

Monetary Valuation of Human Capital: Theoretical Framework and Simulation of Modern HRA Models

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Abstract

This research is motivated by the shift toward knowledge-based economies and the rise of start-ups, where human resources are the primary strategic asset but remain unrecognized in conventional accounting. This limitation may lead to an incomplete representation of corporate value and contribute to valuation discrepancies. This study aims to examine and synthesize various monetary valuation models in Human Resource Accounting (HRA) to address the limitations of conventional accounting in recognizing human capital as a strategic asset. The study adopts a qualitative literature review and conceptual analysis, drawing on foundational theories of human resources, including Resource-Based Theory, and major monetary valuation models such as the Lev and Schwartz compensation model, the Flamholtz model of individual and organizational economic value, and the Jaggi and Lau group valuation approach. Through content and comparative analysis, the study evaluates these models based on their theoretical foundations, valuation assumptions, and practical applicability in converting human productivity into monetary value. The synthesis further demonstrates that while individual-based valuation models provide greater measurement precision, organization-level economic value approaches are more suitable for corporate reporting due to their broader applicability. This study provides a unified analytical framework for comparing major monetary valuation models in Human Resource Accounting. Overall, the study concludes that no single monetary valuation model is universally applicable; rather, model selection should align with the intended valuation objective. These findings support more effective human capital valuation and corporate reporting.

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Article history

Received 2026-04-27

Revised 2026-06-14

Accepted 2026-07-25

Keywords

Capital Expenditure

Human Capital Valuation

Human Resource

Intellectual Capital

Monetary Valuation

JEL Classification*:

M41, J24, O34

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Introduction

Bubble valuation illustrates the limitations of conventional accounting in adequately representing the value of human resources in financial statements, despite the increasing demand for such information from investors and other stakeholders in decision-making (Haddad, 2020). This limitation is consistent with recent evidence indicating that intellectual capital remains insufficiently reflected in mandatory financial reporting, promptings to voluntarily disclose intellectual capital information to reduce information asymmetry and enhance firm valuation (Rieg et al., 2023). Previous studies have shown that human resources possess characteristics similar to organizational assets, including measurability and the ability to generate future economic benefits. Human resources satisfy the asset recognition criteria under IFRS, while Hamidah et al. (2025) demonstrated that recognizing HR expenditures as assets significantly influences financial ratios and provides a different economic perspective compared with treating them solely as operating expenses. Nevertheless, challenges remain in establishing standardized measurement methods and accounting recognition for human resources, limiting the practical implementation of Human Resource Accounting (HRA) (Arora & Panchal, 2021; Dunna, 2023; Kang, 2024).

Beyond their operational role, employees are increasingly recognized as strategic assets because they create organizational value through knowledge, skills, innovation, and decision making. Recent empirical evidence further suggests that well-functioning financial systems also contribute to innovation by facilitating credit and resource allocation, reinforcing the broader role of knowledge-based assets in supporting organizational and economic development (Wen et al., 2025). Despite this economic significance, conventional accounting continues to recognize expenditures related to human resources primarily as expenses rather than assets, resulting in an incomplete representation of corporate value. Although advances in accounting and management have increasingly acknowledged humans as value creators and strategic organizational assets, standardized recognition and measurement remain limited. Human Resource Accounting Disclosures (HRAD), which measure the cost and value of people within an organization, significantly influence shareholder value, with performance and remuneration disclosures showing a positive impact on the Price-Earnings Ratio (PER) by enhancing transparency and market valuation (Olalekan et al., 2025).

Human resources, often referred to as human assets, play a fundamental role in achieving organizational objectives and sustaining business performance. In today's knowledge-based economy, HRA has become increasingly important as a mechanism for measuring, managing, and reporting human capital, enabling organizations to better recognize the strategic value of their workforce (Kang, 2024). Recent studies further emphasize that human capital constitutes a critical intangible asset that contributes to organizational competitiveness and long-term value creation, thereby requiring more comprehensive measurement and disclosure within accounting and management systems (Jo et al., 2024). The improvements in human resource quality also enhance productivity and support broader economic development (Anita & Udjianto, 2024). Moreover, HRA provides organizations with relevant information for strategic planning, resource allocation, and performance evaluation, supporting more effective managerial decision-making and enhancing organizational accountability (van der Lugt, 2024). Accordingly, recognizing human resources as organizational assets has significant implications for financial reporting quality and organizational decision-making, particularly in organizations that rely heavily on knowledge, innovation, and employee competencies (Bhooshetty, 2024).

Organizations implementing HRA recognize employee-related expenditures as capital investments rather than merely operating expenses. This approach reflects the view that investments in employees create long-term organizational value through accumulated knowledge, skills, and experience, which ultimately strengthen competitive advantage. HRA provides a framework for measuring and reporting investments in human capital, enabling organizations to better evaluate the economic value generated by their workforce and to improve strategic resource allocation. Furthermore, the integration of human capital metrics into managerial accounting systems has been shown to enhance managerial decision-making and organizational performance by providing more comprehensive information for strategic planning and performance evaluation (Samson & Bhanugopan, 2022; Arseneault & Gagnon, 2024). Recent studies also emphasize that investments in employee development, training, and knowledge creation contribute to sustainable organizational performance when managed strategically as organizational assets rather than short-term expenses (Kim, 2024). In addition, conceptual reviews indicate that HRA has evolved into an important interdisciplinary field supporting intellectual capital management, corporate reporting, and value creation in knowledge-based organizations (Bhooshetty, 2024). These findings reinforce the argument that HRA enables organizations to optimize investments in human capital and improve managerial decision-making, thereby supporting organizational performance (Sari et al., 2024). Like other organizational assets, recognizing human resources as assets requires their value to be expressed in monetary terms (Sugiarta et al., 2023). However, conventional fixed asset valuation approaches are generally insufficient because human resources embody intellectual capital, which represents a critical organizational resource requiring broader valuation approaches than those applied to tangible assets (Spaho, 2024).

