Accountants emphasized that the function of accounting is to provide quantitative information, primarily financial in nature, about economic entities, that is intended to be useful in making economic decisions. Accounting is often called the Language of Business. It is the common language used to communicate financial information to individuals, organizations, and government agencies about various aspects of business such as financial position, operating results and cash flows. Users, both inside and outside the business, have to make decisions concerning the allocation of limited economic resources. In
order to ensure that resources are allocated in an efficient and effective manner, users require financial information for the purpose of making decision.

Accounting provides information that is useful in making business and economic decisions. It is the primary means of communicating financial information to owners, lenders, managers, Government and its regulatory agencies and others who have interest in an enterprise. It helps the users in taking better decisions by providing relevant, reliable and timely information on the financial and operational position of an enterprise.

With the development of the use of accounting information systems and expand the application of quantitative methods in addressing the problems of organizations has become decisions makers more dependent on accounting as a result of favorable data generated by the IT for the purposes of decision-making and planning activities and which is characterized to be associated with the future.

To provide these needs specialists headed toward the application of methods and concepts appropriate in all branches of knowledge in the treatment of the input data. Not only that, but that most accounting systems become based on the use of computers in electronic data processing.

Characterized the last decades of the twentieth century the emergence of major developments in the world of information and communication led to the expansion in the use of computers and information technology applications in the completion of various works as refer it in the last chapter. Thus, Accounting as an information system is necessitated by great complexity of modern business organizations.
3.2 Definition Accounting Information Systems:

Accounting Information Systems have been widely adopted by organizations within both the public and private sector (Rom & Rohde, 2007:40).

Accounting information systems defines as systems that operate functions of data gathering, processing, categorizing and reporting financial events with the aim of providing relevant information for the purpose of score keeping, attention directing and decision making( Boockhodt;1999). Accounting information system is a specialized subsystem of the information system that collects, processes, and reports information related to the financial aspects of business events (Ulrich J. GeLinas, Jr, 2008). Accounting information system is a computer-based system that increases the control and enhances the corporation inside the organization (Essex& Magal; 1998). Accounting Information System maintain and produce the data used by organizations to plan, evaluate, and diagnose the dynamics of operations and financial circumstances Anthony et al, cited in ( Xu, H. & Al-Hakim ,2005;90)

An accounting information system (AIS) is a system that first collects and stores data and then processes it into information used by decision makers (investors, creditors, and managers). This information generated from an AIS can ultimately help decision makers manage organizations more efficiently and strategically. Accounting information system is a system that process financial information and supports decision tasks in the context of coordination and control of organizational activities. It is defined as a subsystem of an information system, and its function is to process financial transaction and non financial transactions that directly affect the processing of financial transactions ( Emeka-Nwokeji, N. A.;2012,90). Though an accounting information system can be prepare
manually, today the term AIS is most commonly referred to as a complex computer-based system combining the resources and capability of information technology with traditional accounting methods and controls (Romney, M. B., & P. J. Steinbart, 2009).

Accounting information systems are composed of six main components:

1. People: users who operate on the systems.
2. Procedures and instructions: processes involved in collecting, managing and storing the data.
3. Data: data that is related to the organization and its business processes
4. Software: application that processes the data.
5. Information technology infrastructure: the actual physical devices and systems that allows the AIS to operate and perform its functions.
6. Internal controls and security measures: what is implemented to safeguard the data?

While (Moscove & et al; 1999) define an AIS as “an organizational component that accumulates, classifies, processes, analyzes, and communicates relevant financial-oriented / decision-making information to a company’s external parties (such as investors, creditors, and tax agencies) and internal parties (principally management).

