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A Conceptual Framework For Evaluating The Impact Of Double Materiality On Intangible Human Capital Accounting Practices

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Abstract
The objective of this conceptual paper is to critically examine the interrelationship between financial Disclosures and non-financial Disclosures by identifying and addressing the limitations and grey areas of Financial Reporting and Non-Financial Reporting. This involves identifying and analysing the key data points related to intangible human capital accounting within the context of the Business Responsibility and Sustainability Reporting framework—a non-financial reporting standard—and aligning them with the financial data metrics established by the Accounting Standards framework. The study further endeavours to conceptualise the interconnectivity between FR and NFR while evaluating potential methodologies, including a case study approach, to assess the implications of the double materiality paradigm on intangible human capital accounting practices, particularly concerning their financial ramifications.
Key Words: *Financial Reporting (FR), Non-Financial Reporting (NFR), Business Responsibility and Sustainability Reporting (BRSR), Intangible Human Capital Accounting, Double Materiality.*

1. INTRODUCTION

The increasing significance of intangible assets, such as human capital, has precipitated a growing need to re-evaluate traditional accounting practices and financial reporting standards to better capture their inherent value and impact on organisational performance(Barker et al., 2021). Recent studies underscore the pivotal role of intellectual capital in driving value creation within the Reporting Entity. Intellectual capital not only enhances the value of tangible assets but also plays a crucial role in fostering innovation and sustainable growth. It is broadly categorised into three interrelated components: human capital, structural capital, and capital employed. (Xu & Wei, 2023)Human Capital: This encompasses the collective expertise, knowledge, skills, loyalty, and collaborative capabilities of employees. It represents the workforce's potential to innovate and contribute to the organisation's objectives and overall value creation. Structural Capital: This includes the organisation's policies, infrastructure, and systems that create a supportive environment. Additionally, it covers the informational assets stored in databases, which facilitate decision-making and effective governance. Capital Employed: This refers to the financial and physical resources strategically utilised to achieve organisational goals and sustain competitive advantage. Together, these components form the backbone of intellectual capital, enabling Reporting Entity to transform resources into tangible and intangible value. Human capital plays a vital role within intellectual capital, as its effective utilisation transforms it into a valuable asset for the organisation(Xu & Wei, 2023). It represents an investment in employees' skills and experiences, aimed at generating economic value. Human capital serves as a key driver of value creation, with its efficiency significantly influencing both current and future financial performance. Although human capital is a significant contributor to value creation, it remains absent from the balance sheet under current accounting practices. Internally developed human capital is typically expensed rather than recognised as an asset, potentially affecting the company's profitability(McKerahan, 2021). This practice can give rise to materiality concerns. Numerous studies have proposed alternative solutions to address these issues, suggesting criteria for distinguishing between items that should be recognised on the balance sheet and those that should be expensed. These recommendations aim to assist decision-makers in making informed financial decisions for their Reporting Entity. This paper explores alternative accounting solutions within the conceptual framework

to address the needs of decision-makers. We aim to justify these solutions by examining materiality in terms of items recognised on the balance sheet and those that must be expensed, all from the perspective of the double materiality concept. The research gap focuses on how the concept of double materiality can be effectively utilised to address the challenges of accounting for human capital. Currently, there is a disconnect between the recognition of human intangible assets on the balance sheet and the significant portion of these assets that remain unrecorded (off-balance sheet). This gap arises because many costs associated with human capital, such as training, employee development, and expertise, are often treated as expenses rather than investments. By applying the double materiality concept, this research seeks to evaluate both the financial implications and the broader environmental, social, and governance (ESG) impacts of human capital. This involves identifying and classifying human capital expenses in a way that reflects their true value and contribution to the organisation's long-term sustainability and financial performance. (Gupta, 2021; Is It Time to Rethink Human Capital in Corporate Valuation?, 2024)The ultimate goal is to provide a more comprehensive and accurate representation of human capital in financial reporting, helping decision-makers recognize its critical role in value creation.(Is It Time to Rethink Human Capital in Corporate Valuation?, 2024) The current accounting practices of expensing investments in intangible assets, such as human capital, have led to a discrepancy between the true value of these assets and their representation on the balance sheet. The paper develops a conceptual framework linking financial and non-financial disclosures, focusing on intangible human capital and double materiality. It uses a case study of Infosys from 2017-2024, analysing annual reports and BRSR/BSR reports to identify human capital metrics, their integration into financial statements, and their impact. The analysis evaluates alignment with double materiality, connecting findings back to the conceptual framework to identify limitations and suggest further research.