Recognizing human resources as strategic assets requires organizations to adopt appropriate measurement methods within the framework of HRA to generate relevant and reliable financial information for stakeholders. Unlike conventional accounting, which generally records employee-related expenditures as operating expenses, HRA seeks to measure human capital in monetary terms and recognize these expenditures as long-term investments. Since human resources embody intellectual capital that cannot be adequately valued using conventional fixed asset approaches, organizations need valuation methods capable of capturing both cost-based and economic value perspectives (Chernov, 2023; Hiremath, 2021). Recent studies further emphasize that comprehensive human capital measurement and reporting frameworks are essential for improving transparency, accountability, and strategic decision-making within organizations (Spaho, 2024). Therefore, selecting and applying an appropriate monetary valuation approach is essential for improving the accuracy of human capital measurement and enhancing the quality of corporate financial reporting.

Despite the growing body of literature on HRA, existing studies primarily focus on recognizing human resources as organizational assets, examining the accounting treatment of employee-related expenditures, or discussing implementation challenges. Comparatively little attention has been given to systematically synthesizing and comparing the various monetary valuation models used to measure human resources, particularly with respect to their theoretical foundations, valuation assumptions, and applicability for corporate financial reporting. Consequently, organizations still lack comprehensive guidance for selecting the most appropriate valuation approach to represent human capital in financial statements. To address this gap, this study aims to examine and synthesize the major monetary valuation models in HRA and develop a comprehensive analytical framework for evaluating their strengths, limitations, and organizational applicability. This study contributes to the HRA literature by providing a systematic comparison of existing monetary valuation approaches and offering practical insights for managers, accountants, and policymakers to improve human capital measurement and corporate reporting.

Literature Review

Theoretically, Asian countries are implementing reforms to attract foreign investment as a recovery strategy. FDI is a key driver of economic growth, increased productivity, and employment opportunities in many developing and developed countries. Asia is one of the world's largest FDI destinations due to its high economic dynamism, diverse market structures, and the ongoing transformation of investment policies. FDI is a tool and medium within the global economic system; transactions are not conducted through stock exchanges because the investment is not in the form of shares, bonds, or other securities. Therefore, FDI can be defined as an investment effort physically realized in a country.

Given the growing importance of FDI in supporting economic development across Asia, numerous studies have sought to identify the key factors influencing FDI inflows into the region. Empirical evidence in Asia shows mixed results regarding the drivers of FDI inflows into Asian countries. Several studies have found that financial inclusion, defined as ease of access, availability, and benefits of the formal financial system for all economic actors, is crucial (Abor et al., 2024). Two dimensions of financial inclusion are measured: the percentage of bank financing (credit/GDP) and the number of bank branches per 100,000 adult population, both of which have a positive and significant impact on FDI. The greater the number of bank branches, the easier it is for the public to access financial services and products, thus increasing financial stability. Furthermore, investors are also more flexible in allocating funds to the production sector because the process of withdrawing money from banks, as intermediary institutions, is easier. These results support the view that banking-sector development tends to precede and is closely related to foreign investment inflows (Andiyansyah, 2021). Comparable evidence outside Asia reinforces this pattern that Majeed et al. (2021) find a bidirectional cointegrating relationship between FDI and financial development, while Odugbesan et al. (2022) show that FDI mediates the link between financial inclusion and sustainable development in Sub-Saharan Africa, and Lestari et al. (2022) report that stronger financial development, together with lower corruption, raises FDI inflows in developing countries. In a related, Wen et al. (2025) revisited the finance-innovation nexus across Asian economies and found that financial development, mediated through bank lending, exerts a robust positive effect on technological innovation, underscoring the broader role of financial-system depth in shaping economic outcomes across the region.

Beyond financial inclusion, macroeconomic stability has also been widely recognized as an important determinant of foreign investors' decisions. Among various macroeconomic indicators, inflation is one of the most frequently examined variables because it reflects the overall stability of an economy. Macroeconomic variables such as inflation, which is a continuous and significant increase in the price of goods and services over a certain period of time, have been reported to have a negative and significant impact on FDI, where an unstable economy caused by excessively high inflation has a negative impact on investment activities; when the inflation rate is too high, people's purchasing power decreases, reducing company income, causing a decline in economic growth, and creating a negative view among foreign investors toward long-term investment in the form of FDI (Zakiyyah et al., 2024). Although many empirical studies report a negative relationship between inflation and FDI because high inflation increases uncertainty and production costs, several studies argue that moderate inflation may instead reflect robust domestic demand and expanding economic activity. In countries experiencing stable and manageable inflation, foreign investors may interpret rising prices as an indication of stronger market potential rather than macroeconomic instability. Therefore, the expected direction of the inflation coefficient remains an empirical issue that warrants further investigation.

In addition to inflation, the cost of capital represented by interest rates also plays a crucial role in shaping investment decisions and influencing FDI inflows. Interest rates are the fees charged

for borrowing money for a specific period, usually expressed as a percentage. Interest rates have been found to have a positive and significant impact on FDI. This is because countries with generally low and stable interest rates encourage customers to borrow capital and divert it to the real sector, thus generating stable economic growth and being viewed favourably by foreign investors (Andiyansyah, 2021).

Besides domestic monetary conditions, the degree of a country's integration into the global economy is another important factor influencing foreign investment. One commonly used indicator of such integration is trade openness. Trade openness is the level of openness in international relations between countries. Trade openness has a positive and significant impact on FDI. Trade openness indicates a reduction in barriers to international economic activity, both trade and financial flows between countries. This reduction can be seen in tariff reductions, lower export-import taxes, and cooperative policies that facilitate the movement of goods, services, and capital between countries. Reducing trade barriers encourages foreign investors to invest in domestic markets because the returns tend to be greater.

While the previous discussion highlights macroeconomic determinants of FDI at the country level, explaining why firms choose to invest abroad also requires an appropriate theoretical perspective. One of the most influential frameworks is the Resource-Based View (RBV), which emphasizes the role of firm-specific resources in achieving competitive advantage and supporting international expansion. Resource-based theory was introduced by Penrose which states that the company's resources have heterogeneous characteristics and the provision of productive services from these resources gives uniqueness to each company. This view is reinforced by which states that a strategic action requires a specific set of physical, financial, human, or organizational resources, and therefore, competitive advantage is determined by a company's ability to acquire and maintain resources. According to Resource-based theory considers a company's resources as the main controller behind a company's performance and competitiveness. Based on this resource-based theory, an organization can be considered a collection of physical, human, and organizational resources. Organizational resources that are valuable, scarce, difficult to replicate, and difficult to replace are a key source of continuous competitive advantage to achieve continuous superior performance.

