Chapter 2

Measurement of Human Asset: Literature Review
“Accounting for People helps provide organizations with the framework to demonstrate the effectiveness of their people strategies and their impact on business performance.”

Fred Goodwin, Group Chief Executive, Royal Bank of Scotland

The assets of an organization are broadly classified into tangible and intangible assets. Tangible assets refer to all physical assets which could be presented in the balance sheet including plant and machinery, investment in securities, inventories, cash, cash equivalents and bank balances, marketable securities, accounts and notes receivable, finance receivables, equipment on operating leases, etc. Intangible assets include the goodwill, brand value, and human assets of a company. The human assets involve the capabilities, knowledge, skills, and talents of employees in an organization.

The physical assets like land, building, plant and machinery are recorded in the books of accounts at their purchase price. Now, depreciation on these assets is considered as the cost for the particular year and debited to profit and loss accounts and the remaining balance is shown in the balance sheet as written down value of the assets. But this system of accounting fails to incorporate the value of human resources to the organization.

However, it is widely accepted that human resources are the most valuable assets of a company. Chairman of most of the companies, in their speech at the annual general meeting, invariably makes a pointed reference to the contribution made by employees towards its success. They are of vital importance and significance to an enterprise and constitute a primary segment of the total resources held. They may be branded as “Mother Resources” through the medium of which other scarce resources viz. machines, material, money are organized, coordinated, directed and controlled. But the conventional accounting system fails to incorporate the value of human resources to the organization. The inability of the conventional accounting system to report on
the human resources in fact, led to the development of human asset measurement. Hence, the human asset should also be evaluated, recorded in the books, operated, and disclosed in the financial statements.

Human resource is an asset whose value gets appreciated over the period of time provided placed, applied, and developed in the right direction (Shah, 2012).

Till date, organizations took very little efforts to give monetary value to human resource in its accounting practice. Behavioural scientists initiated efforts to develop appropriate methodology for finding out the value of human resource to the organization. They were against the conventional accounting practice for its failure to value the human resource of an organization along with physical resources. The traditional concept suggested that expenditure on human resource is treated as a charge against revenue as it does not create any physical asset. At present there is a change in this concept and the expenses incurred on any asset (as human resources) should be treated as capital expenditure as it yields benefits which can be derived for a long period of time and could be measured in monetary terms.

There is still a debate as to whether the human resources of an organization should be considered as an asset and treated accordingly in the accounting system. There are two schools of thought. One says that human resource is an asset and the other does not agree with this.

**What is an asset?**

Asset is anything which is owned by the entity to derive service in future and should have legally enforceable claim. As such there is no guarantee of deriving benefits from the existing human resources in future and has no sales value like other assets. Therefore, legally, human resource is not an asset claims one school of thought. Besides, company law also does not consider it as an asset. But the other school is of the opinion that the "human resource is an asset". This school of thought puts forth two contentions in favour of its opinion as follows:
1) There is a legal ownership on the "human resource" which could in practice prevent him from joining the other organizations unless properly relieved by complying with some formalities like giving advance notice of resignation, etc.

2) Uncertainty of deriving benefits is a common problem to all assets, not only with the human resources. It is a big question mark in deriving future benefit in other assets too due to many factors. ‘Obsolescence’ is one of them.

Generally, an asset requires maintenance and development support from the organization to derive benefits in future for a long time period. Similarly, human resource as an asset also requires training and development in order to maintain the service potential for the employer. Woodruff (1973) observed that treating people as assets and accounting them is logical and satisfactory to the expectation of the future economic benefits.

The above analysis supports the view that the human resource is an asset as they are valuable resources to an organization and investments in such asset will help organization to improve.

**What is an investment?**

Any resource put into service for producing goods and services is called investments. Thus, investment refers to expenditure on new plant and machinery, capital equipments, physical construction of new buildings together with any change in the stock of goods produced. There are two basic determinants of investment.

i) The expected rate of profit which the business hopes to realize from investment, and

ii) The rate of interest.

The level of investment is guided by the level of expected profits. Firms will invest, only if it is profitable. Further, an important cost associated with investment is the cost of borrowing capital, which is the rate of interest. Of these two, the expected rate of profit is more influential than the rate of interest.
**Cost of Human Resources**

Since, human resource is considered as an asset, any expenditure incurred in the acquisition and accumulation of human resource should be treated as an investment and capitalized.

### 2.1 MEASUREMENT OF HUMAN BEING AS AN INTANGIBLE ASSET

From the 1840s to the early 1990s, a corporate value was mainly driven by its tangible assets—value presented in the corporate balance sheet. The management of companies valued these resources and linked all their performance goals and matrices to these assets—return on investment and capital turnover ratio. The market capitalization of companies also followed the value of tangible assets shown in the balance sheet with the difference seldom being above 25%. In the latter half of the 1990s, the relationship between market value & tangible asset value changed dramatically. By early 2000, the book value of the assets represented less than 15% of the total market value (Annual Report of Infosys, 2011-2012).

According to World Banks assessment of 192 countries on average, physical capital accounts for 16% of total wealth, natural capital accounts for 20%, and human capital accounts for 64%. This is much against the general belief that physical capital is the most important productive wealth. The dominance of human capital is particularly marked in high income countries such as Germany, Japan, and Switzerland where it accounts for as much as 80% of human capital out of total capital (Human Development Report, 1996, cited in Singh, 2002).

As intangible assets play an even more important role in companies’ value-creating process than ever before, it has become more important to communicate these “hidden” assets to external stakeholders.

A large part of companies’ value creation process is created by the intangibles such as employees’ knowledge, skills and expertise captured within the human capital. As a result, investors and analysts tend to request information regarding the intangible assets that are not either disclosed in the annual report. Increasing the understanding in the external reporting of the intangible assets must be seen as important to
overcome the information gap existing today, and thereby minimize the negative effects on the capital markets.

An intangible asset is an identifiable non-monetary asset, without physical substance, held for use in the production or supply of goods or services, for rental to others, or for administrative purposes.

An asset is a resource:

(a) Controlled by an enterprise as a result of past events; and

(b) From which future economic benefits are expected to flow to the enterprise.

Monetary assets are money held and assets to be received in fixed or determinable amounts of money.

Non-monetary assets are assets other than monetary assets.

In light of the above definition, human resource can be treated as an intangible asset.

Stewart (2001) said: “It is incontrovertibly true that present financial and management accounting does not give investors, directors, the public, or management the information they need to make informed decisions.” In further support of this position, Ivey (2002) states, “A balance sheet provides a snapshot of a company’s assets at any one moment in time, but how useful is such a snapshot when a company’s currency is its knowledge and that knowledge can be transported in a split second? Enron is an example of the problem. An investor could have looked at his balance sheet in late November and have been perfectly satisfied as to the security of his investment, but by December 2 his investment had vanished in smoke.”

Even still, the Financial Accounting Standards Board (FASB) and International Accounting standard Board (IASB) has been reluctant to effect a change to a system of accounting that reflects the magnitude of this shift and provides a clearly delineated standard method of accounting for human capital as an intangible asset. The investment community appears to be reluctant to initiate change as well, in part due to the failure of so many new economy (dot-com) companies, coupled with concerns
about the interpretation and application of Generally Accepted Accounting Principles (GAAP) by large corporations over the last year (e.g., Arthur Andersen, Enron, WorldCom).

What should be apparent at this point is that the measurement of human asset will never be as straightforward as calculating the value of a tangible asset; there are simply too many variables involved to make this practical. However, it should also be obvious that researchers can no longer fail to recognize the importance of seeking to develop, test, and refine appropriate methodologies to measure the value of what has become for all intents and purposes our primary asset. To give an old adage its due: “what gets measured gets managed.” Simply put, what gets measured stands a better chance of becoming successful within the context of an applied strategic business plan.

