



The Measurements of Human Resources Accounting: The Applications and Challenges in Facing the Industrial Revolution 4.0

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Abstract. The idea of Human Resource (HR) measurement and reporting has developed over the last four centuries. The economic theory and concept of Human Resource Accounting (HRA) have been debated by accountants. HR is a company's most important asset, however, there are no formal regulations to recognize, measure and report it in financial reports. This study used literature in the form of secondary data such as documents, journal articles. Descriptive and content analysis approaches were used to collect and filter HRA information. The researchers looked at the contribution and controversy of the concept, the application, the development of HRA, and the methods for each stage. The valuation methods were classified according to the measurement type, and then the strength and weaknesses of each method were analyzed. Basically, the existence of HRA reporting will increase the quality of financial information for decision-makers. It shows corporate responsibility to external parties. Lev and Schwartz's model was a Human Asset valuation method that has been mostly applied in India. However, in some industries, different countries implement HRA differently; for instance the football industry in England, the artist management industry in South Korea, the financial industry in Sweden and the mining industry in Indonesia. In Indonesia, HRA is implemented only on disclosures in a sustainability report.

Keywords: Human Asset, Human Resources Accounting, Contribution and Controversy, Valuation Method, Financial Report Disclosure. .

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INTRODUCTION

To be competitive, companies require facilities and treatment for human resources in the process of acceleration ability, motivation and work ethic. Companies should motivate workers to innovate so that they can survive and compete in the market. Innovation requires information about Human Resource Accounting (HRA) as a tool to achieve company goals.

The adequate number of knowledge workers will support the progress of a company (Tanjung and Basuki, 2013; Tjahjadi and Soewarno, 2019; Utama and Mirhard, 2016; Minh, 2019). HRA is not new in the field of economics. Scientists in the field of accountancy introduced the term "human assets" less than four centuries ago. HRA has a large number of pros and cons, therefore the researchers are interested in studying the topic of HRA assessment and the methods used from the 1960s to the present. This study focuses on the implementation of HR as a component of assets in financial statements. The inherent criteria in assets are becoming an important discussion in this study. This study discusses deeply the real practice of publicly listed international companies in the disclosure of the HRA in the financial statements. Six countries were selected as references, i.e. the United Kingdom, India, Sweden, Germany, South Korea and Indonesia. Those countries are selected due to the availability of the literature seen from the aspect of the abundant articles that discuss this topic, and the different types of superior industries of each country. Finally, this study will reveal the relevant methods to be applied by companies in different industries.

LITERATURE REVIEW

Companies often recognize that employees are their main asset (Cherian and Farouq, 2013). Humans are vital resources for sustaining the enterprise, but unfortunately, official and binding rules regarding HR across all sectors in annual financial reporting have not existed. Sometimes people feel HR would be valued higher if compared to companies' fixed assets, but conventional accounting has not been able to acknowledge and record the value of HR. One example regarding the importance of valuing HR is how the

resignation announcement of Bill Gates from Microsoft simultaneously decreased the market price of the company's shares. Though not a discernible influence for the company, the resignation significantly impacted the stock price at the time. Some companies sustained their existence from 1980 until the present time such as Intel, Microsoft and Amgen. Those companies were entrusted to their HR capital and were able to survive the competition and maintain annual earnings.

RESEARCH METHODOLOGY

This study used a qualitative approach. The technique of data analysis is based on content analysis. Data collection began with a literature search as to HRA, its concepts, theories and applicable standards such as IFRS and PSAK. This study also analyzed some thesis and dissertation that discuss HRA. Last but not least, the annual reports and sustainability reports of some companies are downloaded and analyzed to see the measurement, presentation and disclosure of HRA.

This study limits the discussion regarding HRA by answering the research questions provided below:

Table 1. *Research Questions.*

Questions	References
How does the international response against the pros and cons of applying the HRA?	(Akinsoyinu, 1992)
How is the development of the measurement method of HRA from the year 1960s until 2015?	(Spicheland and Zaunbrecher, 1976; Flamholtz et al., 2002)
What are the advantages and disadvantages of each method in measuring HRA?	(Flamholtz, 1974; Fulmer and Ployhart, 2013; Dalvadi, 2010; Malavika, 2012; Dasari et al., 2013; Gupta, 1994)
How is HRA practiced in countries such as the United Kingdom, India, South Korea, Sweden, Germany, and Indonesia?	(Petty, 1966)
What is the appropriate method for measuring the HRA in each country?	