Thus AIS provide valuable information to a range of external users and internal users of accounting data (Romney & Steinbart; 2002). One function of AIS is to produce financial statements such as the Statement of Comprehensive Income, the Statement of Financial Position and other reports used by managers, creditors, current and potential investors and others. Also (Hall) defined AIS as systems that address the financial
operations and financial processes that directly affect their financial
operations, which include (Hall; 1998: 12):
1. Transaction Processing Systems: supporting everyday business
processes of the documents, letters and receipts for the many users in the
areas of all the company.
2. Financial Reporting Systems: which specializes in everything related
to extraction of financial reports such as income statements and balance
sheet, cash flow statements, and tax statements and other reports required
by law committees,
3. Fixed Assets Systems: The operations of these systems address all
related assets were acquired, maintenance and deprecation.
4. Management reporting systems: that the reports provide management
with financial and other internal purposes of the special need for the
purpose of making decisions such as budgets and reports deviations and
reports of responsibility

The data produced by AIS is considered an essential source of key
information for the organization. It plays a major role in informing
financial decisions either operational or regarding investment or funding.
These decisions contribute to improving the organization’s position and
give competitive advantage, reflected in the market value of the
organization, and therefore its sustainability in the marketplace. The use
of AIS has increased significantly in recent years, as it has reducing cost
and time and improving the quality of services delivered to the
customers.
3.3 Accounting Information Systems, and Advanced Manufacturing Technology:

Many previous studies had used the entrance of conditional in identifying the types of information appropriate under the circumstances varied. It tested the relationship between changing conditions and specifications of the accounting information that affect the performance of the company (Lederer & Smith; 1987:55).

As recent studies have adopted the perspective of learning company to determine the appropriate types of accounting information required by the service companies and industrial use of modern technologies in manufacturing. The use of new technologies requires a decision and the concomitant uncertainty technical, and decision-making process includes planning, control and evaluation of performance, as planning is the basis of decision-making process for the company's goals, and control refers to the process that affect the attitude of workers that are likely to increase the behavior and actions of workers a way that maximizes the achievement of the objectives of the company. And that the processes of planning and control are together, the planning precedes control, without planning for something we cannot control it. So the Planning is the base of control (Flamholtz; 1985:155).

The planning classified (Anthony; 1965) to management control, operational control and strategic planning. On the other hand, the assessment refers to the process of estimation performance. The information produced by the accounting information systems can be classified into more than one classification were classified on the basis of employment or degree of responsibility and others. The information required in the planning and control functions include the types of
information for planning and cost information for the purpose of coordination of productive activities (Horngren et al; 1999:12).

The performance assessment information can be collected performance information to financial and non-financial (Abernethy&Brownell; 1997:240) and financial performance information represents the actual grade earned for the company’s financial goals such as return on assets and return on sales and return on investment (Miller; 1992:47).

The non-financial performance information refers to the standards of quality and non-financial, such as customer satisfaction and product quality and participation (Harrison &Poole; 1997:557)

From the point of view of company or the degree of compulsion in the information it is possible to distinguish between two types of broad accounting and information are (Mandatory) and (Discretionary).

The information required by many external users (shareholders, investors, creditors, customers, vendors, government agencies and others) who depend on the output of the accounting information system, put legal requirements for record keeping, reports and other, so information is mandatory. While the budget systems and systems of responsibility and reporting on all management levels so information is discretionary to suit fits of Administration (Hopwood &Bodnar; 1995: 203).

In addition, the information should be subject to the standard cost - benefit, despite the fact that this standard applies in theory to all outputs of the information system of accounting except that the company does not have control over all the requirements of the information, meet the requirements of mandatory information, the major consideration is to reduce costs for minimum benefit, while when the request for the discretionary information the Major consideration is the benefits derived
exceed the cost. Is also linked the quantity and nature information processing to the task and technical uncertainty, the task or technical characteristics are the determinants of basic properties of information (Chong; 1996: 416).

Choe assumed the company efficiency is an appropriate process between the uncertainty caused by the technological characteristics and the Company's ability to provide participants with the required information (Choe; 1998: 190).

The Advanced Manufacturing Technology (AMT) on solid components (Hardware) for the manufacturing process and can be defined as consisting of technological advances in automation that can be used in the production process (Harrison & Pool; 1997: 562).

When the use of technology advanced manufacturing, the uncertainty of technical or circumstances relating to work are different from those relating to production at large, if changed technological conditions in a company may show the need to take new decisions and problems of new regulatory disappear then the old, causing ambiguity in dealing with the new decisions and activities control in advanced manufacturing technology, which requires the need for different amounts and types of accounting information (Bruggeman & Slagmulder; 1995: 245).

