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# HUMAN RESOURCES ACOUNTING – A MODEL FOR IDENTIFYING REPORTING HUMAN CAPITAL

By

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**Abstract**

*It has been increasingly argued in accounting and managerial literature th organization's failure to account for its human resource can have several ac consequences on the overall organizational effectiveness. In this wise the research discussed efforts done in this field by researchers and proposed a model known as IQ identifying and reporting investments made in human resources of an organizatio are not presently accounted for under conventional accounting practice. This IQR is a three step model which classifies employees into separate Para-homogenous g and determines economic value of the various groups identified and gives the val determined accounting treatment in the organization's books of account. On applyin IQR Model in this study, it was found that, total present value of employees (Junio Senior) increases from year to year because they acquire skill and knowledge over while on or off-the-job unlike physical assets. Some recommendations were made on the conclusion reached. Prominent among these recommendations is that, resear should consider additional measurement techniques and indices in ascertaining the of human capital; given that employees' value is a function of productivity.*

## I. INTRODUCTION

Tiwari (2006) defines human resources as the knowledge that individuals acquire during lifetimes and use to produce goods, services or ideas in the market or non market circumsta The American Accounting Association (1970) defines human resource accounting as the h resource identification and measuring process and also its communication to interested p Tiwari (2006) further posits that, until recently, the value of an enterprise as measured v traditional balance sheets were viewed as a sufficient reflection of the organizations asse During the past few years, it has been increasingly argued by researchers such as Likert (1 Tiwari (2006), Flamholtz (1999) that an organization's failure to account for its human res

can have several adverse consequences on overall organizational effectiveness as well as on the effectiveness of human resource management itself. According to Likert (1967), accounting systems are neglecting as asset (people) that may represent a material past investment and may be of great current value to an organization. As a result, Likert (1967) argues, "all levels of management are handicapped by the inadequate and at times inaccurate information available to them".

Human resource accounting however, arose as a result of the growing concern for human resource management in industry since the mid twentieth century (Tiwari, 2006). The most specific asset that an enterprise has is its personnel; it takes advantage of their interdependent knowledge. That could explain why some firms are more productive than others. With the same technology, a solid human resource team makes the difference (Archel, 1995).

Frederiksen and westphalen (1998) described the necessity of human resource accounting when they opined that human resource accounting serves as both a general term which puts value on human capital and as a means of encompassing alternate non-financial accounting practices. Human resource accounting will ultimately serve as a supplement to information generated using conventional accounting practices: improve human resources development; as well as provide information on the cost and benefits of investments in human capital.

Therefore, flowing from the above, developing a suitable model that is generally accepted for accounting for human resource in the balance sheet is expedient. However, some efforts have been made by researchers (Lev and Schwartz, 1971; flamholtz, 1971; Jaggi and Lau, 1974; Roselender, 2004; Parameswaran and Jothi, 2005) to design possible models that could assist in identifying and reporting investments made in human assets and how human resource accounting could be harmonized with conventional accounting practices. The emergence of methods of accounting for human resources can thus be said to reflect the need to improve measuring and accounting practices and human resource management.

According to Grojer and Johansson (1996), the accounting for human resources is as much a question of philosophy as of technique. This accounts for why there are multiplicities of approach. However, providing adequate and valid information on human capital in figures and within traditional balance sheet has proved difficult. Consequently, new approaches such as social accounting and human resource auditing take into account the fact that human capital and tangible assets are different in nature by introducing broader perspectives into human resource accounting.

This paper is organized as follows. As a background and motivation for this study, the next section reviews relevant prior literature; the section III discusses methods and procedures used in gathering data pertaining to human resource accounting and discusses how the model in the

study was developed. Results were presented in section IV and the final section concludes the study.