RESULT

Contribution and controversy of the concept of HRA

Currently, every country is shifting to the knowledge-based industry. Knowledge such as intellectual capital and management knowledge are the main basis for success. The power of thought or brain power is paramount. HRA is one way to find out a company's brainpower. It is measured by determining the cost and value of employees in their financial statements. Through online and printed advertisements, companies will try to recruit qualified HR and then invest heavily to produce ready-to-use HR. According to Akinsoyinu (1992), there are internal and external factors that can drive and obstruct the implementation process of the HRA concept in the company.

Table 2: *The Analysis of Pros and Cons in the Implementation of HRA in the Company*

Factor	Internal	External
Obstacle	<ol style="list-style-type: none"> 1. Uncertainty in the process of determining the value of HR's useful life. 2. Uncertainty in measuring the contribution value of each HR for the company. 	<ol style="list-style-type: none"> 1. Future uncertainties related to government policies such as minimum wages or salaries, allowances, income taxes, etc that impact the level of HR income. 2. The absence of formal rules governing the practice of HRA.
Drivers	<ol style="list-style-type: none"> 1. Enabling companies to evaluate the value of HR in each period. 2. Considerations for the decision-making process. 	<ol style="list-style-type: none"> 1. Giving added value for shareholders in terms of uniqueness, system, and method applied. 2. Providing trust for potential investors to invest in the company.

The Development History and the Discovery of Various Measurement Methods of HRA

Spiceland and Zaunbrecher (1976) argue that HRA has been discussed for the last four centuries. More recently the concept can be traced to Petty (1666), who conceptualized value for money from HR, by making payroll capitalization at the market interest rate. HR was given a monetary value, by ascertaining the present value of individuals' net future earnings. The number of family dependents was another factor. But the concept was novel. It did not get support. The research stalled until the next century. That was despite governments, corporations and others discussing HRA since 1960, with some government funding for HRA research, and corporations supporting it by licensing the corporate application of methods and concepts. Flamholtz (2002) divides HRA development and methods into five stages:

Table 3: *The Emergence and the Development Stages of the HRA Method.*

Years	Measurement
The first stage of the origin of the HRA concept, characterized by the growing interest in HRA, the origin of the basic concepts of HRA and the theoretical framework of HRA.	
1964	1. Historical Cost Method. This method was once applied to RG. Barry Corp, introduced by Brummet, Flamholtz, and Pyle. 2. The Adjusted Discounted Future Wages method uses the weighting (ratio) in its calculations. It was introduced by Hermanson.
The second stage is the period of basic academic research to develop and assess the validity of HR cost measurement models.	
1967	1. Opportunity Cost Model
1868	2. Group Value Concept
The third stage is an increase in the number of published research. Establishment of HRA committees by the American Accounting Association in 1971-1972 and 1972-1973. This committee publishes a report on the development of HRA.	
1971	1. Discounted Value of Future Wages Model 2. Reward Valuation Model 3. Stochastic Model
1973	1. Replacement Cost Model 2. Net Benefit Model 3. Rate Of Return On Effort Model
1974	1. Dollarized Attitude 2. Valuation On Group Basis
1976	1. Aggregate Payment Approach 2. Certainty Equivalent Net Benefit Model
The fourth stage is the period of declining interest in the concept of HRA, both from academics and industry.	
1980	Standard Cost Method
The last stage is the period where the interest of various parties in the concept of HRA re-emerge because the main focus of the company today is not only on physical aspects (tangible assets) but also on non-physical aspects (intangible assets).	
1991	Cost of staff turnover
1994	Skandia Navigator
1998	1. Method of measurement proposed by Dobija 2. Balanced Scorecard
2002	HR scorecard

Disclosure of Human Resource Accounting In Financial Statements

India is a country that already has formal rules, issued by the Institute of Chartered Accountants of India (ICAI). But their existence has not been able to attract companies to the concept of the HRA. The level of HRA information disclosure remains low. Only about 1% of the public companies in India report HR value in financial statements. The following table is summarized data based on prior studies on HRA disclosure in Indian companies.