The difference and the diversity of consumer tastes in contemporary society to make the product life cycle is shorter has resulted in that the companies producing multiple products to a lesser extent and highlights to us the role of the AMT as it allows the company to respond to the changes technology faster than before, as well as respond to the changing market environment- as mentioned in first chapter- and this by
introducing new products more and view a broader product lines (Sanchez; 1995:136).

AMT facilitates the planning and implementation of products in a timely manner as the product design and manufacturing cycle can change almost instantaneously to meet the changes according to the needs of the market. For the purpose of capitalization, full in the promotion of AMT in the treatment of market information and matters pertaining to engineering and production process taking place in the company, it is necessary to use a strategic partnership between its operations (such as research and development, re-engineering and manufacturing) and external components related to the product and process development (such as processors, vendors) (Parthasarthy & Sethi; 1993: 531).

So when is the use of AMT, the accounting information systems must produce an enormous amount of information used in planning as well as private information to go into the future in order to fit the variables repetitive and rapid in the products (Otley; 1994: 297), as well as to suit the requirements of the change in the external environment including support the competitive position of the company for the purpose of management integration and participation within and across manufacturing jobs in advanced manufacturing technology its need for large amounts of information control and coordination (Nanni et al; 1992: 6). Have resulted in AMT to the extensive contribution of fixed cost of product and as a result of this, the control of costs and analysis used direct costs or variable costs may become more important in the technology of advanced manufacturing because of the increased risks inherent in fixed costs increased (Scarbrough et al; 1991: 29).
For the purpose of planning control over the costs and production control, the information planning and control of conventional is supplied through the standard costs, budgets, direct costs and variable costs and can be used costs based on activities (ABC) and life-cycle costs for the purpose of control and coordination of overlapping activities (McNair; 1990: 15) the information gathered in the ABC on the basis of the main activities carried out by company (as is the case for the costs caused by the activities) and that this information provides a basis for understanding the changes in the course of a company's activities that affect the other activities. Permission of the ABC Company can be identified and properly monitor the complex interrelationships among the functions and activities.

But in reality there is much debate that the financial metrics a few relevant at advanced manufacturing technology, they do not reflect and are consistent with the strategic factors in quality, flexibility and reliability in processing which are now essential and important to the success of company (Bledsoe & Ingram, 1997: 44).

For the environment of advanced manufacturing systems are non-financial performance measurement more convenient than the financial systems (Abernethy & Lillis; 1995:257).

And that the AMT provides various strategic benefits such as improved quality and reduce delivery time, and to support and assess the achievements of the strategic advantages need to be non-financial performance information. When using the AMT's high standards of performance should exceed the sections and lines due to overlap of the partnership between the functional sections of the company. The required performance measurement systems in advanced manufacturing
technology should consist mainly of non-financial performance information (Lessner; 1989: 23).

The previous view of the types of information requested in the service companies or industrial use of advanced technology researcher finds that there is an urgent need for performance information of non-financial information and control and planning that are provided by accounting systems as the help of information technology to provide fast and in large quantities, accurate and timely manner, which requires that you know employees in the company’s information technology, to improve their performance and then the company’s performance. And it is clear from the above correlation between (AMT) and the accounting information in many areas and functions, including planning, control and re-evaluation and interdependence with the environment and consumer tastes and look toward the future and supports the relationship between accounting information and the company’s performance and strategic direction and this is what’re going to explain in the next paragraph.

### 3.4 Accounting Information Systems and the Company’s Strategy and their Relationship to Information Technology:

A conceptual framework for accounting information systems for the process did not specify the strategy so far has researched many of the academics that the information obtained from the traditional cost accounting system is not sufficient to take strategic decisions (Arajo; 1999). As a result, has developed different methods of the literature of accounting recently for the purpose of integration with the attributes of management accounting (such as value chain analysis, properties of the cost, product cycle time) as well as the practices of professionals and researchers since have made clear that management accounting is still
focused mainly on the costs to help control the activities by knowing the costs. In the late eighties increased controversy and criticism about the accounting practices the traditional administrative widely been provided new approaches in line with the competitive business environment at present and despite the proliferation of the management accounting, but that there is no comprehensive conceptual framework of what is meant the management accounting strategy (Tomkins & Carr; 1996: 271).