## II. REVIEW OF LITERATURE

### Empirical framework

Over the years, providing adequate and valid information on human resources in statistical terms and within traditional balance sheets has proved extremely difficult. Consequently, new approaches introduce financial as well as non financial information in human resource accounting (Frederikson and Westphalen, 1998). Hermansson (1964) was the first to attempt to include figures on human capital in the balance sheet. This latter became known as human resource accounting. However, research into true human resource accounting began in the 1960s by Rensis Likert (Bowers, 1973). Likert (1967) defends long-term planning by strong pressure on human resources' qualitative variables, resulting in greater benefits in the long run. Human resource accounting as an approach was originally defined as the process of identifying, measuring and communicating information about human resources in order to aid effective management within the organization. It involves measuring the cost incurred by business firms and other organizations when they recruit, select, train and develop human assets as well as measuring the economic value of people to organizations (Johansson, 1996). Grojer and Johansson (1996) opine that accounting for human resources is as much a question of philosophy as of technique and this account for the variety of approaches. They submitted that as long as the accounting profession progresses, accounting for intellectual capital within the confines of prevailing accounting theory, the prospects for a successful outcome is not imminent. Because of the complex nature of the human asset, it has been extremely difficult to adopt a particular method for valuing and reporting same in the organization's balance sheet. As a result of its complex nature, they vary from time to time, therefore making it a very huge task to reflect in certain physical measurement. Grojer and Johansson (1998) sees human resource costing and accounting as a complex and poorly understood process of accounting.

According to Appelbaum and Hood (1993), the costs associated with human assets have been treated as expenses and as such have been written off annually in the financial statement. Hence, the organization's employees are not adequately reflected in the balance sheet. Tiwari (2006) has suggested that cost in form of a salary should be debited in the year of payment itself because of its revenue nature, while capital costs such as training expenses should be capitalized and written off in the expected service period of employees because organizations will be benefited for this period by the cost so incurred.

According to Chen and Lin (2004), organizations derive their competitive advantage mainly from human capital; and under conventional accounting, all expenses are deducted from revenue, thus providing information that may hitherto mislead the user of the information. With the growing

emergence of the knowledge economy, traditional valuation has been called into question, due to recognition that human capital is an increasingly important part of an enterprise's total value. This has given rise to two important questions: how to assess the value of human capital in addition to an enterprises tangible assets and how to improve the development of human capital in the enterprise (Frederiksen and Westphalen, 1998). The issue of valuation of human capital alongside other tangible assets like building, plants, e.t.c is definitely a right step in the right direction since the financial statement will now reflect the true and fair position of the organization in terms of its net worth and other efficiency ratios that could serve as a basis for decision making both internally and externally. Addressing the second question of improvement and development of human capital, there cannot be any meaningful development of human capital if performance of this very important resource cannot be captured in financial terms. Tiwari (2006) opined that it is practical fact that for there to be meaningful utilization and development of organization's assets, proper records have to be kept for them. This he said is completely missing in cases of human resources.

**Theoretical framework**

Valuing the human assets of an organization is however an up-hill task, considering the diverse perception of value held by various schools of thought. The concept of value has basically two different meaning: "value in use" and "value in exchange". While some see value as the utility or service derivable from engaging the resource in productive activity, others are of the view that the value of the resource is the purchasing power of the resource in monetary terms. Regardless of view held, employees are the most valuable especially in service companies. Hence, valuing the human resource in an organization can be worthwhile since it will eventually lead to a more realistic disclosure of the organizations' worth (Gupta, 2006).

The inconsistency surrounding the human assets have been a major limitation in determining perfectly objective method of accounting for them. Various researchers have designed and proposed various methods or models aimed at capturing the human resource in the organization's financial statement (balance sheet). Existing methods could however be broadly classified into three. They are cost based method, behavioral method and economic method. The cost based method is further sub-divided into historical cost method, replacement cost method, opportunity cost method, competitive bidding method, and standard cost method.

*Historical Cost Method*: when referring to training cost, historical cost means the sacrifice necessary to hire and train people (Bouzada, 1977). This method seeks to capitalize the organization's training and development of employees.

*Replacement Cost Method:* This method borders on the cost of replacing employees in an organization in orders to reflect the human resource value both at individual and organizational levels. It should be noted that if the replacement cost of the asset is lower than its market value,

then the company gets a higher than normal returns on its investment. This is often represented by the famous "q ratio".

