



A STUDY ON HUMAN RESOURCES ACCOUNTING MODELS AND PRACTICES IN THE ORGANIZATIONS

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ABSTRACT

Human resources are playing a very significant role in the organization than any other resources as physical and financial for the successful in the business. Business organization's success or failure depends on the quality human resources like employees' caliber, skills efficiency creativity, ability and dedication of their resources towards success in the organization. There are human resources who are categorized in to different classes like unskilled, semi-skilled, managerial and technical skilled in the organization. Human Resource Accounting is the process of identifying, measuring data of recruiting, selecting, training and developing for human resources and communicating this information to the management for the decision making for proper and optimum utilization. Human resource accounting is a new branch of accounting. It is based on the traditional concept that all expenditure or cost incurred on human asset is treated as a human capital and which should be capitalized as it yields benefits measurable in monetary terms. In modern era human resources accounting is emerging as resources value models for determining value of human resources in the organization.

This paper is highlighting and explaining the human resources accounting models and also practicing as how these cost and value based models would be implemented and measuring the human resources in the organization with examples for different approaches and practicing

procedure through illustrations. Managerial, technical, semi-skilled and un-skilled manpower cost and value can be determined with separately and collectively.

Keywords: Human Resources, Technical, Managerial, Efficiency, Manpower and Skills

➤ **INTRODUCTION**

Human Resource Accounting (HRA) involves accounting for the company's management and employees as human capital that provides future benefits. Objective of human resource accounting is to facilitate the management to get information on the cost and value of human resources which will enhance the quantity and quality of goods and services. It provides data to the interested persons about the cost of human resources and correspondingly comparing it with the benefit obtained out of its utilization. The human resource accounting is used to furnish cost value information for making proper and effective management decisions about acquiring, allocating, developing and maintaining human resources in order to achieve cost effective organizational objectives. Further, it helps the organization in decision making in the various areas like Direct Recruitment vs. Promotion, Transfer vs. Retention, Retrenchment vs. Retention, and organizational behavior, decision on reallocation of plants and human resources etc. It helps in evaluating the expenditure incurred for imparting further education and training in employees in terms of the benefits.

Human resources accounting has been recognized much priority in the present service sector. In order to quantify the talent, skills and knowledge of employees with various models which are enumerated mainly two approaches that are based on human resources cost accounting approach and human resources value accounting approaches. Human resources accounting's cost Approaches are viz., methods of Historic costs, Replacement and Opportunity cost and human resources accounting's value approaches are present value future earnings models, adjusted discounted future wages model, un-purchased goodwill model and valuation on a group basis. It helps an organization to take managerial decisions based on the availability and the necessity of human resources. Proper valuation of human resources helps an organization to eliminate the negative effects of disused human resources.

➤ **REVIEW OF LITERATURE**

Morse W J model (1973) suggests that, the value of human resources is equivalent to the present value of net benefits derived by the organization from the service of its employees. Net benefit is the difference between the gross value of services to be rendered in future by the employees and the value of direct and indirect future payments to the employees. S. K. Flamholtz (1979) describes the HRA paradigm in terms of the “psycho-technical systems” (PTS) approach to organizational measurement. According to the PTS approach, the two functions of measurement are: 1) process functions in the process of measurement and 2) numerical information from the numbers themselves, thus one role of HRA is to provide numerical measures, an even more important role is the measurement process itself. The HRA measurement process helps to increase recognition that human capital is paramount to the organization’s short and long-term productivity and growth.

➤ **OBJECTIVES OF THE STUDY**

To explain the human resources accounting models in present scenario

To enumerate the human resources model’s practicing procedure with illustrations

➤ **SIGNIFICANCE OF HUMAN RESOURCES ACCOUNTING**

To employment, locating and utilization of human resources

To transfers, promotion, training and retaining, replacement and retirement of human resources

To evaluating the expenditure incurred for improving further education and training to employees in the terms of the benefits derived by the firm

To identifying the causes of high labor turnover at various levels and taking preventive measures to retain it

To diagnosing the real cause of lower return on investment it is due to improper or under utilization of physical assets or human resources.