If the true value of human asset in the organizations cannot be measured, it is not possible to appreciate in quantifiable terms its true potential and to envision and reap the full measure of the benefits that this essential asset can afford the organization(s).

The value of physical assets of the service sector organizations is negligible if compared with the value of the knowledge, capabilities, and skills of its human asset. Hence, the success of these organizations is contingent on the quality of their human asset, i.e., its knowledge, skills, competence, and motivation.

In recent years, the Financial Reporting Standards used in United States, often referred to as Generally Accepted Accounting Principles (GAAP), have been moving towards adoption of more complex measurement methods compared with the traditional historical cost approach to asset measurement, including a focus on the measurement of the time value of money & present value calculations. Under International Financial Reporting Standards (IFRS), certain assets are now reported at their fair market value at each balance sheet date, & many items on the balance sheet that are non-current are measured at the present value of the estimated future cash flows.

All such complex & alternative measurement approaches, viz., measurement of the time value of money and present value calculations, etc. under IFRS, are somewhat similar to approaches taken in developing HRA value measures.
For example, IAS-38 on Intangibles Assets & IFRS-3 on business combinations allows for the recognition of the intangibles assets - Goodwill. The valuation of Goodwill often involves complex assessments of fair values as well as periodic reassessments to determine whether the fair values have become impaired. These more difficult and challenging measurements of goodwill & other fair values are similar to challenges under the measurement of human asset.

This might suggest the need for & consider the measurement and use of Human Asset Measurement in future external financial reporting.

### 2.2 MEANING OF MEASUREMENT OF HUMAN ASSET

Accounting is a language of business. Originally, accounting was developed as a reporting system; so obviously it had to be historical as also factual. However, later on, the management of business and other stakeholders wanted it to contribute to management decision process. Naturally, that would call for a forward- looking approach; and in that case, it will have to work with forecasts. When everything is opening out being subjected to market forces, there is a case for market value based accounting (i.e., valuation) of human resource (Danak, 2005).

Human Asset Measurement is a term that has both a narrow and more generic focus in the literature with respect to the understanding of the value of people in the contemporary workplace and the contribution of the HR function.

The term Human Asset Measurement has its evolution from the term Human Resource Accounting.

Different authors defined the term “Human Resource Accounting” (HRA) differently. 

*Brummet et al.,* (1968), which worked for the first time under this term on measurement of the human values in an enterprise in the year 1968, defined Human Resource Accounting as:

“Human Resource Accounting is the process of identifying, measuring, and communicating information about human resources to facilitate effective management within an organization.”
Woodruff Jr. defined HRA as “the identification, accumulation, and dissemination of information about human resources in dollar terms” (Woodruff, 1973).

The *American Accounting Association’s Committee* (1973) on HRA defined Human Resource Accounting as follows:

“HRA is the process of identifying and measuring data about human resources and communicating this information to interested parties”.

This definition suggests that HR accounting is a tool that can be used for reporting people as organizational resources in both financial and managerial accounting terms (Flamholtz, 2001).

Flamholtz (1971) defined HRA as “the measurement and reporting of the cost and value of people in organizational resources”.

Stepen Knauf defined HRA as “The measurement and quantification of human organizational inputs, such as recruiting, training, experience, and commitment” (Brummet et. al., 1996).

Human Resource Accounting is a specialized HR audit that continually attempts to quantify the value of organizational human resources (www.crfonline.org/orc/glossary/h.html).

Human Resource Accounting is a method for systematically measuring both the asset value of labour and the amount of asset creation that can be attributed to personal activities (Friedman & Lev, 1974; Lau and Lau, 1978 cited in Rana & Maheshwari, 2005).

Human resource accounting is also a scaling tool that generates and reports quantitative control information about the contribution of human resources for promoting industrial productivity. It can help management in taking many vital decisions relating to selection, lay-off, transfers, training, promotion, etc (Prakash, 1993).

The human resource accounting can be defined as an official document of the organizations, human resources, and their development. It is a summary of the quantitative, qualitative, and work community related resources of an organization (Kinnunen, 2002).
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HRA involved identifying, measuring, capturing, tracking, and analyzing the potential of the human resources of a company and communicating the resultant information to the stakeholders of the company (Chandran, 2007). It is a method by which a cost is assigned to every employee when recruited and the value that employee generated during the tenure he/she worked for the company.

Human resource accounting represents a new paradigm, a different approach to a problem. Specifically, it offers additional quantitative information on which to base a decision as well as a different way of viewing people. Instead of the traditional characterization of the work force as an expense, HRA views the human factor as an asset in a company. Also, Human Resource Accounting (HRA) involves measurement of people as Human Asset. HRA suggests a vehicle for improvement of management as well as measurement of human assets (Flamholtz et al., 2002). Thus, the term ‘Human Asset Measurement’ has been emerged.

Human Asset Measurement can be defined as quantifying the contributions of all employees of an organization to produce value from their knowledge, skills, abilities, and other characteristics as well as the organizational processes, like recruitment, selection, training, etc., which are used to build and support these human aspects.

Also, Human Asset Measurement can create the conditions by which it is possible to quantify the added value that people create in an organization (Singh & Rastogi, 2001). It is a way of measuring the ratio between the investment in people and the contribution made by people (Singh & Gupta, 2010).

Perusal of the above definitions reveals the following characteristics of an operational system of Human Asset Measurement.

- It is a sub-system of the total accounting system which, in turn, is a part of total ‘management information system’. Further, it should not be considered as an isolated technique or a technique to be developed in isolation. Therefore, joint effort by accountants, behavioural scientists, and personnel managers is desirable for the development of a well defined theory of human asset measurement.
HRA identifies and measures the information about the employees of the organization. The information may relate to the expenditure incurred by the company on recruitment, selection, and training of the employees. It is an expression in money terms, of the value of the employees to the organization.

The information provided by HRA helps the management in performing functions of acquiring, developing, allocating, conserving, utilizing, evaluating, and rewarding employees of the organization.

Thus, it is a sub system of the accounting system, in which emphasis is laid on the fact that the human asset, being the most valuable organization Asset, should be properly accounted for and should get a place in the balance sheet of an organization like the financial and the physical resources. It may be emphasized here that such a treatment to the human resources can provide significant and useful for the effective and efficient management of human assets.

2.3 HISTORICAL DEVELOPMENT OF HUMAN RESOURCE ACCOUNTING

Human Resource Accounting (HRA) is an attempt to identify, quantify and report investment made in human resources of an organization that are not presently accounted for under conventional accounting practice.

It itself represents a still quite immature discipline, although it was already seen in bibliographies at the beginning of the 1960s. Admittedly, the political economists of earlier centuries dealt with the evaluation of workforce. It was Sir Willliam Petty who tried to find a monetary value for the effects of emigration and wars in Great Britain in the year 1676:

“…..suppose the people of England be six millions in number, that their expense at 7£ per head be forty-two millions; suppose also that the rent of the lands be eight millions, and the yearly profit of all the personnel estate be eight millions more; it must needs follow, that the labour of the people must have supplied the remaining twenty-six millions, the which multiplied by twenty (the mass of mankind being worth twenty years purchase as well as land) makes five hundred and twenty millions, as the value of the whole people (Petty, 1691)”.
Besides Petty, many of the well-known political economists such as Smith, List, von Thuenen, Marx and Marshall recognized the importance of the workforce and the necessity to consider the human factor in economic account (Gebauer, 2003).