*Opportunity Cost Method*: opportunity cost is considered as an asset value when they are the target of an alternative use (Hekimilan and Jones, 1964). The method could also be regarded as competitive bidding method. Here, the value of the employee is determined by its demand in other investment centers.

*Standard Cost Method*: This technique establishes predetermined estimates of the employee's service to the organization. The cost is carefully set after due consideration of various inefficiencies and mistakes in the past. This is achieved by introducing the Employee Efficiency Factor (EEF) which is usually between 0.45 and 0.95.

*Behavioural Method*: This method though quite subjective, attempts to establish a set of causal variables showing the application and depreciation of the human organizations as reflected by intervening variable which in turn could achieve the end result variable. The variables are set after embarking on some sort of psycho-social test. This method of determining the value of human resources can hardly be relied upon because of its many subjective assumption, and absence of established valid relationships between psycho-social test and organizational performance.

*Economic Model*: Though there are no generally accepted methods for accounting for human resources, various researchers have done their bits in trying to improve on the works of other and ensure that human capital is adequately captured in monetary terms. Lev and Schwartz (1971) did a fundamental work on the valuation aspect of human resources accounting by estimating the present value of future earnings of employees, discounted at a rate reflecting the cost of capital. Wages and salaries were used as surrogate for income to be generated by employees from employment owing to the fact that organizations income is not just a product of labour but other factors of production inclusive. Though practically applicable, it does not consider the probability of employees leaving the firm before his retirement date and also did not address the issue of reporting the value of employees in the organization's financial statement of assets and liabilities.

Flamholtz (1971) also did something on human resource valuation where he advocated that the employees are valued based on the role they perform which is in accordance with the service state occupied by the employees. Flamholtz model was obviously an improvement on the Lev and Schwartz model in that Flamholtz classified employees into service states and thereafter estimated the present value of their future earnings for various service state occupied by the employees. He adequately recognized the movement of employees from one service state to another which was clearly missing in Lev and schwartz model.

Jaggi and Lau (1974) focused on group valuation rather than individual valuation, submitting that on a group basis, it becomes very easy to ascer5tain the percentage of employees of a particular group likely to leave the organization during each of the forth coming periods or to be promoted to a higher rank. They based their proposition on the assumption that the pattern of movement is likely to remain constant, unless extra-ordinary circumstance warrant a change. From the above analysis, none of the works make adequate provision for accounting treatments in the organization's financial statement; therefore, I am proposing the IQR model which is meant to improve on the work of Lev and Schwartz.

## III. DATA AND METHODOLOGY

The data used in this study were drawn mainly from respondents responses to questionnaires administered on them. The data was used to test-run the IQR model proposed in this study. The sample consists of only one company in the agricultural sector as classified in the Nigerian stock exchange fact book. Data for years 2006 and 2007 were used for this study. The restriction to these two years (2006 and 2007) derives from the desire to attempt a cross-sectional study as an exploratory effort and from inability to source data over a longer period within a reasonable time frame. This imposes some limitations on this study. The data is presented in appendix as table I, table II, table III and table IV. The IQR model drew strength from the works of other researchers in human resource accounting (Jaggi and Lau, 1974 and Lev and Schwartz, 1971). It is a three step model which begins by classifying the employees into para-homogeneous groups after which the economic values of the classified group are determined. The final step is to give the values so determined accounting treatment in the organization's books of account.

Step I: Classify employees (junior and senior staff) into separate various Para-homogeneous groups.

Step II: Determine economic value of the various groups identified under step I

i) Determine the training and development cost incurred on the employee groups.

ii) Determine the present value of future salaries and wages discounted at an appropriate cost of capital.

In addressing the above steps, the relation below was introduced; though with a leaning on Lev and Schwartz, 1971 model.

$$Vr = \sum \frac{I(t)}{(1+r)^{t-r}}$$

Where; Vr = the human capital value of a person r years old.

I(t) = the person's annual earnings up to retirement.

r = a discount rate specific to the person

t = retirement age

Note: this formula could however be modified to accommodate variation in data collected.