➤ **OBJECTIVES OF HUMAN RESOURCES ACCOUNTING**

To furnish cost and value information for making management decisions about acquiring, allocating, developing and maintaining human resources in order to attain cost effective optimization

To recognize the nature of all resources used or cultivated by a firm

To improvement of human resources which because leads the quality and quantity of goods and services are improved.

➤ **HUMAN RESOURCES ACCOUNTING MODELS**

A number of models or approaches have been developed for measurement of human resources. It can be broadly classified into two types: Human resource Cost Accounting and Human resource Value Accounting. In human resources cost approaches there are mainly historical cost and replacement cost approach. In human resources value approaches there are Lev & Schwartz's present value of future earnings model, Hermanson's un purchased goodwill model, Hermanson's adjusted discounted future wages model, Eric G. Flamholtz's stochastic rewards model.

➤ **HISTORICAL COST APPROACH**

This historical cost approach model was derived by William C Pyle and R. G. Barry in 1967. The historical cost of human resources is similar to the book value of the other physical assets. When an employee is recruited by a firm, he is employed with the expectation that the returns from him will exceed the cost incurred in selecting, training and developing him. The actual cost involved in on recruiting, selecting, training and developing the human resources of the organization are capitalized and amortized over the expected useful life of the human resources. Thus proper record of expenditure are made and maintained on human resources for the purpose of capitalization and amortization. Human resources capitalization which would be written off to the income of the next useful life of human resources period during their service provided. The value of human assets can be increased by making additional investment on human resources by the firm such cost would be again capitalized and amortized over the remaining life of human resources. The main drawback of this model is the method of amortization whether is it constant, increasing or decreasing rate or any other else and it is difficult make out of the true value of human resources when they earns experiences in their service the experience's value could not be measured in this model. Some more important aspects there is a lack in determination human resources value for awarding remuneration and if for some the employee leaves the organization

prematurely, the unamortized cost remaining in the books of accounts and which has to be written off against in the profit and loss account.

➤ **REPLACEMENT COST APPROACH**

This model was suggested by Rensis Likert which would be used in case of replacing the individual employee or whole organization's human resources to implement the current high tech method from manual method due to change or updated technological scenario with effective and quick proficiency. The determination of human resources cost in replacement cost approach, all cost would be included which are involved in recruiting, training and developing, to the present level of proficiency with the organization. There is a dual model of replacement of cost that is positional replacement and individual replacement. Positional replacement cost refers to the sacrifice that would have to be made today to replace human resources in a specified position with a modern method of services. Individual replacement cost refers to the substitute or new employee of equivalent ability and efficiency capable of rendering and equivalent set of services.

➤ **LEV & SCHWARTZ'S PRESENT VALUE OF FUTURE EARNINGS MODEL**

Many human resources accounting models have been derived by Lev and Schwartz in 1971 for determine human resources value. Many models were derived but most of the models are having its limitations and one model that are Lev and Schwartz model proved to be more suitable than other. Lev and Schwartz model has been the most extensively used and convenience. It is based on future earnings estimated for a person at a given age which is the present value of his remaining future earning from his employment of an employee till his retirement with discounting value factor for the purpose of discounting the future earnings of the employees to arrive at the present value. According to the model value of human assets is and this represented by the following.

$$\text{Formula: } V_r = \sum \frac{I(t)}{(1+R)^{t-r}}$$

Where: V_r = the value of an individual r years old

$I(t)$ = the individual annual earnings up to the retirement

R = a discount factor

t = retirement age

r = years old

For Instance: From the following data compute the present value of human resources of an employee group with an average age of 55 years.

- a. Annual average earnings of an employee's till the retirement age = \$27,000
- b. Age of retirement = 58 years
- c. Cost of capital or discount factor = 12%
- d. No. of employees in the group = 7

Solution:

$$\begin{aligned} V_r &= \sum \frac{I(t)}{(1+R)^{t-r}} \\ &= \frac{\$ 27.000}{(1+0.12)^{58-55}} + \frac{\$ 27.000}{(1+0.12)^{58-56}} + \frac{\$ 27.000}{(1+0.12)^{58-57}} \\ &= \frac{\$ 27.000}{(1.12)^3} + \frac{\$ 27.000}{(1.12)^2} + \frac{\$ 27.000}{(1.12)^1} \\ &= \frac{\$ 27.000}{1.404928} + \frac{\$ 27.000}{1.2544} + \frac{\$ 27.000}{1.12} \\ &= \$ 19, 218.0667 + \$ 21, 524.2347 + \$ 24, 107.1429 \\ &= \$ 64, 849.4443 \\ &= \$ 64, 849.4443 \times 7 \\ &= \mathbf{\$ 4, 53,946.11} \end{aligned}$$