Table 4: Practice HRA for Indian Companies

	CCI	HPCL	Infosys	ONGC	Rolta
The Year of Establishment	1965	1974	1992	1995	1989
Listing Status	Public	Public	Non-public	Public	Non-public
Years of HR reporting	1979-1980	1981-1982	1995-1996	1981-1982	2002
Presentation Method	Separate reports and combination with financial statements and social accounts including HRA	Separate report	Separate report and combination with balance sheet	Separate report	Separate report
Separate Statements	Our employees - our greatest assets	Human resource accounting	Human resource valuation	Human resource valuation	Human resource valuation
Location of Disclosure	Separate section	Separate section	Additional information	Director's report	Separate section
Reason of Disclosure	To know the potential of HR, the impact of training and HR development in achieving company goals.	HR as the key to the company's success and as a tool in determining the value of HR.	To increase profitability, competence, adopt cultural change, market feasibility evaluation for investors to see the value of HR	Not specified	Providing HR services for the company will increase future profits

Most Indian companies are disclosing the HRA in a separate financial statement. But only one company, Infosys, has been able to clearly disclose HR in the balance sheet.

Human Asset Measurement Method

After outlining the development of the HRA concept, in terms of chronology and methodology, the researchers will try to classify its measurement method. The following figure is based on the method of Human Asset valuation:

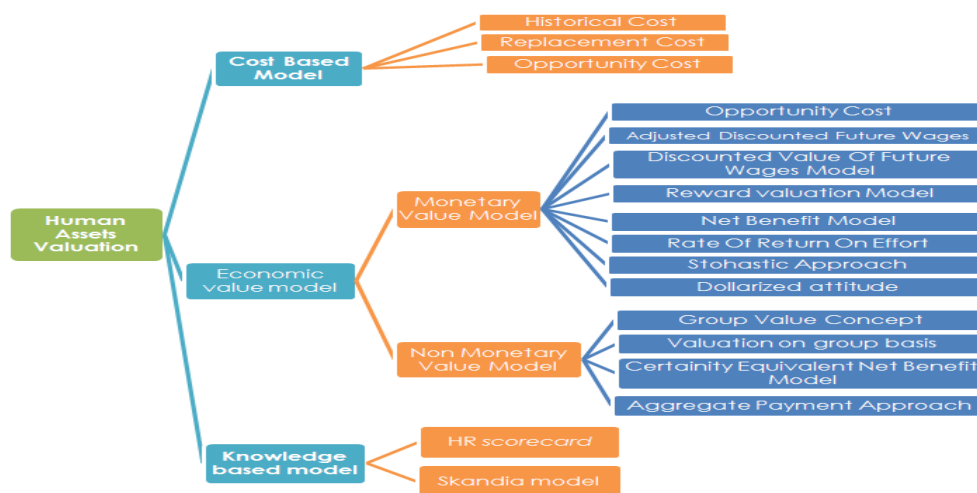


Figure 1. Classification of Human Asset Valuation Method

The above grouping is classified by Eric Flamholtz (1974). Flamholtz (1974) classified valuation methods into the cost-based model and economic-value model. The former was then divided into a monetary value model and a non-monetary value model. Recently, Fulmer and Polyhart (2013) added a new method called the knowledge-based model. The explanation of each type of measurement will be provided in the following section:

Cost-Based Model

Historical Cost

Brummet, Flamholtz & Pyle (1968) discovered the model of cost capitalization and amortization. Capitalization is calculated for all expenses, such as new employee recruitment, selection, payroll, and education or training. Those costs are then amortized over the useful life of HR while acknowledging the loss due to the HR recruitment process. It has been applied to the R.G Barry Corporation.

Table 5: *The Limitations and Advantages of Historical Cost*

Limitations	Advantages
1) The value of HR is adjusted to its historical value.	Recognizing the loss due to the HR recruitment process, or adding the asset value due to the additional cost of increasing the HR potential.
2) Subjective in the appreciation/amortization	
3) There is no rule regarding the cost limits.	

Replacement Cost

The replacement cost method consists of the cost of replacing a company's HR. It includes the overall cost of HR recruitment, payroll, education and training, placement and development of HR. Development costs are focused on equalizing the potentials and abilities of new HRs to achieve the same standard of ability and experience of previous HRs.