Due to the nature of the study, incompleteness of data as well as for purpose of simplicity i analysis, the following assumptions were made.

(1) Constant employee turnover rate

(2) Employees are not expected to leave the company unless through retirement by age.

(3) The average actual age of employees both junior and senior was assumed to be 3: years.

(4) 15% discount rate was also assumed.

Based on data collected and assumptions made above,

$$TVE = \sum \frac{Sb(1+g)}{(1+k)^n}, \quad \text{where } n = Ra - Ca$$

Where; TVE = Present value of employees

Sb = Average annual basic salaries of employees

g = Estimated growth rate in average annual basic salaries of employees

K = Cost of capital (discount rate)

Ra = retirement age

Ca = estimated average age of employees

Also, TVE = Vej + Ves

Where; TVE = present value of employees

Vej = present value of Junior employees

Ves = present value of senior employees.

Step III: Give the value so determined under step II accounting treatment in the organization'§ books of account. This could be shown in journal form.

| Accounts | Debit (N) | Credit (N) |
|---|---|---|
| Human capital investment a/c<br>To Cash/bank a/c<br>Being employees training and development costs capitalized | | |
| Human Resource Investment a/c<br>To Human resource Reserve a/c<br>Being present value of employees | | |
| Profit and loss a/c<br>To Human Capital Investment a/c<br>Being amortization of the capitalized employees training and development costs | | |
| Human Resource Investment a/c<br>To Human Resource Reserve a/c<br>Being positive difference in the present value of employees | | |
| Salaries a/c<br>To Cash/bank a/c<br>Being salaries payment for the period | | |
| Profit and loss a/c<br>To salaries a/c<br>Being salaries charged to P/L a/c | | |

## IV. DATA ANALYSIS

Analysis of data collected was done using the IQR model developed by the researcher. Applying the methodology in this study, the result is as spelt out below.

Step 1: Employees are classified into para-homogeneous groups of junior and senior employees.

Step 2: Determine the economic value of the junior and senior employees:

For the year 2006:

Vej = N400,006,606 (see table 1).

Ves = N161,079,598 see table II).

TVE = N400,006,606 + N161,079,598 = N561,086,204

For the year 2007:

Vej = N480,007,930 (see table III).

Ves = N193,291,783 (see table IV).

TVE = N480,007,930 + N193,291,783 = N673,299,713

From the above computation, total present value of employees (junior and senior) for the year 2006 and 2007 are N561,086,204 and N673,299,713 respectively. The positive difference signifies an increase in the value of employees. Employees are not like conventional physical assets like plants, machines, buildings, fixtures and fittings, etc. The increase in employees' value

can be accounted for by the skills and knowledge acquired by the employees either through on-the-job or off-the-job training. Employees tend to be more experienced on the job as they become older on the job.

Step 3: The Economic value so determined under step II is hereby given accounting treatment as shown in the journal below.

Journal entries

| Accounts | Debit (N) | Credit (N) |
|---|---|---|
| Human capital investment a/c<br>To cash/bank a/c<br>*Being employees training and development costs capitalized* | | - |
| Human Resource Investment a/c<br>To human resource reserve a/c<br>*Being present value of employees* | 561,093,928 | 561,093,928 |
| Human Resource Investment a/c<br>To human resource reserve a/c<br>*Being positive difference in the present value of employees* | 112,205,785 | 112,205,785 |
| Salaries a/c<br>To cash/bank a/c<br>*Being salaries payment for the period* | 20,900,000 | 20,900,000 |
| Profit and loss a/c<br>To salaries a/c<br>*Being salaries charged to P/L a/c* | 20,900,000 | 20,900,000 |

Note:

(i) Human capital investment was amortized equally over the estimated service years of the employees.

(ii) Human Resource Investment which is more of a commitment account should not be amortized but rather should be reviewed either positively or negatively to reflect the present values of the employees.