In the 1920s, there were the first corporate decisions dealing with the value of organizational workforce. As an example, General Motors paid for the acquisition of the German car manufacturer Adam Opel AG US $ 33 million, instead of the book value of US $ 18 million. The reason for this was named in the high potential staff of Opel (Sloan, 1963).

Building up conceptual frameworks for the measurement of human asset in corporations only started in the 1960s. Flamholtz et al. (2002) have discussed the development of Human Resource Accounting (HRA) through five stages as follows.

**First Stage (1960-66):** The first phase represented a derivation of HRA concepts from different disciplines such as the human capital theory and the organization psychology. This marked the beginning of academic interest in the area of HRA. Some of the early accounting theorists (Scott, 1925; Paton, 1962) provided support for treating people as assets and accounting for their value. Early organizational psychologists such as Likert were concerned with leadership effectiveness and the “human resource perspective” that was based on the premise that people were valuable organizational resources (Odiorne, 1963; Likert, 1961). In his pioneering monograph accounting for Human Assets, Roger Hermanson (1964) described a model to measure human resource value in external financial reports. Hermanson’s work was instrumental in providing inspiration for the next phase in the development of HRA.

Nobel Price–winning economist Schultz (1961) used Human Capital in his article in American Economic Review. His basic thesis was investments in human capital should be accounted for in the same manner as investments in plant and machinery. Though it wasn’t exactly a new concept, but it did lead to an intersection of the economics and accounting profession, at least in theory. The economists were basically saying investments in people should be treated the same as accountants treat investments in things.
Second Stage (1966-71): In the second phase, from the middle of the 1960s through the beginning of the 1970s, the research began with the development of approaches on the basis of historical and replacement costs as well as monetary and non-monetary values and to assess the validity of models for measurement of human resource cost and value. The aim was to develop some tools that would help the organizations in assessing and managing their human resource/asset in a more realistic manner. One of the earliest studies here was that of Roger Hermanson, who as part of his Ph.D. studied the problem of measuring the value of Human Assets as an element of goodwill. Inspired by his work, a number of research projects were undertaken by the researchers (Brummet et. al., 1968 & 1969, Flamholtz, 1969, etc.) to develop the concepts and methods of accounting for human resource.

Third Stage (1971-76): The third phase, from the beginning through the middle of the 1970s was marked by a widespread interest in the field of HRA leading to a rapid growth of research in the area. It was the time to bring the developed approaches of HRA into operation in different business organizations. Thus, R.G. Barry Corporation was experimented the practice for few years and published financial statements in 1969 that included human assets.

Another indication of the practical dissemination of academic theory was that, during this stage, the American Accounting Association established committees on HRA in 1971-1972 and 1972-1973; and these committees published reports on the development of HRA. The AAA’s involvement proved a catalyst for additional research.

Various research studies have been conducted to find out the impact of HRA information on internal and external decision making. This included studies conducted by Elias (1972), Hendricks (1976), Schwan (1976), Acland (1976), Tomassini (1977), Flamholtz (1976), etc.

In addition to study of the effects of HRA information on decisions, research during the third stage involved the continued development of concepts and models for measuring and accounting for human resource cost and value. This included models developed by Likert and Bowers (1973), Flamholtz (1971, 1972), Myers and Flowers (1974), Ogan (1976), Lev and Schwartz (1971), Morse (1973), Jaggi and Lau (1974), etc.
Fourth Stage (1976-1980): In the fourth stage, the time from the middle 1970s through the end of the 1970s, the development and research in HRA clearly leveled off. The discussions grew silent due to problems with data acquisition and evaluation. The methods of HRA had become so complex that only few people at all had the necessary qualifications for execution. Moreover, the complex issue that needed to be explored required much deeper empirical research than was needed for the earlier simple models. The organizations were not prepared to sponsor such research. They found the idea of HRA interesting but did not find much use in pumping in large sums or investing lot of time and energy in supporting the research (Flamholtz, 2001). Although it waned, interest in HRA did not completely die, and some worthwhile activities took place.

Stage Five (1980 Onwards): However, at the beginning of the 1980s, there was a sudden renewal of interest in the field of HRA partly because most of the developed economies had shifted from manufacturing to service economies and realized the criticality of Human Asset for their organizations. The meaning of the term “human” in economics grew. Since the survival, growth and profits of the organizations were perceived to be dependent more on the intellectual assets of the companies than on the physical assets, the need was felt to have more accurate measures for HR costs, investments and value.

An important outcome of this renewed interest was that unlike the previous decades, when the interests were mainly academic with some practical applications, from mid 90s the focus has been on greater application of HRA to business management. Different types of models to suit the specific requirements of the organizations have been developed incorporating both the tangible and the intangible aspects. Also, larger number of organizations actually began to use HRA as part of their managerial and financial accounting practice. For example, in India, various companies in public and private sector like HPCL, CCIL, Infosys, and Rolta are currently showing the value of their human resources in their annual reports.

Today, human and intellectual capital is perceived to be the strategic resources and therefore, clear estimation of their value has gained significant importance. The increased pressures for corporate governance and the corporate code of conduct
demanding transparency in accounting have further supported the need for developing methods of measuring human value.

### 2.4 OBJECTIVE OF HUMAN RESOURCE ACCOUNTING

Human resource accounting has an objective to enhance the quality of financial decisions through the provision of information on human capital to internal and external users of such reports (Flamholtz, 1985).

In fact, as outlined by Flamholtz (1999), HRA had three main roles; to provide organizations with objective information about the cost and value of human resources, to provide a framework to guide human resource decision making and to motivate decision makers to adopt a human resources perspective.

The goal of human resource accounting is not to be the tool for the compilation of different statistics. Its purpose is to provide assistance for the management when analyzing human resource. This requires goal-oriented and persistent work on developing human resource accounting (Kinnunen, 2002).

Likert one of the earliest proponents of the subject has listed the following objectives of human resource accounting (Likert and Pyle, 1971).

- To furnish cost value information for making management decisions about acquiring, allocating, developing and maintaining human resources in order to attain cost-effective organizational objectives;
- To allow management personnel to monitor effectively the use of human resources;
- To provide a sound and effective basis of asset control, i.e., whether assets are conserved, depleted or appreciated;
- To aid in the development of management principles by classifying the financial consequences of various practices.

It is possible to use human resource accounting to aid in the budgeting of human resources recruitment and development. This is accomplished by listing the actual
amount of money being spent to conduct activities in recruiting and developing people. The hard costs included in human resource replacement cost are the actual investments in human resources, which reflect the historical direct costs of recruiting, orientating, and training people. By using these hard costs and combining them with the human resource demands, a company can budget its personnel activities more reliably. The system of accounting for replacement cost in people is an attempt to improve the quality of information available for facilitating effective human resource management. Specifically, the system provides information that is necessary for a cost/benefit analysis and decision making in such areas as employee turnover, separation indemnity, duration of labour contract, and personnel budgets in monetary term, etc. (Tang, 2005).

All activities of HRM (Human Resource Development, Human Resource utilization, Human Resource Environment) are crucial to meet the business objective of an organization successfully. The provision and utilization of physical and tangible assets to meet the organizational goals will depend solely on the capability, knowledge, and skills of human resources. Therefore, the correct accounting of these costs also assumes great significance as it reflects the financial result depicted by the profit and loss account and financial position depicted by the balance sheet. These expenses should be treated as in investment on employees and should be shown as Human Assets in the balance sheet (Chakraborty, 2007).

Human Resource Accounting is the technique of treating expenditure on the development of employees as capital investment. Accountants are frequently dismissive of this, arguing that it is impossible to put a monetary value on Human Assets that would be generally acceptable. Other commentators suggest that it is not just a technical problem, but also an ethical one: should free human beings be regarded as assets in the same way as legally owned property?