Within the RBV framework, both tangible and intangible resources contribute to a firm's competitive advantage. Among these intangible resources, intellectual capital has received considerable attention because it represents knowledge-based assets that are difficult for competitors to imitate. The resource-based view states that Intellectual Capital (IPR) has an important role, proportional to the physical capital and financial capital of the company. IPR is considered a company asset rooted in knowledge, which involves experience, skills, and abilities applied by the company. Usually, Intellectual Capital is used to support the company's business continuity with a focus on achieving long-term competitiveness. With this context in mind, companies need to design strategies to compete effectively in the market. Basically, the sustainability and capabilities of a company depend on Intellectual Capital (KPI), so that all assets owned can generate added value. Intellectual Capital is considered the ability of an organization to create, transfer, and apply knowledge.

Since intellectual capital represents an intangible organizational asset, an appropriate accounting framework is needed to recognize, measure, and report its economic value. This gives rise to the discussion of accounting practices that support the management and valuation of organizational resources. Accounting is the activity of recording or recording figures related to the monetary value of a company's transactions, which is the basis of the company's important decision-making process. These figures can be interpreted as more detailed and comprehensive

information about the company's activities in the past, present, and to predict the future. According to the APB (Accounting Principles Agency), accounting is defined as a service that provides quantitative information related to economic entities, generally conveyed in the form of money, which then becomes an alternative in economic decision-making. Iwan Triyuwono, based on this definition, concluded that there is a belief in the sustainability of accounting figures to improve the economic welfare of stakeholders through economic decision-making. Information in the field of accounting acts as a management oversight tool, a tool to increase effectiveness and efficiency, and a tool to reduce costs and so on.

Among the various resources managed through accounting systems, human resources have increasingly been recognized as strategic organizational assets because they generate knowledge, innovation, and long-term value creation. Every organization or company is required to have quality Human Resources (HR) to manage the resources it has. In other words, the large number of various resources will not be able to be managed effectively without competent human resources. Large capital becomes useless if not managed properly, and can even experience a decline in value. The same goes for raw materials, whose value will not increase if they are not processed into finished products. Advanced machines will also become worthless if they are not maintained and used efficiently. Given this important role, the organization's view of human resources is constantly evolving. Initially, human resources were only considered equal to other resources, but in the 20th century, human resources occupied a more prominent position. As the millennium enters, humans are now positioned on an equal footing with capital, due to the ability of human resources to design business plans that are able to attract investors to invest their capital, which we call human capital (Darmawan et al., 2020)

As the strategic importance of human resources has become more widely acknowledged, researchers and practitioners have developed approaches to measure their economic value systematically. One such approach is HRA. According to the HRA Committee of the American Accounting Association, HRA refers to the process of identifying, measuring, and communicating information related to human resources to relevant stakeholders. HR is the process of measuring and reporting costs that arise in an effort to find, develop, and replace labor as a resource for the organization. In this context, there are two types of costs related to human resources, namely: a) Personnel Cost Accounting, which includes costs related to the personnel management function in the search and development of human resources. b) Human Asset Accounting, which involves calculating human costs themselves as part of the company's human resources. Next, there is Human Resource Value Accounting (HRVA), where value is defined as the present value of a service in the future. In this case, HRVA is defined as the present value of the services in the future that are expected of human resources. The existence of HRCA and HRVA is the basis for efforts to diversify human resources as company assets.

Method

This study employs a qualitative approach using a conceptual literature review with a descriptive-analytical design to examine and synthesize monetary valuation models in HRA. Unlike a systematic literature review, this study emphasizes an in-depth conceptual analysis of seminal and theoretically significant works that have shaped the development of HRA and its monetary valuation approaches. The research procedure consisted of four stages. First, the study identified the research problem concerning the limitations of conventional accounting in recognizing human resources as organizational assets. Second, relevant literature was purposively selected based on its theoretical relevance to HRA, monetary valuation models, and Resource-Based Theory. The literature was identified through targeted searches in Google Scholar and Scopus using keywords related to HRA,

human capital valuation, monetary valuation, and HRA. Because this study adopts a conceptual literature review rather than a systematic literature review, no fixed publication period was imposed. Instead, priority was given to seminal works that established the theoretical foundations of monetary valuation models, complemented by recent studies reflecting contemporary developments in HRA. A total of 27 key publications were selected for in-depth conceptual analysis, with the selection prioritizing theoretical significance and conceptual relevance rather than exhaustive coverage. The primary sources included Flamholtz, (1999) seminal work, complemented by foundational studies on the Lev and Schwartz model, the Jaggi and Lau model, Resource-Based Theory, and other scholarly publications discussing human capital valuation. Literature that did not address monetary valuation or HRA was excluded from the analysis. The selected literature served as the primary source of data for this study. The analysis employed content analysis to identify the theoretical foundations, valuation assumptions, and core concepts underlying each monetary valuation model. Subsequently, comparative analysis was conducted to evaluate the similarities, differences, strengths, limitations, and organizational applicability of each model. The findings from these analyses were then synthesized to develop a comprehensive conceptual framework for understanding the application of monetary valuation models in HRA and their implications for corporate financial reporting and strategic decision-making.

Result and Discussion

Human Resources (HR) is defined as the process of identifying and measuring data about human resources and communicating this information to interested parties. Conceptually, HR views human beings not just as expenses, but as organizational assets or human capital that have economic value due to their ability to provide future benefits for the company. This is a shift from conventional accounting which usually directly charges recruitment and training costs in the current period, although these expenses are aimed at building the company's long-term revenue potential. In practice, HR encompasses two main aspects: cost measurement and value measurement. Cost measurement involves calculating the sacrifices an organization makes to recruit, select, hire, train, and develop employees. Meanwhile, value measurement focuses on determining the amount of economic value an employee has to the organization based on their productivity, skills, and potential future contributions. This information is critical for management to make more informed decisions regarding employee recruitment, placement, and development to improve the overall effectiveness of the organization.