The Lev and Schwartz Model suffers from the following limitations:

1. This model ascertained the earnings on the basis of skills but ignores the concepts of productivity of employees. Skills can not be in directly proportional to earnings unless the skills are properly utilized for productivity.
2. This model ignores the productivity of promotion of employees except retirement or death.
3. Expenses of 'training and development' incurred by the company are not considered.

4. This formula method could not be used for all classes together of heterogeneous employees like unskilled, skilled and semi-skilled and also all age group. It is meant for only homogenous of employees and same age group.

➤ **HERMANSON’S UN PURCHASED GOODWILL MODEL**

This model is argued that super normal profits in a firm are the indicators of presence of human resources. The model requires computation of the ratio of net income after taxes (EAT) to total assets (excluding human assets) of each firm. This in turn is compared with the ratio for the industry as a whole. The value of human resources of a firm is then measured with the help of differential rates.

For instance:

Capital investment of a firm	= \$ 5, 00,000
Actual Rate of Return	= 18%
Normal Rate of Return	= 12%

Solution:

Capital investment of a firm	= \$ 5, 00,000
Actual Profit (\$ 5, 00,000 × 18/100)	= \$ 90,000
Normal Profit (\$ 5, 00,000 × 12/100)	= \$ 60,000
Excess profit over normal profit (Super Profit)	= \$ 30,000

$$= \frac{\text{Excess profit over normal profit}}{\text{Normal Rate of Return}}$$

$$= \frac{\$ 30,000}{0.12}$$

Value of human assets = \$ 2, 50,000

➤ **HERMANSON’S ADJUSTED DISCOUNTED FUTURE WAGES MODEL.**

This model uses compensation as a surrogate measure of person’s value to the firm. Compensation means the present value of future stream of wages and salaries to employees of the firm. The discounted future wages stream is adjusted by an ‘efficiency ratio’ which is weighted average of the ratio of the return on investment of the given firm to all the firms in the

economy for a specified period, usually the current year and the preceding four years. The weights are assigned in the reverse order i.e., 5 to the current years and 1 to the preceding fourth year.

The following formula is used:

$$\text{Efficiency Ratio} = 5 \frac{RF(0)}{RF(0)} + 4 \frac{RF(1)}{RF(1)} + 3 \frac{RF(2)}{RF(2)} + 2 \frac{RF(3)}{RF(3)} + \frac{RF(4)}{RF(4)}$$

Where:

RF (0) is the rate of accounting income on owned assets for the firm for the current year.

RE (0) is the rate of accounting income on owned assets for all the firms in the economy for the current year.

RF (4) is the rate of accounting income on owned assets for the firm for the fourth previous year.

RE (4) is the rate of accounting income on owned assets for all the firms in the economy for the fourth previous year.

The efficiency ratio measures the rate of effectiveness of the human resources operating in the given entity over a five year period. A ratio is greater than one implies that the rate of return of the firm is above the average ratio of return for all firms in the economy.

➤ **ERIC G.FLAMHOLTZ'S STOCHASTIC REWARDS MODEL**

Stochastic Rewards Model was developed by Eric G.Flamholtz. This model recognized variables that are help to determine the value of an individual to the organization. It suggests different approaches to estimate the value of human resources of the company. In order to quantify human resource value the period any employee work in the organization and value of present position are determined and discounted expedited service rewards.

Flamholtz has measured the expected realizable value of an individual as

$$E(RV) = \sum_{i=1}^n y \left[\sum_{i=1}^n \left(R_t * \frac{P(R_t)}{(1+r)^t} \right) \right]$$

Where:

E (RV) =expected realizable value

R_t = Value derived by an organization in each possible slake

$P(R_t)$ = Probability that the organization will have R_t

t = time

n = state of exit

r = discount rate

$i = 1, 2, 3, \dots$

➤ **TOTAL GROUP OF DIFFERENT CATEGORIES OF EMPLOYEES IN THE FIRM**

For Instance: The following data is in respect of Shri Balaji Company Limited. The following is a method to ascertainment of total value of employees in the organization. Using 14 % discount factor.