Table 6: *The Limitation and Advantages of Replacement Cost*

Limitations	Advantages
1) The company may have an HR whose value is greater than the cost of its relevant replacement 2) It is hard to find an equal replacement for HR. 3) Subjectivity in determining replacement cost.	The company can know the economic value of HR.

Standard Cost

This is an analytical system. It is aimed at controlling and making an HR-related policy fit the career path and hierarchy of HR competency.

Table 7: *The Limitation and Advantages of Standard Cost*

Limitations	Advantages
Focusing on inputs (training and development), and ignoring other influencing factors such as salary, rewards, health insurance.	Setting standard cost for HR recruitment, training, and capacity building at the employee level

Economic value model

This model has monetary and non-monetary value approaches:

Monetary Value Approach

The monetary value approach measures human values. They measure HR using monetary value. They consist of eight elements:

Opportunity Cost

The cost is determined by the bargaining process within the company. Individuals compete to be a benchmark in the company. The more HR contribute to the company, the higher their value. It's also called "alternative use of employee".

Table 8: The Limitations and Advantages of Opportunity Cost

Limitations	Advantages
a) Limited for whom that have the best competency.	a) Internal recruitment can maximize the performance and allocation of HR for the company.
b) Decreasing the morale and productivity of HR	b) A quantitative basis for planning, evaluating and developing HR as the company's main asset
c) The supply of HR in one division or expertise, but the HR is not necessarily proficient in other divisions	

Adjusted Discounted Future Wages

This method proposes adjusting a compensation value to reflect human value for the company.

Formula:

$$\text{Efficiency Ratio} = \frac{5\frac{RF_0}{RE_0} + 4\frac{RF_1}{RE_1} + 3\frac{RF_2}{RE_2} + 2\frac{RF_3}{RE_3} + \frac{RF_4}{RE_4}}{5} \quad (1)$$

Note:

RF = The accounting income level of the company's assets for the first year

RE = Accounting income level for assets owned by all firms in the economy year I

I = Year (0 to 4)

Table 9: The Limitations and Advantages of Adjusted Discounted Future Wages

Limitations	Advantages
There needs to be an adjustment between the compensation value and the efficiency factor.	The advantage of this method lies in the difference in profitability achievement.

Discounted Value of Future Wages Model

It assesses HR according to the present value. HR is classified according to age, skill and average income within a year. Then, company will calculate the total income from their HR until retirement age, and the value of the human assets obtained by discounting the cost of capital.

$$V_r = \sum_{t=r}^T \left\{ \frac{I(t)}{(1+r)^{t-r}} \right\} \quad (2)$$

Note:

V_r: The value of a person's HR at the age of 'r'

I (t): The individual's annual income until is retirement age

Q: Age of retirement

R: A certain discount rate for people

T: Years of active service

Table 10: The Limitations and Advantages of Discounted Value of Future Wages Model

Limitations	Advantages
Ignoring other considerations for the company (seniority, competitive capacity, ability, experience, early retirement, career change).	In accordance with the time value and income expected from HR in the future because it calculates the benefits of an HR until he retires.

Reward Valuation Model

Found by Flamholtz (1974), this model is the improvement of the discounted value of the future wages model. It considers aspects of career hikes, as well as HR roles in creating impacts for the company. It assumes no direct relationship between the costs incurred with the value of the company.

$$E(RV) = \sum_{i=1}^n y \left[\sum_{t=1}^n \left\{ R_t * \frac{P(R_t)}{(1+r)^t} \right\} \right] \quad (3)$$

Note:

E (RV): Expected value of realization

R_t: The value the organization gains from every possibility#

P (R_t): The probability of company ownership in HR

T: Time

N: Exit conditions from the company

R: Discount rate

I: 1,2,3,

Table 11: *The Limitations and Advantages of Reward Valuation Model*

Limitations	Advantages
Having a high degree of subjectivity which can be seen from the variable such as employee contributions.	Providing alternative calculations with the possibility of a career hike.

Net Benefit Model

The value of HR is equivalent to the value of the net benefits obtained by the company. The first stage of this calculation is to ascertain the gross value of collective services to be provided in the future. The value obtained then will be reduced by the investment cost of HR either directly or indirectly. The difference between those two values is the real value of the benefits of HR for the company. The present value of net benefits is obtained using the discount rate formula found at the cost of capital.