2.5 USES OF HUMAN ASSET MEASUREMENT

A well-defined system of Human Asset Measurement helps in improving the internal management decision-making process. R.G. Barry Corp. of USA engaged in manufacturing and a public company listed on the American Stock Exchange reported
for the first time in 1969 two columns i.e., ‘Financial only’ and ‘Financial and Human Resource’ (cited in Singh, 2002). It introduced this system for internal management use only. But “the fact that Human Asset Measurement is not acceptable in accounting for financial reporting is not a restriction on its use for internal reporting to the management.” Its basic philosophy is that economic value of an employee to the organization increases with education, training, and experience. The operational system of Human Asset Measurement offers the following advantages to the organization:

a) It helps the management in measuring the value of human resources of the organization. It is one of the indicators of health and profit-making potential of the business concern.

b) If the employees are confronted with their time cost to the company, they may be motivated to confine their talks to productive purposes only. It is assumed that any motivational value of such knowledge is directly related to the manner in which the management uses and reinforces knowledge of hourly cost of Human Asset (Figler, 1975).

c) It helps the management in taking many vital personnel decision relating to
   • Direct recruitment versus promotion
   • Transfer versus retention
   • Retrenchment or relieving versus retention
   • Utility of cost reduction programme in view of its possible impact on human relations.
   • Impact of budgetary control on human relations and organizational behaviour.

   Thus, the use of system of human asset measurement will definitely improve the quality of management (Bardia, 1989).

d) Normally, immediate expenditure on training of personnel is the criterion to decide whether or not to undertake a particular personnel project, but it provides the management with information about the value of the employees covered by
the training programme. It is quite possible that the management may undertake such a project which it would not have undertaken in the absence of valuable information provided by the human asset measurement system.

e) It also helps the investors in obtaining information about human asset of the company. Rate of return on investment under conventional system of accounting and that under human asset measurement is bound to be different. This is due to the fact that conventional accounting treats all expenditure incurred on human asset as revenue whereas under human asset measurement, it is capitalized and amortised over a period of time. This difference in rate of return caused by the difference in the mode of treatment of expenditure on human asset by the human asset measurement and conventional accounting may materially affect investors’ decision.

f) It serves the social purpose by

- Identification of human resource as a valuable asset which helps in prevention of misuse and under-use due to thoughtless or rather reckless transfers, demotions, lay-offs and day-to-day maltreatment by supervisors and other superiors in the administrative hierarchy;
- Efficient allocation of resources in the economy;
- Effecting economy and efficiency in the use of human resources; and
- Proper understanding of the evils effect of avoidable labour unrest/disputes on the quality of internal human resources (Khandelwal, 1979).
- Considering the importance of labour welfare activities on the long term profitability.

For example: Company X has spent considerable amounts on labour welfare activities and maintaining efficient customer services. Y Company has saved labour cost by avoiding labour welfare expenses and also has reduced raw material cost by using a substitute material of lower quality. Company X’s profit has gone down from 15% to 10% whereas it has gone up from 10% to 15% in case of Y Company. The latter has increased its rate of dividend whereas the former has reduced it slightly.
The financial analysts have rated the current performance of Y Company better than that of X Company. This interpretation is actually based on short-term result shown by accounting statements. In the long run, the Y Company is bound to loose the value of internal as well as the external human resources whereas X Company is likely to improve its performance due to improved labour relations and customer satisfaction. If we try to evaluate the value of human resources, such short-term faulty analysis, and interpretation can be avoided and decision-making can be improved. If we consider the human resource value aspects carefully, it would appear that Y Company is increasing its earning through liquidation of its human resources and, therefore, this temporary increase in the rate of dividend should be deemed as payment of dividend out of capital. In the long run, this company may have to face sickness or death due to the declining value of human resource.

The Managing Director of a company generally favours taking decisions regarding transfer, promotion, demotion, retrenchment, etc., on the basis of certain traditional rules. He believes in strict control based on authoritarian style. He feels that savings may be affected through reduction of workforce and tight supervision. This policy has improved net profits initially but now the Personnel Manager is concerned at increasing labour turnover ratio and falling labour productivity. The companies are also faced with impending labour unrest.

g) It helps in increasing productivity of the human asset, because, the fact that a monetary value is attached to human resources, and that human talents, devotion, and skill are considered as valuable assets and allotted a place in the financial statements of the organization, boosts the morale, loyalty, and initiative of the employees, creating in their mind a sense of belongingness towards the organization that acts as a great incentive, giving rise to increased productivity.

The decisions regarding Human Asset cannot be taken properly unless the relevant, timely, and accurate information regarding human asset is made available to the decision makers” (Singh & Rastogi, 2001).


2.6 CHALLENGES OF HUMAN ASSET MEASUREMENT

“Human Asset Measurement is not a completely developed theory but only a framework of a theory that has a promise”.

(Paperman & Martin, 1977)

The Challenges of Human Asset Measurement are of follows:

1. The ownership of human asset is practically impossible, therefore, it cannot be considered at par with other assets (Narayan, 2010).

2. The measurement of Human Asset is subjective and based on several assumptions. Subjective as different firms will use different methods for this purpose. Assumptions like an employee will remain in the same position throughout his tenure in a company and that the total earnings of a group of employees can be used to calculate the average earnings of an employee, has obvious flaws. Till today, no model for valuation of Human Assets is widely acceptable and used worldwide.

3. Tax authorities have not recognized the concept of human asset measurement and therefore, it has only academic utility. Unless and until it is made mandatory to disclose the values of Human capital or Human Assets by the accounting standards board, the Direct or Indirect Tax Authorities will not take measurement of human asset into consideration.

4. There are a number of specific objective procedures for the selection of the factors to be included in the valuation of human resources. Therefore, the subjective approach of the value in their regard makes it less reliable.

5. It involves ranking of employees which may lead to division among employees and unions. This may be the reason to oppose the idea. A group of employees may be valued lower than their real worth owing to reasons beyond the control of management.

6. There is little empirical evidence to support the idea that Human Asset Measurement is an effective tool to measure the worth of people to their organization and facilitates better and effective management of human asset.
7. Measuring of Human Asset will lead to additional expenditure which should be weighed against the benefits expected to flow from it. This will lead to increase in accounting cost but nothing has so far done to assess its benefits.

2.7 MAJOR ISSUES OF HUMAN ASSET MEASUREMENT

The following are the major issues which should be considered for implementation of HR accounting. They are as follows:

1. The traditional accounting procedures, which have been practiced since long have come to stay as acceptable norms. As a result, whenever a new accounting system is developed, it is pitted against the strengths of the traditional system, which is considered to be comparatively objective and free from any bias. Similarly, in the case of human asset measurement also, it is argued that it lacks symmetry with traditional resource, therefore, it cannot be included with in the traditional definition of an asset that of a human.

2. There is little agreement concerning the procedure in measurement for human assets. There are proponents and critics of the various approaches like cost and value approaches. This factor has become responsible for the slow development of the concept of human asset measurement.

3. The historical cost approach to develop measures of HRA uses an amortization rate, which provides the figure of amortization to be charged to the profit and loss account every year. But it is very difficult to develop norms in this regard. Physically and mentally, individuals grow and deteriorate at different rates. Some grow more capable as a result of their work experience, others do not. Given the difficulty of predicting such changes, it is even more difficult to develop a means of writing off an individual’s value. So far, precise measures for amortization of human assets have not been developed.

4. Another issue which has not been settled so far is about the rate at which the prospective stream of contribution is to be discounted or compounded to calculate its present and future value to the organization. A number of applications are available in this process.
5. If an individual is to be valued normatively, the model given by Flamholtz, 1973 expects that the career path of individuals should be plotted over the span of his probable stay with the organization in the light of the current promotion, and retirement policies of the organization. But such exercise is tedious.