The strategic management accounting is an emerging field borders are still not coherent and well being, there is no unified idea of what they mean, as the available literature in this field are still not compatible with each other (Coad; 1996: 390). Is known (Innes) as a strategic management accounting processed information to support strategic decisions in the company and that the strategic decisions concerning the long term and usually include an internally and externally as well as the element that have a significant impact on the company (Innes; 1998:67).

The consort with this view (Cooper & Kaplan; 1988: 96) which made it clear that the accounting techniques strategic mission to support the strategy overall competitiveness of the company and through the use of information technology for the purpose of increasing analysis of the product costs or service, as attributed most of the initial studies on accounting management strategy to the writings of Simmonds that management accounting should be its view to the outside and should help the company to assess its competitive position relative to the rest of the industry and by collecting data on costs, prices, sales volume, market share, cash flow and availability of resources to its competitors presidents (Simmonds; 1981: 26).
The (Bromwich) was indicate the importance of accounting information for strategic process by providing them with analysis of financial information for company’s markets products and the cost of competitors and control strategies for the company and provide information on its competitors in these markets for several periods (Bromwich; 1990: 78). As pointed out by (Lord) of the importance of expanding the internal focus of accounting traditional management to include external information about competitors for the purpose of obtaining competitive advantage through cost analysis and reduction and the promotion of diversification and discrimination on the company’s products through the exploitation of the links in the value chain and drivers cost (Lord; 1996: 349). As explained (Romeny et al; 2002:6) that the new developments in information technology has influenced the design of accounting information systems on the one hand and the culture and the company's strategy on the other hand, the AIS should be designed to reflect the values and culture of the company, which in turn affect the AIS, such as method of publication and distribution of information, and the company’s strategy affect the AIS and therefore can accounting information systems add value to the company by understanding and study of its strategy.

Information technologies, including Internet-based information systems, are playing a vital and expanding role in business. Internet-based information technologies and information systems have become necessary ingredients for business success in today’s dynamic global environment (O’Brien & Marakas 2006, 4). Information systems and their technologies must be managed to support the business strategies, business processes, organizational structures and culture of a business enterprise (O’Brien & Marakas 2006, 16).
The researcher believes that the accounting information have a prominent role in the strategic process through the use of information analyzing costs and financial information on the one hand (as confirmed by many researchers, etc.) and through the use of information technology on the other hand through the management of accounting information, the way in which managed the information in Company determines the survival and growth in the future (Druker; 1988: 45). As well as the strategic role of information technology as a strategic resource for the company contribution in increasing the efficiency and effectiveness of the company through the provision of large amounts of information in a timely and proper way under the conditions of intense competition and the globalization of business operational (manufacturing, marketing), organizational changes and the revolution in technology (Sheth; 1994:5).

As pointed out by Porter of the relationship of information technology strategy by highlighting on the Internet as part of their overall business and not be part alone is separate from the business, this new technology will become a large force to achieve a competitive advantage only when the integration of Internet with the strategy (Porter; 2001:77) . Thus, we found a link accounting information and information technology strategy and its relationship to the operation became necessary for us to identify the accounting status of the strategic relationship.

3.5 Accounting Information Systems and the Strategic Situation:

Under conditions of globalization and intense competition and the revolution in technology will be addressed in the most common strategies used by the companies mentioned in the literature of strategic management in the various categories of the strategic situation that can
be selected by the organizations. And those companies can choose the three main strategies for the purpose of achieving competitive advantage, as described by Porter 1985, namely:

1 - Cost leadership strategy: means the company's goal is to reduce the cost of the product on the level of the industry.

2 - Discrimination strategy: the company aims to create unique features of the product or service that customer’s value when imposed as the prevailing price.

3 - Focus: The search feature in the portion of the market and that the mediation of discrimination or cost leadership (Porter; 1985:150).