Table 12: *The Limitation and Advantages of Net Benefit Model*

Limitations	Advantages
There is no clear indicator of the gross value of the services provided (the variable of working hours, the productivity of outputs of services or goods and others).	Ascertaining the real value of the HR benefits for the company

Rate of Return on Effort

This is the method of the rate of return on work so that the allocation of HR is more effective and efficient. Certain assumptions and factors have been adapted to company needs, organizational structure, level of employment and employee quality.

$$\text{Rate of return} = A \times B \times C \quad (4)$$

Rate of return on effort is linked to the company's earnings to obtain units in Rupiah

Note:

A: A person's value to the company,

B: Experience and length of a person's contribution. For example 1-5 years = 1.5 points and 6-10 = 3 points etc,

C: One's performance

For example bad = 0.5, enough = 1, and well 1.5

Table 13: *The Limitations and Advantages of Rate of Return on Effort*

Limitations	Advantages
Subjectivity in determining the value of a person because there is no clear indicators and rules	The company can allocate HR according to the needs, organizational structure, employment level and employee quality.

Stochastic Approach

This method was discovered by Flamholtz (1974). It focuses on one's service. It shows the value of HR from their ability to provide services. This method considers the movement of an individual as an independent entity such as rules and services over a period of time.

Table 14: *The Limitations and Advantages of Stochastic Approach*

Limitations	Advantages
1) It is difficult to estimate the probability of possible service status for each HR.	1. It considers the possibility of changing positions and rules for HR
2) Ignoring any added value of individual elements as a team	2. It considers the benefits of future human assets.

Dollarized Attitude

This measurement is based on cause and effect. It is focused on the amount of salary and employee behavior that become the primary variables to determine the success rate of HR. The following table is the application of this model.

Table 15: The Application of Dollarized Attitude Model

No	Individual	Annual Salary (\$)	Job Grade	Tenure	Attitude Weight	Attitude Score	Weighted Attitude Score
1.	John Doe	14,000	28	5	5	1.50	7.50
2.	Mary Brown	7,000	57	11	5	1.45	7.25
3.	Harry Smith	9,000	12	22	7	1.68	11.76
4.	Bill Jones	6,500	72	3	3	1.55	4.65
5.	Jim Johnson	18,500	30	4	6	1.72	10.32
		55,000			26		41.48
	Attitude index		$\frac{41.48}{26} = 1.60$				
	Dollarized attitude		1.60 * \$ 55,000 = \$ 88,000				
	Gain		\$ 33,000;				
	Gain per person		\$ 6,600				

Source: Flamholtz (1999)

Table 16: The Limitations and Advantages of Dollarized Approach

Limitations	Advantages
Only based on two variables of cause and effect that are focused on the amount of salary and employee behavior.	The company can recognize the future benefits of any existing HR.

Non-Monetary Value Approach

Non-Monetary value approach is an alternative measurement that emphasizes the perception or the achievement of HR in the company. Non-Monetary Value Approach consists of four models. Those models will be explained in the following sections.

Group Value Concept

This concept uses three variables in its calculation. They are causal variables, intervening variables and end-result variables. Causal variables are controlled factors in companies such as organizational structure, management policies, business decisions, leadership strategies, skills, and behaviors. Intervening variables are company's ability or company's internal conditions such as loyalty, behavior, motivation, and perceived collective achievement by all company members. End-result variables are dependent variables that reflect company's performance such as productivity, cost, loss, growth of market share and income. To make an assessment, a Likert-scale questionnaire is used as a tool to gather information and data.

Table 17: The Limitations and Advantages of Group Value Concept

Limitations	Advantages
The questionnaire must be filled in by the company's HR, to inter-relate these three variables.	Through analyzing these three variables, any strong relationship among the variables will result in greater short-term profits and cost savings in the accounting system.

Valuation on the Group Basis

This measurement was invented by Jaggi and Lau (1974). It focuses on HRA assessment in groups, compared with the assessment of each individual in the firm.

$$[TV] = [N] \sum_{i=1}^n r^n [T]^n [V] \quad (5)$$

Note:

TV = The vector column is the HR score in each group.

(N) = The Column vector shows the number of HR in each rank.

N = Time period

R = Discount rate

(T) = The rank of the transition matrix is the probability of dismissal.