6. It is possible that apprehension regarding the effect of Human Asset Measurement on human behavior may have forced the organization to be reluctant to use this system. It may lead to alienation as the people might feel that they have been reduced to as industrial input commodity. Publicizing of human asset data could have disastrous effect on the attitudes of employees (Narayan, 2010).

7. The physical assets can be owned and traded by an organization but the human assets cannot and can be only utilized in this regard. The physical assets have some realizable value of retirement but the human resources do not have any such value. They may involve payments of retrenchment, compensation, gratuity, and other benefits. Human resources is an appreciating asset since manpower improves with time, with due regard to their ageing constraint, but for physical asset its increasing value at the time of its installation, starts immediately depreciating.

Verma & Dewe (2006) found that very few respondents had detailed plans in relation to implementing the valuation of human resources, but most respondents did state that they had plans to introduce some measures in relation to human resources over the next five years. Despite this, only a minority of respondents considered that there would be significant progress, with most identifying little or moderate progress.

2.8 HUMAN ASSET MEASUREMENT INFORMATION AND DECISION MAKING: A REVIEW

Since 1960s, there has been an increasing evidence of interest in measurement of Human Asset. Efforts have been made to develop valid and reliable measures in order to provide information about Human Asset Cost and Value for management decisions. Interest has also been evidenced in assessing the usefulness of such information for decision-making.
As seen in the figure 2.1, there are six key aspects of organizational performance, including markets, products, resources, operational systems, management systems, and culture. In addition to these six key “strategic building blocks” of successful organizations, another critical dimension to measure is “financial results”. This means that there are seven dimensions of performance or key result areas that are the focus of management control. As noted above, measurement is a critical component of a control system. The basic notion of a control system is that there must be goals, measurement, evaluation, and related rewards for all critical aspects of performance. This means that it is necessary to be able to measure a key result area for it to be included in a control system. Accordingly, human resource accounting can serve as the tool to measure the critical aspects of human resource performance so that it can be a component of an organizational control system (Flamholtz & Main, 1999).
Singh & Gupta (2010) in their research study showed the importance of valuation of human asset by proving that the cost incurred on employees could not be used as a surrogate measure of their value. Also, the various organizational and Environmental factors relating to human asset had an impact on organization’s human asset value. Values calculated by using the human resource valuation model (Singh, 2002) provided the information for strategic decision making particularly relating to the human resource decision problems.

This chapter examines the research studies carried out so far to assess the impact of information on Human Asset Measurement on decision making. The section is divided in four parts.

2.8.1 Studies dealing with the impact of Human Asset information on attitudes and performance;

2.8.2 Studies dealing with the impact of Human Asset information on management decision making i.e., intra-organizational (internal) decision making;

2.8.3 Studies relating to the impact of such information on the decisions of external users of published financial information i.e., extra-organizational (external) decision making;

2.8.4 Studies dealing with the impact of Human Asset information on the decisions of external users as well as on management decision making.

2.8.1 Impact of Human Asset Information on Attitudes and Performance

Dermer and Siegel (1974) assessed the usefulness of behavioral measures in accounting for human resources. Usefulness was evaluated by determining the extent to which employing behavioral measures can accomplish the stated objectives of human resource accounting. Thus, the study was framed to determine if behavioral variables such as motivation, effort, group cohesion, and satisfaction actually affect significantly task performance and to determine whether providing measures based on such variables to managers, in fact, would improve the administrative effectiveness of the organizations. Sixty-five MBA students of a University of Toronto Management Information Systems Course participated in the study. A comparison of the
correlations computed with the behavioral variables leading performance revealed no significant or a systematic relationship among any of the four behavioral variables and performance. There was little support for the existence of a causal relationship between the behavioral state of a human organization and its performance. On the basis of results found it was recommended that the proposal to capitalize human resource-related expenditures cannot be justified by the assumption that they improve the condition of the human organization and, hence, will eventually contribute to the earning of revenue. For example, the results of the study indicated that expenditures to improve motivation or group cohesion (e.g., by sponsoring courses) should not be capitalized because they might not result in increasing a firm's income in later periods.

Gordon & Rhode (1977) found that when human resource accounting type information and salary data were disclosed in the experimental setting of a business game, disclosure of salary data had no significant effect on group relations yet the HRA information disclosure tended to produce negative effects on both performance and group relations. Thus, group performance was significantly lower under HRA information disclosure and group atmosphere was high under salary disclosure and lowest under disclosure of salary plus HRA information.

2.8.2 Impact of Human Asset Information on Managerial Decision Making

Although HRA could be used in some form to improve financial reporting, probably the most important benefit of HRA is that it is a managerial tool. Management can use HRA measures for its personnel decision making. If management has gone through the process of measuring Human Asset and has quantitative information relating to Human Asset available, it is likely that important management decisions such as those involving recruitments, job allocation and layoffs will be made differently. The researchers discussed below have made attempts to determine the impact of availability of HRA information on managerial decision making.

Flamholtz (1976) designed laboratory experiment to determine whether human resource value numbers influence a selected human resource management decision—the ‘personnel allocation’ (job assignment or staffing) decision. The basic objective of the experiment was to test whether reporting numbers generated by human resource
valuation methods will affect the personnel management decisions. The personnel allocation decision was chosen to study the impact of human resource value numbers.

For the study, he made use of two cases and asked his respondents to choose between two individuals for a job assignment. The data provided in each case were different. First, the decision makers were provided with traditional personnel performance evaluation information and were asked to make a decision. After this, they were provided with information derived from human resource valuation procedure and were requested to specify their decisions. The case related to the assignment of one out of the two individuals to a particular job. The respondents were also requested to give reasons for the choice of a particular individual. The subjects for the experiment were 35 certified Public Accountants (CPAs) in a large US public accounting firm.

The study was aimed at testing the hypothesis that there is no difference in decision made ‘using’ (i) traditional performance numbers; (ii) non-monetary human resource valuation numbers; and (iii) monetary human resource valuation numbers. It was tested using the Cochran Q Test and the McNemar Test. The above tests revealed that the observed differences in decisions under the three treatments were statistically significant at 2 per cent level of significance. Thus, the hypothesis was rejected. It was concluded that there was overall difference among the decisions made. However, this difference in decisions was observed between traditional performance numbers and the human resources value non-monetary numbers relating to the selection of an individual for a job assignment.

The McNemar Test, used by Flamholtz, found significant differences in decisions by those who used traditional trait evaluation relatively to those who used both the monetary and non-monetary human resource value data. The results also indicated that non monetary human resource value numbers might influence decisions. However, it could not be established that monetary human resource value numbers made a difference in decisions.

Tomassini (1977) made a study to assess the impact of human resource accounting on managerial decision preferences and established a relationship between human resource accounting, cost estimates and the related managerial preferences in a
personnel lay off decision. He conducted the study to test the hypothesis that there are no differences that exist in personnel lay-off decision preferences stated by (i) managers with access to conventional accounting data, and (ii) managers with access to both conventional accounting and human resources accounting data.

Tomassini’s study was promoted by the call of American Accounting Association’s committee on human Resource Accounting to find out the behavioural impact of HRA information. For the purpose of his study, he made use of Excellent Electronics Case (Flamholtz, 1974). Two versions of this case were prepared and the subjects (N=52) were students of a University of Texas at Austin. The case related to the possibility of a personnel lay-off in a company. Two sets of the case were prepared- one containing the conventional accounting data and the other, besides the conventional accounting data, included HRA data. The subjects were divided into two groups: an experimental group, which had access to conventional accounting data, as well as HRA data; and a controlled group which had access to only conventional accounting data and were asked to specify their preferences for the four alternatives.