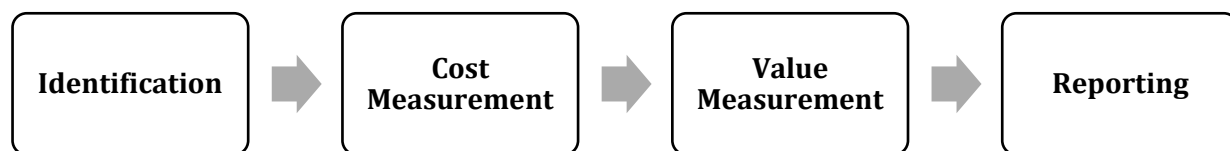


Fig 1. HRA Conceptual Flow

Concept flow HRA (see Figure 1) starts from the identification stage to recognize labor-related expenses as an investment in organizational assets and not just operational costs, which is then followed by cost measurement to calculate historical acquisition costs and employee replacement costs (Gogoi et al., 2024). The next stage is value measurement to assess the potential economic contribution of employees through monetary and non-monetary methods, until finally all this information is presented in the form of reporting to managers and investors as the basis for strategic decision-making for the organization.

Human Resource Asset Valuation Method (HRVA)

Capitalized costs are not left unattended, but must be systematically amortized over the expected useful life of the employee in the company; If the employee quits prematurely, then the unamortized value must be removed immediately (*write-off*) as a loss for the current period. The main advantage of this approach lies in its high level of objectivity and reliability because it is based on real transactions that have already occurred and is supported by valid proof of expenditure in conventional accounting (Arogundade et al., 2020; Moses, 2022). Based on the Flamholtz (1990) model, the total historical cost of human resources is calculated by summing all acquisition costs and capacity development costs as follows:

$$OC = AC + DC \quad (1)$$

where Acquisition Cost (AC) consists of recruitment (R), selection (S), admission (H), and placement (P) or $AC = R + S + H + P$. Whereas Development Cost (DC) consists of onboarding (O), formal training (fT), and on-the-job training (ojT) or $DC = O + fT + ojT$. Thus, the complete formula is:

$$OC = (R + S + H + P) + (O + fT + ojT) \quad (2)$$

As a simulation of the application of the formula, let's say a company hires an expert with an estimated tenure of 5 years. The calculation begins by determining the Acquisition Cost (AC) which includes the cost of advertising vacancies, the selection process, and placement with a total of IDR 20,000,000. Furthermore, the company calculates the Development Fee (DC) which includes certification training, salary during the orientation period, and mentor fees with a total of IDR 30,000,000. Based on the formula above, the Total *Initial Cost* (IC) capitalized as an asset is IDR 50,000,000.

In accordance with accounting principles, the value of this asset is amortized evenly by IDR 10,000,000 per year for a useful period of 5 years. However, if the employee resigns at the end of the third year, the book value of the unamortized assets of IDR 20,000,000 must be immediately written *off* and recognized as a loss in the current period. This approach gives management a more accurate picture of the real investment value embedded in their staff as well as the financial impact of employee turnover rates.

The simulation confirms the practical applicability of the historical cost approach in recognizing human resource investments through objectively verifiable expenditures. This finding is consistent with Arogundade et al., (2020) and Moses, (2022), who argue that historical cost provides reliable and auditable measurements because it is based on actual transactions. However, the present analysis also supports the observations of Dunna (2023) and Kang (2024) that historical cost does not adequately capture employees' future economic value. By illustrating the accounting treatment through simulation, this study extends previous conceptual discussions by demonstrating both the practical usefulness and the inherent limitations of the historical cost model in HRA.

Replacement costs measurement includes replacement costs (the cost of replacing someone in the same position) as well as the cost of replacing someone with individuals who have similar ability and skill profiles. Although it is an estimate, this approach is considered more relevant to today's decision-making because it reflects the real economic value that companies will have to sacrifice in the event of employee turnover. in the midst of dynamic labor market conditions (Setty, 2026).The formula for calculating the total cost of human resource replacement is as follows:

$$RC = AC + LC + SC \quad (3)$$

The components of the composition include Acquisition Cost (*AC*) where there are recruitment, selection, and placement costs to find a replacement. Learning Cost (*LC*) is the cost of onboarding and training to bring new hires to the same level of competence as the previous position holder. Termination of Employment (*SC*) Costs is the costs incurred as a result of the departure of a long-time employee, including administrative costs of termination of employment, severance pay, and lost productivity value during the vacancy.

As a simulation, let's assume that a company has to replace a resigning Project Manager. First, the company calculates a Termination of Employment Fee (*SC*) of IDR 15,000,000 which includes administrative costs and final compensation. During an empty position, there is a decrease in efficiency which is equivalent to IDR 10,000,000. Second, the Acquisition Fee (*AC*) to find a replacement through a *headhunter* and an intensive interview process costs IDR 25,000,000. Finally, the Learning Fee (*LC*) to train new Project Managers to understand the company's internal systems reaches IDR 20,000,000.

Based on this simulation, the Total Replacement Cost (*RC*) for the position is:

$$RC = 25,000,000 + 20,000,000 + 25,000,000 = 70,000,000 \quad (4)$$

The figure of IDR 70,000,000 is an estimate of the economic value lost to the organization due to personnel changes. This information provides a solid basis for management to evaluate whether the cost of investing in an employee retention program is more efficient than allowing for high employee turnover rates.

Opportunity Cost

Opportunity Cost on HRA is defined as the economic value of an employee or a group of employees that are sacrificed when they are placed on one particular goal, compared to other best-use alternatives. In contrast to *Original cost* or *Replacement costs* which is based on cash outflows (explicit fees), *Opportunity Cost* is implicit because it focuses on *lost income or profits*. This concept is particularly relevant in organizations that have human resources with scarce expertise, where a limited number of expert personnel demands the most optimal allocation to maximize organizational effectiveness. Conceptually, opportunity costs can be calculated with the formula:

$$OC_p = BestAlternativeValue - CurrentUsageValue \quad (5)$$

One of the methods that is often proposed to measure this value is through the Internal Auction (*Bidding Competitive*). In this method, the opportunity cost value is determined through a bidding mechanism by various department managers against an expert employee. The formula can be simplified into:

$$OC_p = HighestBidValuefromOtherDepartments \quad (6)$$

If an employee does not have an offer from another unit because his or her expertise is easily replaceable or is not considered scarce, then in this model the opportunity cost is considered close to zero. As a simulation, suppose a consulting firm has a Senior Auditor who is currently assigned to Project A with a potential profit of IDR 200,000,000. However, at the same time, Project B Department needed the Senior Auditor and dared to provide an offer (contribution value) of IDR 250,000,000 because the project had a higher level of urgency and margin.