(V) = Column vector showing the accumulation of the economic value of HR from the initial group stage until the end of each period

Table 18. *The Limitations and Advantages of Valuation on the Group Basis*

Limitations	Advantages
Focusing on HRA assessment on a group basis	The number of employees and the probability of dismissal of employees as aspects of assessing HR

Certainty Equivalent Net Benefit Model

This method recognizes that the value of net profits earned by the company in the future will increase and must be taken into account. Its value starts by calculating the net benefits for each employee, as in the net benefit model, then determining the certainty factor in which the benefits will be available. The net benefits of all employees will then be multiplied by a certainty factor, which becomes the HR value owned by the company.

Table 19: *The Limitations and Advantages of Certainty Equivalent Net Benefit Model*

Limitations	Advantages
Unknown comparison of employee levels for professionalism.	The company can know the net benefits of all employees and the certainty factor (employment contract).

Aggregate Payment Approach

This model is developed by Sk. Chakraborty Institute of Management of Calcutta in India in 1976. Chakraborty proposed to include the value of HR as a human asset and was classified as an investment rather than as a current asset or non-current asset. Chakraborty values managerial and non-managerial aspects separately. HR is valued by multiplying the average salary of each group, by the average HR working life in that group.

$$V = \sum_{i=1}^n \left\{ N_i * \frac{AS_i}{(1+k)^n} \right\} + AC$$

(6)

Note:

V: The value of an employee category

N: Number of employees

AS: Average annual salary

K: Return on capital for employees after tax

I: 1, 2, 3 n years (average time employed)

Table 20. *The Limitation and Advantages of Certainty Equivalent Net Benefit Model*

Limitations	Advantages
There is a separation of the amortization function of investment and the present value of HR.	A separate evaluation of the value of managerial and non-managerial features.

Knowledge-based Model

Basically, this method is an evaluation of internal and external parties in the company. It is closely related to the balanced scorecard (BSC) method. HRA measurements would be effective if using BSC. The types of measurements related to BSC are:

HR scorecard

The HR scorecard method is an extension of the balanced scorecard (BSC) method. This method measures HR contributions to the company. There are three dimensions of strategic contribution from HR; HR function, HR system, and HR behavior in the company. In assessing Human Assets, the costs and benefits of each type of intervention from human resource management are conceptualized as several interrelated components; namely baseline operating cost, adjustment cost, steady-state cost, administrative cost and direct cost.

Table 21. Limitation and Advantages of HR Scorecard

Limitations	Advantages
This method can be applied only if the company management is committed to the periodic assessment of Human Assets.	Allowing the company to do its important task: managing HR as a strategic asset and being able to demonstrate HR's contribution to the company's financial success.

Skandia Model

Skandia Navigator values HR. This method divides the financial and non-financial sections. The financial section comprises only one part of the financial focus. The non-financial aspect has four focuses: process, humans, customers, and renewal and development.

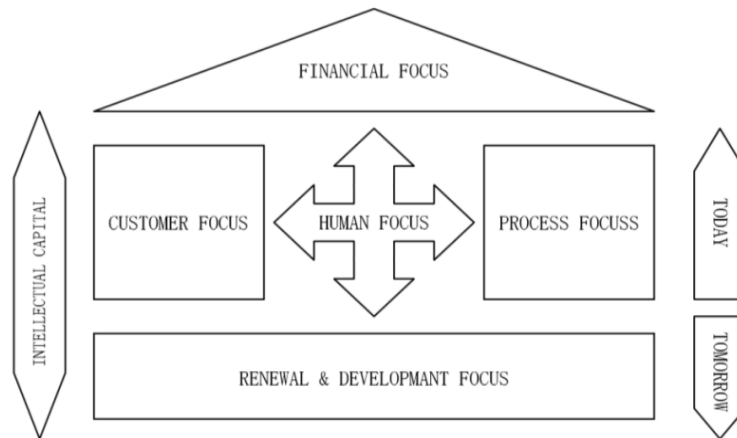


Figure 2. Skandia Navigator

Source: Forsman (1995)

Table 22. The imitation and Advantages of Skandia Model

Limitations	Advantages
This method does not describe the value of HR owned by the company. It is limited to show the turnover and the number of employees at the company.	A combination of financial and non-financial sections in realizing the company's vision. The financial section identifies a financial focus, and the non-financial section identifies customer focus, human focus, process focus and renewal, and development focus.