The data were then transformed to a common scale, based upon the ratio of each alternative preference score to the total of all four alternatives. This was done to make the results of the two groups comparable.

Tomassini computed t-statistics to compare the means of the two groups and found that preferences of the two groups toward the decision alternatives were significantly different at the 0.002 level for each alternative considered. This concluded that the HRA cost estimates caused different managerial preferences in this personnel layoff decision context.

**Oliver and Flamholtz (1978)** conducted a study dealing with the perceived information content of human resource replacement cost numbers and the effects of certain cognitive characteristics on the processing of this information in a selected personnel decision. The study is relevant both to Human Resource Accounting (HRA) and the field of Human Information Processing (HIP).

They designed a laboratory experiment to answer two basic research questions involved in reporting human resource replacement cost numbers:
1. “Do human resource replacement cost numbers reduce the individual decision maker's perceived uncertainty that the decision made by him (her) was an optimal one?

2. Do the cognitive characteristics of the decision maker affect the perceived information content of the HRA data provided?”

University senior and graduate students were selected as subjects. Three groups were used; all were classes in management decision making. The primary reasons for selecting these students as subjects were the availability of large numbers (n=73), control over intervening variables influencing their decisions, and knowledge of their backgrounds.

Based on the research questions, two primary null hypotheses were formulated for testing.

H01: There is no difference in the perceived certainty of making an optimal decision using (1) Conventional accounting data and qualitative statements about hidden costs of the layoff, and (2) Conventional accounting data combined with human resource replacement cost numbers.

H02: There is no difference in the perception of information content for subjects with differing cognitive characteristics.

H03: There is no difference in the perception of information content of the HRRC data provided for subjects low on tolerance for ambiguity and those high on tolerance for ambiguity as measured by the Budner scale.

H04: There is no difference in the perception of information content of the HRRC data provided between individuals who utilized a heuristic reasoning style and individuals who used an analytic reasoning style.

H05: There is no difference in the perceived information content for individuals intolerant of ambiguity and heuristic, intolerant of ambiguity and analytic, tolerant of ambiguity and heuristic, or tolerant of ambiguity and analytic.

The Sign Test was used to test the hypothesis H01 that there was no difference in the perceived certainty of making an optimal decision using (1) Conventional accounting
data and qualitative statements about hidden costs of the layoff, and (2) Conventional accounting data combined with human resource replacement cost numbers. A reduction in the perceived uncertainty is defined as information content. If the HRRC data provided in Case B reduces the perceived uncertainty that the optimal decision was made a positive benefit has accrued to the user, i.e., he has gained information. Based on this information, the managers were required to make a decision regarding the "layoff" and asked to express numerically (from 0, no confidence, to 100, completely certain) their confidence that their decision was the optimal. The test showed that the observed frequencies of changes in certainty were statistically significant at $\alpha=0.01$ level ($Z=4.41$). Thus, the hypothesis was rejected, and the results indicated that the provision of replacement cost data in a layoff decision reduced the uncertainty of making an optimal decision. This suggests that the HRRC data provided did have information content.

The Chi Square Test was used to analyze the remaining hypotheses. These dealt with differences in the perception of information content based on the cognitive characteristics of the subjects. The test was used to determine the significance of the differences among the independent groups under study. On the basis of results of chi square, it was reported that a person's cognitive characteristics might affect his perception of the information content of the data provided. Persons intolerant of ambiguity perceived information content more often than those tolerant of ambiguity. In addition, within the group who were tolerant of ambiguity, persons utilizing a heuristic style of reasoning perceived information content in more instances than the persons who utilized an analytic reasoning style.

**Harrell & Klick (1980)** used judgment modeling to test the following two hypotheses:

(a) Decision makers will place a greater emphasis on monetary Human Asset measures than on non-monetary Human Asset measures in reaching their decisions.

(b) Decision makers will reach different decisions when utilizing monetary Human Asset measures than when utilizing non-monetary Human Asset measures.
The hypotheses were investigated within the framework of important U.S. Air Force personnel decision. The subjects in this experiment were senior U.S. Air Force Colonels. The subjects were given 24 cases each one asked to rate the promo-ability of an officer on a scale ranging from 1 to 9. The information provided in 12 cases included monetary data relating to the replacement cost. Another 12 cases included non-monetary replacement costs of the individual concerned.

Multiple regression analysis was used by the authors to examine the relationship in different cases that were given to them. Analysis of the data revealed that the subjects placed a greater emphasis on the monetary Human Asset measures in arriving at their decisions. In addition, the subjects made different monetary and non-monetary Human Asset measures separately.

Gul (1984) designed a laboratory experiment to evaluate the usefulness of applying Human Resources Accounting (HRA) to the problem of labour turnover management decision making in a sample of Australian accounting firms. Useful was defined as a reduction in uncertainty and an increase in relevance and sufficiency. Besides, the relevance and sufficiency of the human resource turnover cost data were also assessed.

Using a pretest-post-test research design, 57 volunteer accountants responsible for personnel decisions were individually administered (1) a two-part pilot tested case study with and without Human Resources Turnover Costs (HRTC); (2) a questionnaire which measured subjects' response to levels of uncertainty, relevance, and sufficiency of the information.

Using the Wilcoxon Matched Pairs test to analyze the data, he rejected his hypothesis and observed that his subjects were more confident after being provided with human resources turnover cost information. Further, there is a significant difference in the levels of judgments of sufficiency with individual demonstrating higher levels of sufficiency after the provision of additional information. Thus, three specific hypotheses tested warranted the conclusion that HRTC information significantly reduced accountants' levels of uncertainty and increased their levels of relevance and sufficiency.
Bayes (1983) conducted a study to achieve three objectives. First, to determine which HRA data cues influence decisions and which conventional data items do not influence decisions and second, which demographic variables influence decisions and third, does the occupational sector influence the decisions.

The above research objective was achieved by using a mail survey. Three cases consisting of a lay-off decision, resources allocation, and employment decision respectively were mailed to control and experimental groups. The difference in data between these groups consisted of the quantifying of HRA information for the experimental group while the control group received qualitative HRA information.

Management Accountants (N=600), as represented by the membership in the National Accounting Association, U.S.A. were selected as respondents in the mail survey. They were assigned randomly and equally to a control and experimental Group. These individuals were selected because of their dual roles in organizations as both decision-makers and influencers of management decisions.

In analyzing the data, the decision cues and demographic variables were tested for association with the decisions by groups. The results of the survey indicated that certain data cues did in fact influence the decision process. However, a blanket statement about the usefulness of HRA data could not be made because not all of the variables were influential on the decisions. A similar conclusion was reached for non-HRA data as these cues indicated that there were extraneous factors to the decision process. A further conclusion that could be reached was that rather than introducing HRA data into the information system as additional factors for decision making, the useful HRA data cues could substitute for those conventional data cues that were deemed non-influential. Neither the demographic variables nor the occupational group factors were consistent in their relationship to decision and thus the null hypothesis could not be rejected for these factors.

Rao (1986) while valuing the human resources of Hindustan Shipyard Ltd. and studying its relevance in personnel management in that organization concluded that the overall performance of Hindustan Shipyard Ltd., can be improved through the introduction of HRA system as a separate cell in the organization.
Patra, Khatik, and Kolhe (2003), analyzed HRA for a profit making heavy engineering public sector company, Bharat Heavy Electricals Limited (BHEL), Bhopal, India. The economic value model of Lev & Schwartz has been used for this study of BHEL to evaluate the HRA. The obtained results were verified using the T-test. They had examined the correlation between the total human resources and the personnel expenses for their fitness and their impact on productivity of BHEL. The HRA valuation is important for decision making in order to achieve the organizational objectives and to improve the output.