Based on this data, the calculation of *the Opportunity Cost* for the company if it retains an auditor in Project A is:

$$OC_p = \text{Project Value}_B = 250,000,000 \quad (7)$$

In this context, the opportunity cost of IDR 250,000,000 indicates the economic value "at stake" by management. If the profit in Project A is only IDR 200,000,000, then managerially there is an opportunity loss of IDR 50,000,000. These simulations provide a basis for managers to make smarter resource allocation decisions, ensuring that highly talented personnel are always placed in positions capable of generating maximum added value for the organization.

Value Approach

In HRA, it focuses on measuring the economic value of human resources based on the economic benefits that the company expects in the future. In contrast to the cost approach that focuses more on historical spending, this approach tries to look at the actual contribution of a number of human resources to the organization through the estimation of its economic value. The HRA literature also proposes several other approaches in measuring the value of human resources, often emphasizing the integration of monetary and non-monetary models or multifaceted valuation patterns that encompass individual components, professional qualifications, and organizational capabilities (Poorkamali et al., 2022).

One of the key models in this approach is *Stochastic Assessment Model*. This model is considered the most ideal and comprehensive model for assessing human resources through a value approach. *Stochastic valuation model* is used to measure the value of human resources as the present value of the expected future economic benefits, taking into account the probability of individuals occupying various positions within the organization (*service status*) as well as the possibility of organizational failure.

Model application *Value Approach* often face limitations, especially related to data availability, computational complexity, and difficulties in accurately estimating economic probabilities and contributions. The HRA literature also proposes several other approaches in measuring the value of human resources. Developing a model *The Present Value of Future Income* which assesses human resources based on the present value of expected future revenue. Furthermore, Jaggi et al., (1974) develop a model that considers assessments at the group level with regard to the distribution of individuals within the organization. Flamholtz, (1999) proposing several approaches such as *Economic Value Method*, *Unpurchased Goodwill Method*, and *Method of the Dimension of Human Organization* which assesses the contribution of human resources to the company's economic performance in aggregate.

The Present Value Model of Future Earnings

The Present Value Model of Future Earnings Concept developed by measure the value of human resources based on the present value of future income expected during the working life. This model views that revenue is a representation of an individual's economic contribution to the organization. The Present Value of Future Revenue approach in HRA, which was technically popularized by Lev and Schwartz's model and remains highly relevant as a value-based model for drawing conclusions (Tiwari & Alwiyah, 2025), assumes that an individual's economic value to an organization is equivalent to the cash value of their entire projected future income until retirement.

The Present Value of Future Revenue approach in HRA, which was technically popularized by Lev and Schwartz's model, assumes that an individual's economic value to an organization is equivalent to the cash value of their entire projected future income until retirement. Mathematically, this model is formulated as:

$$V_T = \sum_{t=T}^T \frac{I(t)}{(1+r)^{t-T}} \quad (8)$$

where V_T is the value of human capital at the current age, $I(t)$ is the estimated annual income, r is the discount rate that reflects the cost of capital or the time value of money, and T is the retirement age limit. In practice, any income in the coming years is adjusted back to current value to provide a concrete monetary picture of human assets.

As a simulation example, if a 30-year-old employee has a salary of IDR 100,000,000 per year assuming a 5% salary increase every year, and the company uses a 10% discount rate, then the current salary value for the first year is IDR 95.45 million, the second year IDR 91.12 million, and so on until the age of 35. By adding up all these cash values, it was found that the value of these individual human assets for the next five years was around Rp 456.56 million. Although this model provides a clear quantitative framework, Eric G. Flamholtz emphasizes that this approach tends to measure an individual's value to themselves rather than their real contribution to the organization, and often ignores the factor of likely employees leaving the company before retirement. Therefore, these simulations should be considered as a substitute measure that needs to be combined with the probability variables of labor mobility to be more accurate.

The simulation supports the continuing relevance of the Lev and Schwartz model as one of the most widely applied monetary valuation approaches in HRA. This finding is consistent with Tiwari & Alwiyah (2025), who identify the model as an important framework for estimating the present value of human capital. Nevertheless, the present analysis also reinforces Flamholtz (1999) argument that the model overlooks employee mobility and organizational uncertainty. The illustrative simulation extends previous studies by showing how these theoretical limitations may influence managerial decision-making when estimating the economic value of human resources.

Jaggi and Lau Models

Human resources are seen as part of an organizational system that interacts with each other, therefore value does not only come from individuals, but also from collective contributions (Jaggi et al., 1974) In this model, the focus shifts from individual to group. The assessment is carried out by taking into account the distribution of individuals in various organizational positions and the economic contribution generated by the group. This model emphasizes the importance of organizational structure and interaction between members in creating collective value. This approach is important in modern organizations that rely on teamwork and collaboration, where value cannot be directly attributed to a particular individual (Jaggi et al., 1974).

The Jaggi et al., (1974) in HRA focuses on the assessment of groups as the main unit of analysis, rather than individuals separately. This approach departs from the idea that the economic value generated in modern organizations is often the result of collaboration and team synergy that is difficult to attribute to a single person. Mathematically, this model uses a transition probability matrix to project the movement of individuals within the group. The formula for the value of group human capital (TV) can be expressed as:

$$TV = \sum_{t=1}^n \frac{N_t \cdot V}{(1+r)^t} \quad (9)$$

where N_t is the vector that shows the estimated number of individuals in each service position at time (t), V is the vector of economic value of each of these positions, and r is the discount rate. As an illustration of a simulation, imagine a research team of 10 members. Based on historical data, it is predicted that next year, 7 people will remain in the same position (position value of IDR 100 million), 2 people will be promoted (position value IDR 150 million), and 1 person will leave the organization (value IDR 0). With a discount rate of 10%, the group value calculation for the year is:

$$\text{Expected Value} = (7 \times 100) + (2 \times 150) + (1 \times 0) = 1,000 \quad (9)$$

$$\text{Expected Value} = \text{IDR } 1,000 \text{ million} \quad (10)$$

$$PV = \frac{1,000}{(1 + 0.10)^1} = 909.09 \quad (11)$$

Therefore,

$$\text{Expected Value} = \text{IDR } 1,000 \text{ million} \quad (12)$$

$$\text{Present Value} = \text{IDR } 909.09 \text{ million} \quad (13)$$

Through this approach, organizations can see how the structure of positions and interactions between members contributes to the overall creation of collective value. As emphasized in Flamholtz's literature, this model is particularly relevant for organizations that rely on teamwork because it is able to capture the dynamics of human resource movements within organizational structures more realistically than individual models.