Distribution of Employees at Shri Balaji & Company Limited

Age	Un-Skilled		Managerial-Skilled		Technical-Skilled	
	No.	AAE \$	No.	AAE \$	No.	AAE \$
26-35	40	40,000	30	50,000	20	60,000
36-45	30	50,000	20	60,000	15	70,000
46-55	20	60,000	10	70,000	10	80,000
56-60	10	70,000	5	80,000	5	90,000

AAE: Average Annual Earnings

Solution:

The present values of earnings of each category of employees are ascertained as follows:

➤ **UN-SKILLED EMPLOYEES:**

- Age group of 26-35 and it's required to assume that all 40 un-skilled employees are just 26 years old since there is no data regarding the accurate age of all 40 employees and these all 40 employees are having 35 years service in their career. In that 35 years service first 10 years there is an average annual earnings of \$ 40,000, next second 10 years of \$ 50,000 next third 10 years \$ 60,000 and last 5 years \$ 70,000.

Particulars	P V
\$ 40,000 p.a. for first ten years in their service	\$ 2, 08,644 ^{*1}
\$ 50,000 p.a. for second ten years in their service	\$ 70,350 ^{*2}
\$ 60,000 p.a. for third ten years in their service	\$ 22,776 ^{*3}
\$ 70,000 p.a. for last five years in their service	\$ 4,711 ^{*4}
Total	\$ 3, 06,481

Calculation Notes

^{*1} \$ 40,000 × 5.2161 = \$ 2, 08,644

(5.2161 is a PVIFA at 14% for 10th year)

^{*2} \$ 50,000 × 1.407 = \$ 70,350 (6.6231 - 5.2161 = 1.407)

(6.6231 is a PVIFA at 14% for 20th year and 10th year PVIFA is deducted from 20th year PVIFA then the value would be 1.407)

^{*3} \$ 60,000 × 0.3796 = \$ 22776 (7.0027 - 6.6231 = 0.3796)

(7.0027 is a PVIFA at 14% for 30th year and 20th year PVIFA is deducted from 30th year PVIFA then the value would be 0.3796)

^{*4} \$ 70,000 × 0.0673 = \$ 4711 (7.0700 - 7.0027 = 0.0673)

7.0700 is a PVIFA at 14% for 35th year and 30th year PVIFA is deducted from 35th year PVIFA then the value would be 0.0673

- Age group of 36-45 and it's required to assume that all 30 un-skilled employees are just 36 years old; these all 30 employees are having 25 years service in their career. In that 25 years service first 10 years there is an average annual earnings of \$ 50,000, next second 10 years of \$ 60,000 and last 5 years \$ 70,000.

Particulars	P V
\$ 50,000 p.a. for first ten years in their service	\$ 2, 60,805 ^{*1}
\$ 60,000 p.a. for second ten years in their service	\$ 84,420 ^{*2}
\$ 70,000 p.a. for last five years in their service	\$ 17,486 ^{*3}
Total	\$ 3, 62,711

Calculation Notes:

^{*1} \$ 50,000 × 5.2161 = \$ 2, 60,805

^{*2} \$ 60,000 × 1.407 = \$ 84,420 (6.6231 - 5.2161 = 1.407)

$$^{*3} \$ 70,000 \times 0.2498 = \$ 17,486 \quad (6.8729 - 6.6231 = 0.2498)$$

- Age group of 46-55 and it's required to assume that all 20 un-skilled employees are just 46 years old; these all 20 employees are having 15 years service in their career. In that 15 years service first 10 years there is an average annual earnings of \$ 60,000, and last 5 years \$ 70,000.

Particulars	P V
\$ 60,000 p.a. for first ten years in their service	\$ 3, 12,966 ^{*1}
\$ 70,000 p.a. for last five years in their service	\$ 64,827 ^{*2}
Total	\$ 3, 77,793

Calculation Notes:

$$^{*1} \$ 60,000 \times 5.2161 = \$ 3, 12,966$$

$$^{*2} \$ 70,000 \times 0.9261 = \$ 64,827 \quad (6.1422 - 5.2161 = 0.9261)$$

- Age group of 56-60 and it's required to assume that all 10 un-skilled employees are just 56 years old; these all 10 employees are having only 5 years service in their career. In that 5 years service they will draw the \$ 70,000 for 5years.