2.8.3 Human Asset Information and Investor's Decision Making

An important purpose of the financial reports prepared by the companies at the year end is to acquaint the shareholders and outsiders with the working of the company during the past year. This published information is used by the banks, financial institutions, government authorities, creditors, shareholders, investors, etc., for different purposes.

For instance, such information is made use of by lending institutions before approving loan to the bodies corporate. Investors make use of information relating to the capital base, reserves, fixed assets, liabilities, etc., of the company before deciding about the investment of their funds. Thus, the financial reports are used for a variety of purposes. It has been suggested by Hermanson (1964), Likert (1967), Likert and Pyle (1971), Lev & Schwartz (1971) that the inclusion of Human Resource Accounting Information might benefit the investors and it would be of immense use if information relating to Human Resource is presented so that the investors can evaluate properly assets and income.

American Accounting Association Committee (1973) on HRA has also emphasized the inclusion of information relating to Human Resource in the financial reports in these words:

“External users, particularly investors, could benefit from H.R.A. through the provision of information on the extent to which the Human Assets of the organization have been increased or have diminished during the period.”
Thus, it has been hypothesized that provision of Human Resource Accounting information would facilitate decision making by the investors. The researchers discussed below have made attempts to determine the impact of availability of HRA information on investors’ decision making.

Elias (1972) conducted a laboratory experiment to examine the effect of human resource outlay cost data on stock investment decisions. His study was focused on three related questions, viz.:

- Will the reporting of Human Assets in the financial statements on the historical cost basis cause investment decisions to be different?
- When Human Assets are reported in the financial statements, will the investment decisions be the same for different groups with different levels of sophistication in accounting and different orientations?
- Related to the previous question, what are the backgrounds or moderating variables that may cause decision to be different?

The participants included several groups with different levels of sophistication in, and orientation to, accounting: Chartered Financial Analysts, a random sample of Financial Analysts, and Certified Public Accountants in the Minneapolis St. Paul area, as well as student groups enrolled in Accounting and Finance courses in the University of Manitoba.

Elias selected two hypothetical companies and financial statements based on conventional accounting were prepared. Another set of statements (i.e., income statements and position statements), besides the earlier information, included human assets information. On the basis of information contained in first set, each of the respondents was asked to select one of the companies for investment of a fixed amount. Similarly, the participants were asked to specify their choice after going through the second set, as the information contained in the second set included both conventional and human asset information. The respondents had a choice to compare and utilize either information for decision making.
Elias used Chi-Square test and Contingency Coefficient C for measuring the relationship and its significance between dependent variable and the independent variable. Elias found that, for his experimental groups, the inclusion of Human Asset data did affect the decision of certain groups of subjects, but not all the subjects. Using Chi-Square test, he observed the differences were statistically significant. Elias also measured the strength of the relations among variables by the contingency coefficient and found that it was not very strong. An analysis of the results according to the occupation of the participants showed that only the decisions of the Certified Financial Analysts were not affected by the inclusion of human asset information in the financial statements. His attempt to identify background variables that might explain differences in decision did not yield any statistically significant results.

In another research study, Sangeladji (1975) designed his enquiry so as to ascertain the usefulness of two measurement models for Human Asset valuation. Questionnaires and sets of financial statements were used to solicit the opinion of Certified Public accountants, Chartered Financial analysts, Trust and Finance Officers of Banks and Trust Companies, Controllers and Managers of large corporations as well as students. The sample had nation-wide representations. The findings of the study revealed that human resource information was useful, but the degree of usefulness varied as between the experimental groups: managers perceived the lowest utility for such information, while users among the professional and investor groups perceived a higher utility. Further, many of the participants did not express strong preferences for receiving monetary information about a firm’s human resources for making investment decisions, while some showed great interest in receiving and utilizing non-monetary information, like the age, experience, education and health of senior managers, stability and loyalty of employees, record of employees turnover, assessment of the availability of qualified replacements for key positions, etc.

The empirical study, conducted by Hendricks (1976), examined the impact of human resource accounting information on stock investment decisions and the reasons thereof. He stated that knowing only how the statement users reacted to HRA information was not enough. He also wanted to find out why different decisions resulted from using different accounting methods. For this purpose, he investigated
three explanatory variables—background variables, degree of openness of the belief system and belief statements about HRA. The three hypotheses, formulated by him were as under:

i. “The degree to which financial statement users are affected by HRA information in making stock investment decision is not associated with selected background variables.

ii. The degree to which financial statement users are affected by human resource accounting information in making stock investment decisions is correlated with the degree of openness of the belief system.

iii. The degree to which financial statement users are affected by human resources accounting information in making stock investment decisions is correlated with the responses to six individual belief statements about Human Resource Accounting”.

He adopted the historical cost measurement model for the study to avoid the possible confounding effects of unfamiliar valuation methods such as replacement costs or present value, on the subjects.

91 accounting and finance students at a large Mid-Western University in the United States were selected as subjects. Some of the students were business persons, taking the finance course in the evening. All the respondents had a great level of sophistication in finance and accounting. The subjects were required to make two stock investment/capital allocation decisions, one with and one without human resource cost data. For this purpose, Sixty nine subjects (Group I) received Treatment I (conventional statements only) and were requested to make investment of a fixed amount in either or both the companies. After their decision, they were provided Treatment II (the conventional statements and the Human Asset statements together) and were asked to make investment decision without referring back to their previous decision. The remaining twenty-two subjects (Group II) received only Treatment II i.e., the conventional statements and the human asset statements and were requested to specify their investment decision. They were treated as a control group.
An analysis of the data was made by computing a difference of correlated means-test. Thus, the mean amount invested in treatment I was compared with the mean amount invested under treatment II. The differences in the two decisions were statistically significant, based upon a difference of correlated means t-test.

Hendricks correlated the eight background variables individually with the difference score. He found a significant correlation at the 0.001 level between the decisions’ difference measure and the subject’s age (r=0.457) and work experience (r=0.534).

Similarly, his analysis did not established the hypothesis that the degree to which financial statement users are affected by HRA information in making stock investment decision is correlated with the degree of openness of the belief system.

To test the hypothesis, i.e., the degree to which financial statement users are affected by HRA information in making stock investment decision is correlated with the responses to six individual belief statements about HRA, he correlated the difference score with the responses to each of the six HRA belief statements. However, he found that the correlations between the difference score and the responses to two HRA belief statements were statistically significant.

Acland (1976) examined the reporting of a corporation’s human resource by means of supplementary behavioural indicators. Five socio-psychological variables i.e.:

(a) Organizational Environment
(b) Employee morale
(c) Management achievement motivators
(d) Employee consentaneity with system
(e) Managerial job satisfaction
were selected and these form the basis for a proposed Human Resource Indicators report. The report was experimentally tested using Canadian financial analysts (members of society of Financial Analysis) who were asked to make an investment decision. These subjects were given information about two firms and were asked to
complete a questionnaire which involved the selection of one of the firms as superior investment opportunity.

The subjects were randomly assigned to one of the four experimental groups. The subjects in experimental group I (N=23) received the traditional financial statements only for the two firms. Experimental group II (N=24) received the financial statements as well as the human resource indicator information for five years for each of the five variables. Experimental group III (N=26) subjects received both the financial and human resource indicator information. But the behavioural information provided in this case was identical for the two firms. His experimental group IV (N=26), besides receiving the traditional financial statements and the human resource indicator information, also received narrative interpretation of the quantitative indices as well as the description of each variable.