Economic Value Method

This method is used to assess the value of human resources at the organizational level by linking the contribution of human resources to the overall economic value of the company (Flamholtz, 1999). This approach does not count directly per individual, but as part of the value generated by the organization. The assessment is carried out by looking at the company's economic performance, such as profit or cash flow, which is assumed to be largely generated by the contribution of human resources. The value of human resources is obtained from the economic value of the organization in aggregate. This method is often used in the context of organizational assessment because it is easier to implement than individual models, although it does not provide details of value per employee (Flamholtz, 1999).

The Economic Value Method in HRA is based on the principle that the value of an asset is the present value of the services or income that the asset is expected to generate in the future. Based on the literature of Eric G. Flamholtz, this method views that the value of all human resources is determined by allocating a portion of the total economic value of a company derived from projected profits or cash flows in the future. Technically, the calculation begins by determining the overall economic value of the organization through the formula:

$$V_{\text{org}} = \sum_{t=1}^n \frac{E_t}{(1 + r)^t} \quad (14)$$

Once the value of the organization is found, it is multiplied by the ratio of human investment ($R_{\text{human}} = \frac{I_{\text{human}}}{I_{\text{total}}}$) to separate the human contribution from the total assets of the company

($V_{human} = V_{org} \times R_{human}$). As an illustration of a simulation, imagine a consulting services company that is estimated to generate a net cash flow of IDR 2 billion per year for the next 5 years. With a discount rate of 10%, the current value of all these organizations is around IDR 7.58 billion. If the company has total assets of IDR 10 billion and the capitalized investment for human resources (such as recruitment and training costs) is IDR 4 billion, then the human investment ratio is 40%. Through this ratio, it can be concluded that the economic value of human resources in the organization is Rp 3.03 billion (the result of 40% multiplied by IDR 7.58 billion). While this method makes it easier to evaluate the company in aggregate, Flamholtz cautions that it doesn't provide a detailed value per employee, making it more suitable for top-level strategic decision-making.

Compared with individual-based valuation models, the Economic Value Method provides greater organizational relevance by linking human capital directly to corporate economic performance. This finding supports Flamholtz, (1999) proposition that organization-level valuation is more practical for strategic management. It also complements recent studies by Arseneault & Gagnon (2024) and van der Lugt (2024), which emphasize the growing importance of integrating human capital measurement into managerial accounting and organizational performance evaluation.

Unpurchased Goodwill Method

This method measures the value of human resources based on the excess profits that the company generates compared to the industry average. Excess profit is considered to reflect the existence of intangible assets, including the quality of human resources. In this approach, the first step is to determine the normal profit rate based on industry standards. Furthermore, the company's actual profit is compared to that normal profit. The difference between the two is considered "goodwill", which is mostly attributed to the contribution of human resources. This method does not measure the value of human resources directly, but through their impact on the company's financial performance (Flamholtz, 1999).

The Goodwill Not Bought Method developed by Roger Hermanson is a monetary approach in HRA that measures human value indirectly through a company's profit performance. Based on Eric G. Flamholtz's literature, this method departs from the assumption that excess profits above the industry average are tangible evidence of the existence of assets that are not recorded on the balance sheet, which is largely a contribution of the quality and efficiency of human resources. Mathematically, this value is calculated by the formula excess profit $E_{excess} = A_{actual} - (A_{owned} \times I_{industry})$, which is then capitalized by dividing it using the industrial rate of return $V_{human} = \frac{E_{excess}}{I_{industry}}$.

As an illustration of the simulation, a company has physical assets worth IDR 5 billion and manages to post a net profit of IDR 750 million, while the industry's average return on investment (ROI) is only 10%. Under these conditions, the company's normal profit should only be IDR 500 million, so there is an excess profit of IDR 250 million which is considered as a human resource contribution. By capitalizing excess profits at the level of 10%, the value of the company's human resources is set at IDR 2.5 billion. Although it provides concrete financial indicators, Flamholtz notes that the main drawback of this method is its inability to recognize human value in a company that only achieves normal profits or suffers losses, so that the value of human assets can be considered non-existent even if they continue to contribute operationally.

Human Organization Dimension Method (HODM)

The focus of this method is the relationship between organizational variables and economic performance. Variables such as employee motivation, job satisfaction, leadership, and communication effectiveness are considered to have an influence on the company's productivity and performance (Flamholtz, 1999). The value of human resources is measured through the contribution

of these variables to organizational results. In other words, behavioral and organizational factors translate into economic value through their impact on a company's output.

The Human Organization Dimension method emphasizes the influence of behavioral and managerial variables on the economic value of human resources. In this view, the value of human resources is not static, but fluctuates greatly depending on the effectiveness of leadership, employee motivation levels, and the quality of communication within the organization. Technically, the assessment is carried out by determining the basic value of human investment which is then multiplied by the effectiveness coefficient resulting from the evaluation of the organizational dimensions through the following formula $V_{final} = V_0 \times C_{HOD}$.

As an illustration of the simulation, imagine that a company has a base investment value of IDR 10 billion in its employees based on capitalized recruitment and training costs. However, the results of internal audits and behavioral surveys show that organizational dimensions such as communication and teamwork only reach a 75% effectiveness rate. Through this approach, the economic value of human resources recognized by the company will be adjusted to IDR 7.5 billion (the result of IDR 10 billion multiplied by 0.75). This suggests that weaknesses in the organizational dimension can lower the value of human assets, while an increase in leadership and motivation will directly increase the economic value of human resources in the company's managerial balance sheet. As Flamholtz emphasizes, this method is particularly useful for managers to identify economic losses caused by suboptimal organizational behavior problems.