Particulars	P V
\$ 70,000 p.a. for last five years in their service	\$ 2, 40,317 ^{*1}
Total	\$ 2, 40,317

Calculation Notes:

$$^{*1} \$ 70,000 \times 3.4331 = \$ 2, 40,317$$

➤ **MANAGERIAL SKILLED EMPLOYEES**

- Age group of 26-35 and it's required to assume that all 30 Managerial-Skilled Employees are just 26 years and these all 30 employees are having 35 years service in their career. In that 35 years service first 10 years there is an average annual earnings of \$ 50,000, next second 10 years of \$ 60,000 next third 10 years \$ \$ 70,000 and last 5 years \$ 80,000.

Particulars	P V
\$ 50,000 p.a. for first ten years in their service	\$ 2, 60,805 ^{*1}
\$ 60,000 p.a. for second ten years in their service	\$ 84,420 ^{*2}
\$ 70,000 p.a. for third ten years in their service	\$ 26,572 ^{*3}
\$ 80,000 p.a. for last five years in their service	\$ 5,384 ^{*4}
Total	\$ 3, 77,181

Calculation Notes:

^{*1} $\$ 50,000 \times 5.2161 = \$ 2,60,805$

^{*2} $\$ 60,000 \times 1.407 = \$ 84,420$ ($6.6231 - 5.2161 = 1.407$)

^{*3} $\$ 70,000 \times 0.3796 = \$ 26,572$ ($7.0027 - 6.6231 = 0.3796$)

^{*4} $\$ 80,000 \times 0.0673 = \$ 5,384$ ($7.0700 - 7.0027 = 0.0673$)

- Age group of 36-45 and it's required to assume that all 20 Managerial Skilled Employees are just 36 years old; these all 20 employees are having 25 years service in their career. In that 25 years service first 10 years there is an average annual earnings of \$ 60,000, next second 10 years of \$ 70,000 and last 5 years \$ 80,000.

Particulars	P V
\$ 60,000 p.a. for first ten years in their service	\$ 3,12,966 ^{*1}
\$ 70,000 p.a. for second ten years in their service	\$ 98,490 ^{*2}
\$ 80,000 p.a. for last five years in their service	\$ 19,984 ^{*3}
Total	\$ 4,31,440

Calculation Notes:

^{*1} $\$ 60,000 \times 5.2161 = \$ 3,12,966$

^{*2} $\$ 70,000 \times 1.407 = \$ 98,490$ ($6.6231 - 5.2161 = 1.407$)

^{*3} $\$ 80,000 \times 0.2498 = \$ 19,984$ ($6.8729 - 6.6231 = 0.2498$)

- Age group of 46-55 and it's required to assume that all 10 Managerial Skilled Employees are just 46 years old; these all 10 employees are having 15 years service in their career. In that 15 years service first 10 years there is an average annual earnings of \$ 70,000, and last 5 years \$ 80,000.

Particulars	P V
\$ 70,000 p.a. for first ten years in their service	\$ 3,65,127 ^{*1}
\$ 80,000 p.a. for last five years in their service	\$ 74,088 ^{*2}
Total	\$ 4,39,215

Calculation Notes:

^{*1} $\$ 70,000 \times 5.2161 = \$ 3,65,127$

^{*2} $\$ 80,000 \times 0.9261 = \$ 74,088$ ($6.1422 - 5.2161 = 0.9261$)

- Age group of 56-60 and it's required to assume that all 5 Managerial Skilled Employees are just 56 years old; these all 5 employees are having only 5 years service in their career. In that 5 years service they will draw the \$ 80,000 for 5years.