The decision results of all the four experimental groups were examined using $X^2$ (Chi-square) test. The test proved that the provision of human resource behavioural indicator did cause significant change in the investment decisions of financial analysts. Majority of the analysts did make use of the behavioural information, which was reflected in their decisions. The strongest relationship was observed by the researchers in the case of subjects receiving the behavioural information along with the narrative interpretation of the indices for the five year period. Thus, the experiment indicated that the analysts were receptive to this information as shown by their willingness to utilize it in the investment decision situation.

Another research study by Schwan (1976) was carried out to find out the effects of HRA data on financial decisions by bankers. The participants in the study were managers and analysts employed in investment, credit, and trust departments of large banks. Two different sets of annual reports, called Set A and Set B were prepared. Besides the annual reports, each set contained information relating to company’s business, its products, marketing strategies, research and development programmes, employees and personnel, economic outlook, etc. Further, each set included comparative balance sheets, statements of income, statements of surplus, statements of changes in financial position, detailed footnotes, auditor’s opinion and a five years
statistical summary so as to present a real world’s model before the participants. The only difference in two sets of information was that the balance sheet of Set B contained an asset called ‘Investment in Human Resources’. Similarly, the footnotes in Set B provided a description of the accounting treatment of investments in human resources.

Each participant was given one annual report (either set A or Set B) and a questionnaire common to both sets. After reading the report, participants were requested to rate the management of the firm on a scale reading 0 to 10 wherein ‘0’ represented the ‘worst imaginable’, ‘10’ the ‘best imaginable’ and ‘5’, a management with average capabilities. As compared to the Elia’s study, Schwan asked his participants to ‘make fundamental or primary decisions about the capabilities of a firm’s management and about anticipated future operating results’. The specific objective of Schwan’s study was that ‘the bankers who read a financial statement which reports human resources data make significantly different decisions about the firm than bankers who read the firm’s conventional annual report.

He used non-parametric Mann-Whitney U test for data analysis. The analysis revealed that sufficient evidence existed to support the above hypothesis and the inclusion of human resources cost data did cause in the decisions of the bankers.

He further rejected the hypothesis that the inclusion of human resource data will not result in significantly different ratings of management’s preparedness to meet future challenges and opportunities.

Wambsganss (1985) conducted a behavioural research to study an impact of human resource accounting on decision making. The study utilized a sensitivity analysis on the human resource variables. This was done to determine the magnitude necessary for human resource adjusted net income to deviate significantly from conventional net income. Through this procedure, the Human Asset balance was also investigated to determine if the ultimate balance would differ from the presently assumed balance of zero. In so doing, if the amount of human resource variables necessary for significance is adequately small (in comparison to net income), the general conclusion that human resource accounting impacts the income statement and balance sheet can be made.
The results found that with the exception of the short-term scenario with changing variables and net income, the magnitude of the human resource variables were small enough (generally less than ten percent of net income) for human resource accounting to be considered significant at five percent level of confidence. Therefore, it was assumed that human resource accounting did impact the financial statements, giving credence to the previous behavioral studies and the need for human resource accounting to be incorporated into the financial statements.

In another research, following a labor economics approach and using the annual reports of a sample of United States public companies, Lajili and Zeghal (2006) constructed human capital productivity and efficiency indicators and test for their informational content and value relevance following a portfolio performance approach. Results indicated that higher levels of human capital as captured by total labor expenditures; workforce productivity and human capital management efficiency (i.e., LEI variable) are generally associated with higher abnormal returns. Investors perceived disclosed aggregate labor costs as appropriate proxy measurements of human capital assets and thus portfolios of firms with higher labor costs expenditures would outperform portfolios of firms with lower labor costs.

Avazzadehfath & Raaiashekar (2011) conducted a research study to explore three objectives.

1. Whether investment decisions are affected by human resource accounting information disclosed in the financial statements or not?

2. What factors can interfere in this effect?

3. Which evaluation method of human resource is the most appropriate method consistent with Iranian companies in terms of qualitative characteristics of accounting information?

68 companies of Tehran Stock Exchange were selected as sample size by using Random Sampling Technique. 162 responses were received from investment experts, analysts, financial managers, and experts of auditing companies. The research in terms of methodology was a descriptive/correlation research. The responses to
structured questionnaire collated by using SPSS software in the significant level \((\alpha=5\%)\), and the relevant statistical methods like Mean value, Standard deviation, Correlation coefficient, T-test, F- Test, Chi-square \((X^2)\) and Compare Means test were used to arrive at meaningful conclusions. Two questionnaires were used for the purpose. In the first questionnaire, the financial statements of two hypothetical companies without providing of HRA information were prepared and presented to the members of statistical population and they were asked to allocate Rials 50,000,000 in the above-mentioned companies as investment which was called the first behavior. In the second questionnaire, the financial statements containing HRA information were distributed among the same members of the population two weeks after collecting the first questionnaire and they were asked to do the same investment again which is called the second behavior. The second questionnaire included 9 questions for measuring the experience variable and 11 questions for measuring individuals' personal viewpoints and 7 questions has been designed which refers to the degree of possessing primary and secondary characteristics of accounting information for each evaluating method.

By using t-test, it was found that disclosure of information relating to human resource accounting (HRA) in financial statements was relevant and has an effect on the optimal investment decisions. Also, by analyzing correlation score of difference amount of investment and background variables, it was found that the business experience might be a possible cause of decision differences when HRA information was added to traditional accounting information. Furthermore, by using mean test, it was found that the original cost method (Historical cost) was the most effective and appropriate evaluating method of human resource consistent with current status of Iranian companies and institutions.

2.6.4 Impact of Human Asset Information on Investor’s and Managerial Decision Making

Malik (1989) conducted an empirical study to examine the relationship between the provision of HRA information and the decision behavior of the internal users (i.e., management) regarding three personnel decision areas (a) Turnover of human resource; (b) Lay-off of human resource; and (c) Selection of human resource and the
external users of accounting information (i.e., investors) regarding investment decision.

Thus, he attempted to study the following specific questions;

i) “Will the reporting of investments in human resources in the published financial statements of the companies cause investment decision to be different? If so, what are the background variables affecting such change in the decision by the investors and other users of the information?

ii) What is the effect of HRA information on human resource turnover decision making by the management?

iii) Does the availability of HRA information affect the Personnel Manager’s decision in the context of lay-off of a certain number of employees by the organization?

iv) Whether the human resource value information, which is the output of a method of human resource valuation, influences the ‘personnel selection’, decision of the management?’

104 responses from personnel managers of the different companies and 225 responses from financial analyst, investment and finance companies, banks and financial institutions, academicians and professional were used for the study.

Data were analysed using chi-square, contingency coefficient of correlation, sign-test, wilcoxon matched pairs test, and Mc Nemar test.

A case scenario presenting a real world situation was prepared for each of these areas. To find out the impact of human resource accounting information, the investors were provided with conventional accounting information and asked to specify the amount they would like to invest in the companies. Then, they were provided with statements based on conventional accounting coupled with HRA information and were asked to make a decision. Various parametric (mean) and non-parametric tests (Wilcoxon Matched Pairs Test and Mcnemar Test) were used for analyzing the data collected. The results showed that the provision of HRA information did make a significant difference in the decisions made in context of turnover, lay-off and selection of
personnel in an organization and also did caused the investment decision to be different. Also, the data relating to age, experience, and qualifications of the respondents, when correlated with the decision results, revealed that the company choice was affected by experience and qualification, but not by age.

Thus, the empirical evidence on human resource accounting is mostly based on control/experimental group behavioural observations. In general, the results support the reliance on HRA information for most of the decisions and desirability of disclosing such information. The next chapter presents the models developed so far to measure Human Asset and discusses about Human Resource Accounting practices adopted by few of the organizations in India.