Comparative Synthesis of Monetary Valuation Models

The comparative analysis demonstrates that no single monetary valuation model is universally superior for all organizational contexts. Cost-based approaches, including the Historical Cost and Replacement Cost models, provide greater objectivity and accounting reliability because they rely on observable expenditures. However, these approaches are limited in capturing the future economic contribution of employees. In contrast, value-based approaches, such as the Lev and Schwartz model, the Jaggi and Lau model, the Economic Value Method, and the Human Organization Dimension Method, better reflect the strategic contribution of human resources but generally require greater estimation and managerial judgment. These findings are consistent with previous HRA literature by (Flamholtz, 1999; Dunna, 2023; Kang, 2024), while extending existing studies through an integrated conceptual comparison supported by illustrative simulations. The synthesis further indicates that individual-based valuation models provide greater measurement precision, whereas organization-level approaches offer stronger applicability for strategic planning and corporate reporting. This comparative framework contributes to the HRA literature by clarifying the theoretical assumptions, strengths, limitations, and organizational suitability of major monetary valuation models within a unified analytical perspective.

Conclusion

This study concludes that human resources are strategic assets with heterogeneous and inimitable characteristics, supporting the argument that their treatment in financial reporting should shift from operating expenses to capital expenditures. Through a synthesis of major HRA valuation models, this study demonstrates that human resources can be valued using various monetary approaches, ranging from the Lev and Schwartz compensation model, which is based on the present value of future earnings, to the Flamholtz economic value model, which incorporates organizational and behavioral variables. Although challenges remain in standardizing the measurement of human resources compared with physical assets, these valuation models provide a stronger foundation for recognizing and measuring human capital in financial reporting. This study contributes to the HRA literature by systematically integrating and comparing the major monetary valuation models, thereby providing a comprehensive conceptual framework that clarifies their theoretical

foundations, strengths, limitations, and organizational applicability. The findings also offer practical implications for managers, accountants, and policymakers by supporting more comprehensive human capital valuation and improving corporate reporting and strategic decision-making. Future research may extend this conceptual work by empirically examining the implementation of different HRA valuation models across industries and organizational contexts. Comparative studies could also investigate the impact of monetary human capital valuation on financial performance, firm valuation, investment decisions, and stakeholder perceptions, thereby providing stronger empirical evidence to support the broader adoption of Human Resource Accounting practices

Acknowledgment

The author sincerely appreciates the support of all institutions that contributed to this study. Access to facilities, data, and information has been essential in improving the quality of the research. The author also extends gratitude to the relevant agencies for providing data access and research permissions.

Declarations

- Author contribution** : Author 1 led the research design and manuscript development. Author 2 contributed to manuscript drafting, data collection, and preliminary data processing. Author 3 acted as oversaw the submission and publication process. Author 4 contributed to data analysis and critical revision of the manuscript
- Funding statement** : Not funding.
- Conflict of interest** : The authors declare no conflict of interest.
- Ethics declaration** : This study is based solely on secondary data obtained from publicly available sources. It does not involve human participants, animals, or any sensitive personal data. Therefore, ethical approval was not required. The authors ensure that the data were used responsibly and that the research was conducted in accordance with academic integrity and ethical research standards.
- Additional information** : No additional information is available for this paper

References

- Abor, J. Y., Dwumfour, R. A., Agbloyor, E. K., & Pan, L. (2024). *Foreign direct investment and inclusive finance: Do financial markets and quality of institutions matter?* *Empirical Economics*, 67(2), 773–815. <https://doi.org/10.1007/s00181-024-02567-2>
- Andiansyah, F. (2021). The Influence of Financial Inclusion and Macroeconomic on Foreign Direct Investment (FDI) Flows in The Organization of Islamic Cooperation (OIC) Countries. *Optimum: Jurnal Ekonomi dan Pembangunan*, 11(1), 72-92. <https://doi.org/10.12928/optimum.v11i1.4017>
- Anita, R. D., & Udjianto, D. W. . (2024). Determinants of Inclusive Economic Development: A Fixed Effect Model Approach. *Journal of Asset Management and Public Economy*, 3(1), 60–75. <https://doi.org/10.12928/jampe.v3i1.9101>
- Arogundade, A., Ohwo, K., Audu, & S. (2020). Historical Cost Model and the Need for a Universal Human Resource Model. *Research Journal of Finance and Accounting*, 11, 114–122.