## V. CONCLUSION

Although academic researches on human resource accounting has been conducted for several years, there is still no generally accepted specific method for accounting for Human assets. It is worthy of note that the disclosure of human capital values by business enterprise will provide users of financial statement with valuable information. The financial statement tend to be more decision relevant when human capital values are adequately reported in organization's financial

statement. It will lead to a more investor friendly disclosure, assurance to customers, a feeling of comfort for the company's employees that they are assets and not expenses of the firm, as well as a tool for better performance appraisal and manpower assessment. Despite the many benefit of the various existing human resource accounting models as discussed earlier, there are also pockets of limitations. Firstly, the actual value of an organization's employees is not necessarily equal to the portion of the firms income contributed by labor. Secondly, the inexactness of data used is also a source of worry for information users. These problems are however not peculiar to human resource accounting. It cuts across all fields in management sciences which apply subjective techniques in most of its studies. It is hereby advised that if any company has to apply the proposed model for external consumption, it has to make use of more exact and accurate data.

As a fall-out of the conclusion made above, the following recommendations were made.

(i) Researchers should consider additional measurement and indices including the assessment of productivity, transferability and promote-ability of employees of the organization. This is necessary because the employee's value is not just a function of only the monetary cost incurred on employees, but also the employee's productivity.

(ii) For purposes of exactitude and minimization of human error in determining employees' values, computer programs should be designed to take care of the complexities associated with human resource valuation, especially for companies where employees are much and heterogeneous.

(iii) Students of tertiary institutions should be exposed early enough to the concept of Human resource accounting so that they can brainstorm. Who knows, they may have positive contributions to make.

(iv) Finally, managers should not be reluctant in practicing Human resource accounting. They could begin by using information generated therefrom for internal decision making.

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Question 14 – 19 relates to questions relating to data required to run the model developed by the researcher. This will constitute the thrust of the data analysis section.

| Questions | Responses<br>Junior employees | senior employees |
|---|---|---|
| 14. Number of employees in your organization as at year ended 2006 | 249 | 52 |
| 15. Average service years before retirement | 55 years | 55years |
| 16. Average annual basic salary of your employees | N14,900,000 | N6,000,000 |
| 17. Average annual training and development cost | No response | no response |
| 18. Is there any growth in employees average annual salaries? | Yes | yes |
| 19. If yes, what is the current average rate | 20% | 20% |

Table 1

**Present Value of Junior Employees (2006)**

| Average annual basic salary (N) | Discount factor (15%) | Present value (N) |
|---|---|---|
| 14,900,000 | 0.8698 | 12,957,040 |
| 17,880,000 | 0.7561 | 13,519,068 |
| 21,456,000 | 0.6575 | 14,107,320 |
| 25,747,200 | 0.5715 | 14,722,249 |
| 30,896.640 | 0.4972 | 15,361,809 |
| 37,075,968 | 0.4323 | 16,027,941 |
| 44,491,162 | 0.3760 | 16,728,677 |
| 53,389,394 | 0.3269 | 17,452,993 |
| 64,067,273 | 0.2843 | 18,214,326 |
| 76,880,727 | 0.2472 | 19,004,916 |
| 92,256,875 | 0.2149 | 19,826,002 |
| 110,708,247 | 0.1869 | 20,691,371 |
| 132,849,897 | 0.1625 | 21,588,108 |
| 159,419,876 | 0.1413 | 22,526,028 |
| 191,303,851 | 0.1229 | 23,511,243 |
| 229,564,622 | 0.1069 | 24,540,458 |
| 275,477,546 | 0.0929 | 25,591,864 |
| 330,573,055 | 0.0808 | 26,710,303 |
| 396,687,666 | 0.0702 | 27,847,474 |
| 476,025,199 | 0.0611 | 29,085,140 |
| Present value | | 400,014,330 |

Source: Author's computation based on discounting of data from questionnaires administered.