2. LITERATURE REVIEW

The efficiency of human capital assets, such as skills, knowledge, leadership, creativity, and talent, significantly impacts an organization's financial performance.(Monday, 2017) The effective use of tangible assets is only possible through the proper utilization of human capital assets. Understanding the contribution of human capital assets can help managers and other stakeholders design appropriate policies and better analyse future company earnings. However, current accounting practices fail to provide accurate information about human capital assets. (Ullah et al., 2015)These practices often violate fundamental principles such as the accrual principle, matching principle, and disclosure principle when calculating the value of human resources and their contribution. Measuring and reporting HR-related information remains subjective and inconsistent across the Reporting Entity. (Laura Mehnaz, 2024) Although various methods exist to measure HR value, each suffers from significant limitations. There is still no standardized accounting framework to account for the cost of human capital, with many associated costs being expensed rather than capitalized. HR disclosures remain unstructured, inconsistent, and incomparable across companies. (Surinder Kaur, 2014) Research has shown that improved HR reporting in annual reports has led to higher income per employee, reduced HR costs, and increased human capital value. Commonly disclosed items include employee strength, turnover rates, training and development, staff distribution, HR awards, employee satisfaction surveys, retirement benefits, health and safety measures, HR policies, cost per employee, employee stability ratios, and profitability ratios. Despite these efforts, there is a need for more structured and uniform reporting practices to enhance the recognition and valuation of human capital.(Monday, 2017). In financial reporting, events and transactions impacting an entity from an external perspective are communicated primarily through financial statements, while the effects of the entity's operations are increasingly addressed through non-financial reports.(Cooper, 1997; Sooriyakumaran & Velnampy, 2018) Non-financial reporting, however, remains highly subjective, with no standardized framework; it varies based on the initiatives adopted by the entity. In contrast, financial reporting is guided by established accounting standards that define the presentation of financial statements. The materiality of data presented in financial statements is crucial in shaping decision-making. For financial statements to be effective, the information must be deemed material, which requires it to be conveyed accurately, without omissions, unintentional or intentional misrepresentation of facts, or lack of clarity in the information. A key limitation of financial reporting is its treatment of internally generated assets, including Human capital accounting(Voinea & Dimitriu, 2014). From a stakeholder perspective, information about value creation is critical, as it significantly impacts the decisions of key stakeholders and financial capital providers. However, financial materiality still lacks a viable solution for recognizing internally generated assets which includes Human capital. (Watson & Forum,