There are two types of strategies that have been identified by (Miles & Snow: 1978) (Defenders and the Prospectors). The defenders who are working in areas of relatively stable and have limited product lines and production technology using broad understanding compete by focusing on operational processes affecting leadership through cost, quality, service, and paying little attention in the research product and the market. The Prospectors understand compete through innovation in new product and the search for new markets, and provide multiple products and use of sophisticated technology, numerous and very interested in research and development, so do not make sure they face growing environmental (Drury; 2004:469).

Accounting literature has indicated that companies rely on accounting techniques adopted by the strategic situation. For example, the business unit that follow the strategy advocates tend to use financial metrics (such as short-term budget), while the companies that follow the strategy of prospectors put greater attention on the data to predict and reduce the importance of cost control (Simons; 1987:370). And that the companies
that they should follow the creativity of non-financial metrics used to
determine the incentives by the executive management and the increasing
use of non-financial measures with the extent of creativity that followed
by company's strategic prospector (Ittner et al; 2003:89).

He also stressed Shank need for management accounting to support the
competitive strategy of companies and explained that the difference
between the two strategies (the leadership of the cost and distinguish the
product) require different perspectives to analyze the cost For example,
the standard cost of product engineering appropriate and very important
to use a tool of management control (the company that follow the
strategy of the cost leadership) on product life cycle on the contrary, the
criteria for manufacturing Engineering cost be less important for
companies that follow the strategy Characterize the product (bound for
the market), where rapid change and growing business. The company,
which Follow the strategy of product excellence they require more
information about the cost of driving the cost of innovations
The new product, design cycle time, the expenses of research and
development and marketing cost analysis (Shank; 1989: 51).

Porter 85 also confirmed the use of value chain analysis to obtain a
competitive advantage and that the goal of the value chain is to find a
correlation between the activities that create value at minimum cost and /
or create a distinction in the product. This interdependence can be within
the company or between company and suppliers and customers. The
value chain includes five activities of the [internal logistics, operational
business, external logistics, marketing, services after-sales] and
secondary activities to support key activities include the infrastructure of
the company (management of human resources, technology, acquisition
of assets). The pattern of behavior in all activities cost depends on the number of causal factors which are called cost drivers, and these drivers work in an interactive and are factors in determining the success of management cost structure. This information helps to know the opportunities for the purpose of reducing cost while improving control over the router cost or reconfigure the value chain and help to compare the benefits in the activities of the value chain and identify activities that add value, and determine the processes, reduce the cost of performance (Porter; 1985:156).

And other contributions in the strategic management accounting through products that offer benefits to customers and how these features contribute to sustainability of competitive advantage by comparing the relative costs of the properties of the product with what the customer wants to pay for the product (Bromwich, 1994: 28).

The view researcher through the most common of these practices, Accounting to intervene in the strategic situation that can be chosen by the company and have a prominent role and is important in achieving the company’s strategy and achieve competitive advantage under conditions of intense competition.

3.6 Advantage of Electronic Accounting Information Systems:

A big advantage of computer-based accounting information systems is that they automate reporting. Reporting is major tool for organizations to accurately see summarized, timely information used for decision-making and financial reporting. Managing a business today primarily means making the right decisions at the right time. In a highly competitive environment, it survives that company that makes better decisions and
works more efficiently and not necessarily that who makes better products or services.

Accounting systems can aid our decision making by providing information relevant to the decision and to the decision maker. Accounting systems also provide check for the validity through the process of auditing and accountability (Gray, et al; 1996). Effective and efficient accounting information plays a central role in management decision making. Accounting systems have also had to keep pace with this change. Integrated information systems, which accurately and simultaneously present information using current technology, and advanced reporting devices which support management, have led to more realistic costs in advanced production systems and thus advanced budgeting has caused significant changes to managerial accounting applications and managerial accountants.

The accounting information system pulls data from the centralized database, processes and transforms it and ultimately generates a summary of that data as information that can now be easily consumed and analyzed by business analysts, managers or other decision makers.