Particulars	P V
\$ 80,000 p.a. for last five years in their service	\$ 2, 74,648 ^{*1}
Total	\$ 2, 74,648

Calculation Notes:

$$*1 \ \$ 80,000 \times 3.4331 = \$ 2, 74,648$$

➤ TECHNICAL SKILLED EMPLOYEES

- Age group of 26-35 and it's required to assume that all 20 Technical-Skilled Employees are just 26 years and these all 20 employees are having 35 years service in their career. In that 35 years service first 10 years there is an average annual earnings of \$ 60,000, next second 10 years of \$ 70,000 next third 10 years \$ \$ 80,000 and last 5 years \$ 90,000.

Particulars	P V
\$ 60,000 p.a. for first ten years in their service	\$ 3, 12,966 ^{*1}
\$ 70,000 p.a. for second ten years in their service	\$ 98,490 ^{*2}
\$ 80,000 p.a. for third ten years in their service	\$ 30,368 ^{*3}
\$ 90,000 p.a. for last five years in their service	\$ 6,057 ^{*4}
Total	\$ 4, 47,881

Calculation Notes:

$$*1 \ \$ 60,000 \times 5.2161 = \$ 3, 12,966$$

$$*2 \ \$ 70,000 \times 1.407 = \$ 98,490 \ (6.6231 - 5.2161 = 1.407)$$

$$*3 \ \$ 80,000 \times 0.3796 = \$ 30,368 \ (7.0027 - 6.6231 = 0.3796)$$

$$*4 \ \$ 90,000 \times 0.0673 = \$ 6,057 \ (7.0700 - 7.0027 = 0.0673)$$

- Age group of 36-45 and it's required to assume that all 15 Technical Skilled Employees are just 36 years old; these all 15 employees are having 25 years service in their career. In that 25 years service first 10 years there is an average annual earnings of \$ 70,000, next second 10 years of \$ 80,000 and last 5 years \$ 90,000.

Particulars	P V
\$ 70,000 p.a. for first ten years in their service	\$ 3, 65,127 ^{*1}
\$ 80,000 p.a. for second ten years in their service	\$ 1, 12,560 ^{*2}
\$ 90,000 p.a. for last five years in their service	\$ 22,482 ^{*3}
Total	\$ 5, 00,169

Calculation Notes:

^{*1} $\$ 70,000 \times 5.2161 = \$ 3, 65,127$

^{*2} $\$ 80,000 \times 1.407 = \$ 1, 12,560 (6.6231 - 5.2161 = 1.407)$

^{*3} $\$ 90,000 \times 0.2498 = \$ 22,482 (6.8729 - 6.6231 = 0.2498)$

- Age group of 46-55 and it's required to assume that all 10 Technical Skilled Employees are just 46 years old; these all 10 employees are having 15 years service in their career. In that 15 years service first 10 years there is an average annual earnings of \$ 80,000, and last 5 years \$ 90,000.

Particulars	P V
\$ 80,000 p.a. for first ten years in their service	\$ 4, 17,288 ^{*1}
\$ 90,000 p.a. for last five years in their service	\$ 83,349 ^{*2}
Total	\$ 5, 00,637

Calculation Notes:

^{*1} $\$ 80,000 \times 5.2161 = \$ 4, 17,288$

^{*2} $\$ 90,000 \times 0.9261 = \$ 83,349 (6.1422 - 5.2161 = 0.9261)$

- Age group of 56-60 and it's required to assume that all 5 Technical Skilled Employees are just 56 years old; these all 5 employees are having only 5 years service in their career. In that 5 years service they will draw the \$ 90,000 for 5years.

Particulars	P V
\$ 90,000 p.a. for last five years in their service	\$ 3, 08,979 ^{*1}
Total	\$ 3, 08,979

Calculation Notes:

^{*1} $\$ 90,000 \times 3.4331 = \$ 3, 08,979$

➤ **CONCLUSION**

Human resource accounting provides quantitative information about the value of human assets, which helps the top management to take decisions regarding the adequacy of human resources. When proper valuation and accounting of human resources is not done then the management is not able to recognize the negative effects of certain programs, which are aimed at improving profits in the short run. If not recognized on time, these programs could lead to a fall in productivity levels, high turnover rates and low morale of existing employees. In this era of modernization and globalization, it is essential for an organization to consider its human

resources as an asset. The gradual development has been witnessed in this field and still the new approaches and models are being given. There are several methods and models currently in use to determine the value of an individual such as cost approach and the economic value approach.

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