- <https://10.7176/RJFA/11-17-14>
- Arora, A., & Panchal, A. (2021). Human Resources Accounting Disclosure Practices (HRADP): A Review. *International Journal of Servis Science, Management, Engineering, and. Technology*, 12(1), 97–110. <https://doi.org/10.4018/ijssmet.2021010106>
- Arseneault, R., & Gagnon, J. (2024). Managerial accounting practices, HR metrics, and firm performance. *Advances in Accounting*, 64, 100730. <https://doi.org/10.1016/j.adiac.2024.100730>
- Bhooshetty, L. (2024). *Rejuvenating human resource accounting research: A review using bibliometric analysis*. *Management Review Quarterly*, 74(4), 2149–2182. <https://doi.org/10.1007/s11301-023-00357-1>
- Chernov, V. (2023). Human capital: valuation and management. *International Conference "Scientific and Technological Development of the Agro-Industrial Complex for the Purposes of Sustainable Development*, 01037. <https://doi.org/10.1051/e3sconf/202338001037>
- Darmawan, D., Mardikaningsih, R., Sinambela, A., E., Arifin, S., Putra, R., A., Hariani, M., ..., Issalillah, & F. (2020). The quality of human resources, job performance and employee loyalty. *International Journal of Psychosocial Rehabilitation*, 24(3), 2580–2592. <https://10.37200/IJPR/V24I3/PR201903>
- Dunna, M. (2023). Human Resource Accounting Methods And Practices In India - Conceptual Framework. *International Journal For Multidisciplinary Research*, 5(6). <https://doi.org/10.36948/ijfmr.2023.v05i06.8388>
- Flamholtz, E. G. (1999). *Human Resource Accounting*. (3rd ed.). Springer US. <https://doi.org/10.1007/978-1-4615-6399-0>
- Gogoi, R., & Marwadikumbhar, S. (2024). Imminent Impact of Human Resource Accounting in Indian Public Sector Industries. *International Journal for Research in Applied Science and Engineering Technology*, 12(1), 641-672. <https://doi.org/10.22214/ijraset.2024.58022>
- Haddad, N. (2020). Human resources accounting between the need of rooting and the difficulties of measurement. *Journal of Finance & Corporate Governance*, 4(2), 62-79. <https://doi.org/10.54960/jfcg.v4i2.58>
- Hamidah, I., Widyarti, M. T. H., & Widiarto, A. (2025). The Application of Human Resource Accounting on the Financial Performance of Insurance Companies in Indonesia 2022-2023. *Ilomata International Journal of Social Science*, 6(1), 109-122. <https://doi.org/10.61194/ijss.v6i1.1453>
- Hiremath, S. (2021). A Study on Human Resource Accounting Practices in India. *International Journal of Science and Research*, 10(7), 1264-1267. <https://doi.org/10.21275/sr21705153908>
- Jaggi, B., & Lau, H.-S. (1974). Toward a Model for Human Resource Valuation. *The Accounting Review*. <https://doi.org/10.2308/tar-4510895>
- Jo, J., Chadwick, C., & Han, J. H. (2024). How the human resource (HR) function adds strategic value: A relational perspective of the HR function. *Human Resource Management*, 63(1), 5–23. <https://doi.org/10.1002/hrm.22184>
- Kang, L. (2024). Unveiling the Dynamics of Human Capital Valuation: Insights from Human Resource Accounting. *Pacific International Journal*, 7(2), 1-5. <https://doi.org/10.55014/pij.v7i2.224>
- Kim, K.-H. (2024). Expenditures on human resource development and firm financial performance: From the resource orchestration perspective. *Asia Pacific Journal of Human Resources*, 62(1). <https://doi.org/10.1111/1744-7941.12383>
- Lestari, D., Lesmana, D., Yudaruddin, Y. A., & Yudaruddin, R. (2022). The impact of financial development and corruption on foreign direct investment in developing countries. *Investment Management and Financial Innovations*, 19(2), 211–220. [https://doi.org/10.21511/imfi.19\(2\).2022.18](https://doi.org/10.21511/imfi.19(2).2022.18)
- Majeed, A., Jiang, P., Ahmad, M., Khan, M. A., & Oláh, J. (2021). The impact of foreign direct investment on financial development: New evidence from panel cointegration and causality analysis.

- Journal of Competitiveness*, 13(1), 95–112. <https://doi.org/10.7441/joc.2021.01.06>
- Moses, L. T. (2022). Human Resource Accounting: Implication for The Financial Statement in Nigeria. *European Journal of Business and Innovation Research*, 10(5), 1-6. <https://doi.org/10.37745/ejbir.2013/vol10n5pp16>
- Odugbesan, J. A., Ike, G., Olowu, G., & Adeleye, B. N. (2022). Investigating the causality between financial inclusion, financial development and sustainable development in Sub-Saharan Africa economies: The mediating role of foreign direct investment. *Journal of Public Affairs*, 22(3), e2569. <https://doi.org/10.1002/pa.2569>
- Olalekan, D. A., Enyi, P. E. P., & Ayodeji, O. B. (2025). Rethinking market valuation: Examining human resource accounting disclosures and debt management on shareholder value in Nigerian manufacturing firms. *Finance & Accounting Research Journal*, 7(4), 152-166. <https://doi.org/10.51594/farj.v7i4.1902>
- Poorkamali, M., Amiri, H., Moein, K. P., & Abbasi, F. B. (2022). Developing a Pattern for Employee Valuation in the Banking System Based on Human Resource Accounting Approach. *Iranian Journal of Educational Sociology*, 5(3). <https://doi.org/10.61186/ijes.5.3.67>
- Rieg, R., Vanini, U., Rieg, R., & Vanini, U. (2023). Value relevance of voluntary intellectual capital disclosure: a meta-analysis. *Review of Managerial Science*, 17(7), 2587–2631. <https://doi.org/10.1007/S11846-023-00630-3>
- Samson, K., & Bhanugopan, R. (2022). Strategic human capital analytics and organisation performance: The mediating effects of managerial decision-making. *Journal of Business Research*, 144, 637–649. <https://doi.org/10.1016/j.jbusres.2022.01.044>
- Sari, J., Yani, P., & Pradhani, F. A. (2024). Human resources accounting optimization: A conceptual pathway to improve financial performance. *Journal of Business & Banking*, 13(2), 341–359. <https://doi.org/10.14414/JBB.V13I2.4424>
- Setty, B. M. (2026). A Study On Impact Of Human Resource Accounting Practices On Human Capital Valuation In Tourism Industry. *Journal of Business and Management*, 28(2), 70-80. <https://doi.org/10.9790/487x-2802057080>
- Spaho, M. (2024). Intellectual Capital as an essential component of the managing Human Resource Accounting: An Argumentative Review. *European Journal of Accounting, Auditing and Finance Research*, 12(9), 53–66. <https://doi.org/10.37745/EJAAFR.2013/VOL12N95366>
- Sugiarta, A. A. H., Anti, D., & Nabilla, G. D. (2023). The Relevance of Human Resource Accounting in Indonesia. *Journal of Applied Management and Business*, 4(2), 60-72. <https://doi.org/10.37802/jamb.v4i2.392>
- Tiwari, U. K., & Alwiyah, A. (2025). Human Resource Accounting Practices In Nepalese Commercial Banks. *PERFORMANCE: Jurnal Bisnis & Akuntansi*, 15(1), 1-18. <https://doi.org/10.24929/feb.v15i1.4185>
- van der Lugt, C. T. (2024). The role of management accounting in human capital management: Lessons from the services sector. *South African Journal of Business Management*, 55(1), a4223. <https://doi.org/10.4102/sajbm.v55i1.4223>
- Wen, J., Salim, A., Shi, K., Lunku, H. S., Aslam, N., & A'yun, I. Q. (2025). Does banking liquidity promote innovation? Cross-country evidence. *Technology Analysis & Strategic Management*, 1–14. <https://doi.org/10.1080/09537325.2025.2524454>
- Zakiyyah, N. A. A., Lubis, F. R. A., & Ainy, R. N. (2024). The Effect of Macroeconomic, Institutional and Corruption Variables on FDI in ASEAN Countries. *Journal of Economic, Bussines and Accounting (COSTING)*, 7(3), 5673-5685. <https://doi.org/10.31539/costing.v7i3.9498>