A company’s manager, in order to make decisions or business choices, wants to have all the available information about the decision problem on the table. Nevertheless, statistics and researchers’ studies shows that managers often receive either incomplete or incorrect information, or right information, but arrived with delay and therefore useless. In fact, specialists say that it is virtually impossible to simultaneously achieve a maximum level for all the qualities of information (Gelinas & Sutton, 2002).
These systems must ensure that the reports are timely so that decision-makers are not acting on old, irrelevant information and, rather, able to act quickly and effectively based on report results. Consolidation is one of the greatest hallmarks of reporting as people do not have to look through an enormous number of transactions. For instance, at the end of the month, a financial accountant consolidates all the paid vouchers by running a report on the system.

To analyze information and locate the real useful things, manager needs not only to dig in this mountain of information (data mining tools), but to be able to extract the substance, find patterns and types of behavior, find possible errors or a typical variations, or just give explanations and suggest solutions. Recently managers desire computer tools that are capable to make predictions or elaborate scripts based on company’s historical data.

The system’s application layer retrieves the data from the database and provides a report with the total amount paid to its vendors for that particular month. With large corporations that generate large volumes of transactional data, running reports with even AIS can take days or even weeks.

AIS have a multitude of functions and applications. It helps investors evaluate the risk and return they can expect from their investments. It also provides a means for owners and managers to determine the amount of compensation managers will receive, It is useful for identifying the type and locations of an organization’s resources, It helps managers assess employee performance (Ingram& etal: 2004, 18). Today, all this aspects of decisions automation can be solved with specialized intelligent systems.
Accounting is also facing such an information overload. Domains like audit and internal control, where the volume and complexity of information that must be checked and looked after are huge, managerial accounting, where the amount of information grows at the same time with the business itself or the tax legislation usage, which in some countries is very complicated, justify development and utilization of accounting intelligent systems that support manager.

3.7 Accounting Information Systems and Enterprise Resource Planning System:

Enterprise resource planning (ERP) systems help companies to manage the increasingly complex processes created by the globalization of markets. An ERP system extends the centralized database concept to include customers and suppliers as part of the business value chain. The ERP system will (1) handle all currency transactions (including exchange rate conversions), (2) update inventory, And material requirements planning (MRP) subsystems, (3) provide distributors with the necessary supplier and customer details, and finally (4) update all accounting processes. So information is shared among the various subsystems of a manufacturing business. In many cases, much of this organizational information is fragmented, with key departments having their own computer systems. These stand-alone systems can create inefficiencies in the management and control of information by encouraging data duplication and the proliferation of incompatible software applications.

In fact, (Chenhall;2003:128) argued that the mission of the AIS has risen from the simple provision of formal and financial information to encompass a broader range of information. The use of enterprise resource
planning (ERP) technology has facilitated the embodiment of this new vision.

An ERP is a complex set of computer applications designed to integrate the processes and functions within the same company. This system is able to present a holistic vision of the company’s business by sharing a common and integrated database. In the era of the ERP system, the AIS have become richer. The amount of information has become more important, and the data are updated and relevant. Database systems have been developed whereby a company’s information is integrated and stored in a single source, called the database (John, 2005:15).

The database concept allows users to have immediate access to the entire business information resource. The software of Indian oil companies, SAP is a major supplier of ERP systems. Its includes a fully integrated suite of programs for finance and accounting, production and materials management, quality management and plant maintenance, sales and distribution, human resources management, and project management. It is also capable of handling different countries’ languages and business regulations. Thus, the use of new management accounting techniques that meet the internal needs of the company, thus the AIS provides both historical and forecasting accounting information that covers financial accounting, management control and financial analysis. At this stage, about the ability of such an information system to improve business performance. Using innovative ideas and automation techniques to address accounting issues is a common concept within the field of information systems (Martin, 1996).

Over the past two decades, due to this proliferation of computers and automation of systems, it is now possible to provide decision-makers with accounting information that previously has not been cost-effective to produce. Despite significant advances in financial reporting and
accounting systems, these systems have generally not kept pace with the available information technology, although there have been attempts to move the accounting profession forward into new technology (Woodward, 1996). Elliot (1995) suggests that if accountants want to maintain the value of their services, they will have to keep up with technological advances.

The Financial Accounting module in SAP is designed to capture organizations business transactions in a manner that will satisfy external reporting requirements. Local legal considerations are pre-delivered with the system and the ability to manage and report on multiple companies in multiple countries with multiple currencies is part of standard functionality.