Table II

**Present Value of Senior Employees (2006)**

| Average annual basic salary (N) | Discount factor (15%) | Present value (N) |
|---|---|---|
| 6,000,000 | 0.8698 | 5,217,600 |
| 7,200,000 | 0.7561 | 5,443,920 |
| 8,640,000 | 0.6575 | 5,680,800 |
| 10,368,000 | 0.5715 | 5,928,422 |
| 12,441,600 | 0.4972 | 6,185,964 |
| 14,929,920 | 0.4323 | 6,454,204 |
| 17,915,904 | 0.3760 | 6,736,380 |
| 21,499,085 | 0.3269 | 7,028,051 |
| 25,798,902 | 0.2843 | 7,334,628 |
| 30,958,682 | 0.2472 | 7,652,986 |
| 37,150,419 | 0.2149 | 7,983,625 |
| 44,580,502 | 0.1869 | 8,332,096 |
| 53,496,603 | 0.1625 | 8,693,625 |
| 64,195,923 | 0.1413 | 9,070,884 |
| 77,035,108 | 0.1229 | 9,467,615 |
| 92,442,130 | 0.1069 | 9,882,064 |
| 110,930,555 | 0.0929 | 10,305,449 |
| 133,116,666 | 0.0808 | 10,755,827 |
| 159,740,000 | 0.0702 | 11,213,748 |
| 191,688,000 | 0.0611 | 11,712,137 |
| Present value | | 161,079,598 |

Source: Author's computation based on discounting of data from questionnaires administered.

Table III

**Present Value of Junior Employees (2007)**

| Average annual basic salary (N) | Discount factor (15%) | Present value (N) |
|---|---|---|
| 17,880,000 | 0.8698 | 15,548,448 |
| 21,456,000 | 0.7561 | 16,222,882 |
| 25,747,200 | 0.6575 | 16,928,784 |
| 30,896.640 | 0.5715 | 17,657;430 |
| 37,075,968 | 0.4972 | 18,434,171 |
| 44,491,162 | 0.4323 | 19,233,529 |
| 53,389,394 | 0.3760 | 20,074,412 |
| 64,067,273 | 0.3269 | 20,943,592 |
| 76,880,727 | 0.2843 | 21,857,191 |
| 92,256,875 | 0.2472 | 22,805,900 |
| 110,708,247 | 0.2149 | 23,791,202 |
| 132,849,897 | 0.1869 | 24,829,646 |
| 159,419,876 | 0.1625 | 25,905,730 |
| 191,303,851 | 0.1413 | 27,031,234 |
| 229,564,622 | 0.1229 | 28,213,492 |
| 275,477,546 | 0.1069 | 29,448,550 |
| 330,573,055 | 0.0929 | 30,710,237 |
| 396,687,666 | 0.0808 | 32,052,363 |
| 476,025,199 | 0.0702 | 33,416,969 |
| 571,230,239 | 0.0611 | 34,902,168 |
| Present value | | 480,007,930 |

Source: Author's computation based on discounting of data from questionnaires administered.

Table IV

**Present Value of Senior Employees (2007)**

| Average annual basic salary(N) | Discount factor (15%) | Present value (N) |
|---|---|---|
| 7,200,000 | 0.8698 | 6,261,120 |
| 8,640,000 | 0.7561 | 6,532,704 |
| 10,368,000 | 0.6575 | 6,816,960 |
| 12,441,600 | 0.5715 | 7,110,374 |
| 14,929,920 | 0.4972 | 7,423,156 |
| 17,915,904 | 0.4323 | 7,745,045 |
| 21,499,085 | 0.3760 | 8,083,656 |
| 25,798,902 | 0.3269 | 8,433,661 |
| 30,958,682 | 0.2843 | 8,801,553 |
| 37,150,419 | 0.2472 | 9,183,584 |
| 44,580,502 | 0.2149 | 9,580.350 |
| 53,496,603 | 0.1869 | 9,988,515 |
| 64,195,923 | 0.1625 | 10,431,838 |
| 77,035,108 | 0.1413 | 10,885,061 |
| 92,442,130 | 0.1229 | 11,361,138 |
| 110,930,555 | 0.1069 | 11,858,476 |
| 133,116,666 | 0.0929 | 12,366,538 |
| 159,740,000 | 0.0808 | 12,906,992 |
| 191,688,000 | 0.0702 | 13,456,498 |
| 230,025,600 | 0.0611 | 14,054,564 |
| Present value | | 193,291,783 |

Source: Author's computation based on discounting of data from questionnaires administered.