The appropriate and possible methods to use are in line with the applicable principles

The most commonly used measurement method in Indian companies is the Discounted Value Method of Future Wages Model. Malavika (2012) explained that this method assesses HR needs to set basic assumptions such as employee compensation either directly or indirectly, then determines incremental income from the HR group based on competency and age, and subsequently discounts future HR income based on the formula.

Table 23. The Analysis of Human Asset and Its Disclosure

Aspect	IT (Software)	Soccer	Finance	Artist Management	Mining
Country	India	English	Sweden	South Korea	Indonesia
Company	Infosys Ltd	Manchester United	Skandia AFS	SM Entertainment	PT.Timah Tbk
Definition	Software experts	Field Star	Intellectual capital	Public Idols	All employees
Recognition	Skill classification (skill,	Contract of employment of football	The division of human focus on the	Artist's contract of work on	Distribution of employee composition

	unskilled, semiskilled)	players (IAS 38)	Skandia Navigator chart	management (IAS 38)	(age, gender, operational area)
Assessment and Measurement of HRA	Method of the discounted value of future wages or Lev and Schwartz Model	Player Rating based on transfer value, historical cost method	Separation of financial and non-financial aspects, evaluation in terms of employee turnover	The artist's judgment is based on the offer of drama play and cassette sales results; the opportunity cost method	Key Performance Indicator
Disclosure of HRA	In the Human Resource Valuation chart	Player's registration account in the consolidated balance sheet	In the company's annual report	In the chart of accumulated sales of CD cassette for each artist	In the list of awards given to outstanding employees
Type of disclosure	Voluntary disclosure	Voluntary disclosure	Voluntary disclosure	Voluntary disclosure	Voluntary disclosure

Various industries in each country provide an overview to researchers about the practice of HRA disclosure. There is no most appropriate method for measuring Human Assets. But, there are methods that are most often applied in the company. For example, in India, the economic value model with a monetary value approach is implemented, such as adjusted discounted future wages. In the UK, the football industry reports club players using the cost-based model; i.e. historical cost method. In South Korea, the artist management industry performs disclosure in the form of sales diagrams of cassettes and CDs for each artist. In Sweden, the company of Skandia AFS chooses the Skandia navigator method to measure Intellectual capital. Finally, in Indonesian, the researchers pick PT Timah, as the award-winning public company in terms of corporate disclosure. PT Timah does not seem to calculate the company's HR but discloses the importance of HR by stating that HR is one of the main capital of the company.

CONCLUSION

Based on the content analysis from the selected literature and discussion provided in the previous sections, this study concludes several things:

1. There are pros and cons regarding the concept and the measurement of Human assets from international companies and academics. Thus, HRA is regarded as a part of financial statements, and the effectiveness of HRA implementation is centered on the costs incurred by the management company.
2. The development of HRA methods has its ups and downs. It is evident in the decrease and increase of interest from researchers to innovate new ideas related to the concept of HRA. The cause of the decline in the development process of the HRA concept is that there is no further research in terms of theory and practice in the application of the concept, and there is no common perception among the stakeholders in formulating the appropriate model for assessing Human Assets.
3. Each measurement method has its limitations and advantages, but there is one method that is most commonly applied in India; a method of discounted future wages known as the Lev and Schwartz model.
4. The practice of HRA disclosure has been applied in numerous forms. It applies to the software industry (Infosys Ltd) in the form of Human Resource Valuation charts on corporate financial statements, the UK football industry (Manchester United FC) with player's registration account on balance sheets, South Korea through the artist management industry (SM Entertainment) showing cumulative sales of cassettes and CDs from every artist, Sweden with the financial industry and the invention of the calculation method of Intellectual Capital known as Skandia Navigator (Skandia AFS). It has also been applied in the mining industry in Indonesia by disclosing HRA (PT Timah Tbk), with statements that HR is a valuable asset for the company.
5. Each of these industries conducts HRA distinctively. The appropriate methods for measuring HRA in each industry and each country depend on company's interest in adopting a good type of measurement, either based on cost, economic value or knowledge.

6. The application of human resource accounting can accommodate the development of Industrial revolution 4.0, in which knowledge provided by HR becomes the main capital in the company. In the future, therefore, knowledge-based models will grow to assess company's performance.

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