2020)Current financial reporting practices impose strict boundaries, requiring that recorded assets meet specific criteria, including control and the potential to generate future cash flows. Moreover, financial reports cater to the providers of financial capital, focusing on monetary, retrospective information while maintaining neutrality.(Rosmianingrum et al., 2023) This approach inherently restricts the incorporation of subjective or non-monetary elements, such as intangible assets that are internally generated. The current reporting environment faces challenges in providing a comprehensive view of corporate reporting. Accounting standards emphasize the concept of financial materiality, which focuses on delivering information relevant to stakeholders' decision-making(Zhou, 2011). However, broader stakeholders require financial information that accounts for externalities. (Interconnection between Financial and Non- Financial information , 2021)(Zhou, 2011).To address this need, the integration of financial and non-financial information has emerged, aiming to serve a wider range of stakeholders. Enhancing transparency requires adopting the double materiality concept, which links financial information with non-financial information. This approach makes financial data more meaningful and relevant when connected to non-financial factors.(Zhou, 2011) The double materiality framework offers two key perspectives: Outside-In: How environmental, social, and governance (ESG) factors affect an organization's financial performance. Inside-Out: How the organization's operations impact ESG factors. By incorporating both dimensions, the double materiality approach provides a holistic view, ensuring financial reporting aligns with the needs of diverse stakeholders. (ISSB,Work plan, 2024-2026).Human capital refers to the workforce's competencies, capabilities, experiences, and motivation to drive innovation. The International Sustainability Standards Board is still conducting research on the risks and opportunities related to an organization's workforce to address the informational needs of investors Human capital is crucial for Reporting Entity, contributing to value creation over the short, medium, and long term(ISO 30414:2018, 2022). Increasingly, Reporting Entity are adopting integrated reporting to highlight the interconnections between human capital and other forms of capital. (IIRC, 2016) To support and promote such initiatives, the International Integrated Reporting Council (IIRC), in collaboration with regulators, investors, companies, standard-setters, the accounting profession, and NGOs, is working to develop a globally accepted approach to human capital reporting.. Regulatory bodies have expanded reporting requirements to include a broad range of information such as training hours, turnover rates, worker productivity, training and awareness programs.(ISO 30414:2018, 2022) Additionally, Ind As 19 mandate the reporting of employer-employee transactions related to employee costs and benefits, retirement plans, and compensation." (MCA, 2023) as per Ind AS 38 Para 15 Although a reporting entity may be capable of identifying skilled personnel who contribute to economic benefits through training programs and may anticipate the retention of such talent due to effective retention policies and measurable training costs, it often fails to demonstrate control over human resources or establish the existence of future economic benefits attributable to these skilled individuals. As a result, human resource talent does not meet the criteria for recognition as an intangible asset. However, if the capacity to control human resources is safeguarded through enforceable legal rights, such as contractual agreements, and these rights are legally upheld, the entity can reasonably expect future economic benefits. In this scenario, the human resource talent would fulfil the definition of an intangible asset. (MCA, 2023)Ind as 38,Para 67 stats that expenditure on training staff to operate asset are not a component of internally generated asset such expenses are recognised as an expenses unless it meets the recognition criteria (MCA, 2023) as per Ind as 38, Para 69 This paragraph emphasizes that expenditures resulting in the creation of controllable or identifiable assets with anticipated future economic benefits are capitalized. However, if such expenditures do not lead to the acquisition or development of controllable or identifiable intangible assets, they are recognized as expenses. In the context of service provision, expenditures are recorded as expenses upon receipt of the services, as no controllable or identifiable asset is created or acquired (MCA, 2023) Under Ind AS 38, expenditures incurred in the development and operation of an entity's own website, including training costs and service-related expenses, should be accounted for based on the website's purpose and its stage in the lifecycle. Costs associated with training and services during the planning phase must be recognized as expenses. However, expenditures incurred during the development phase may be capitalized as an intangible asset, provided they are directly attributable to the website's creation and its intended operational use. Examples of such costs include creating non-promotional content or acquiring licenses for content. However, (MCA, 2023)as per paragraph 71 of Ind AS 38, Expenditures previously recognized as expenses cannot be retrospectively reclassified or included in the cost of an intangible asset. For instance, the costs of fully amortized copyrights utilized on a website cannot be capitalized at a later stage. (MCA, 2023) Under the current Ind AS 19, accounting standards related

to employee benefits primarily adopt a single materiality perspective, focusing on investors' informational needs. The standard includes aspects such as the cost of employee benefits, provisions for post-employment benefits, constructive obligations, and disclosures of contingent liabilities. However, it does not address several critical dimensions of employee- related costs, such as the Costs of human reproduction: The economic implications of employees contributing to sustaining the workforce through family and societal care. Value to society: The societal benefits derived from employees' talents, skills, and contributions are not recognized in financial reporting. Human rights risks: Disclosures regarding potential risks, such as violations of human rights in the workplace, are notably absent.(El-Mousawi & Kanso, 2019) Additionally, many employment-related costs fail to align with the conventional definitions of assets and liabilities, thereby excluding them from financial statements. This limitation underscores the need for a more comprehensive framework that incorporates double materiality, addressing both financial and societal impacts of employee benefits. (Interconnection between Financial and Non-Financial information, 2021).

3. Conceptual Framework Development

To enhance reporting on human capital and its impact, a new conceptual framework is required that adopts a double materiality perspective. his framework aims to enhance the comprehensiveness and transparency of corporate reporting, addressing the informational needs of stakeholders and promoting an integrated approach to decision-making.the practical interconnection between financial and non-financial information within the proposed framework, which is primarily designed to address the informational needs of users and other stakeholders for effective decision-making. While current accounting standards provide robust support for retrospective and monetary-focused information, they exhibit certain limitations in addressing forward-looking insights and non-financial dimensions. Specifically, stakeholders increasingly require information that identifies and assesses risks impacting a company's financial position and long-term development, evaluated through the lens of both financial and non-financial materiality. The process begins with the application of non-financial reporting disclosure requirements, as outlined in the National Guidelines on Human Accounting under the BRSR Reporting. The conceptual framework for human capital reporting will focus on human aspects and should consider the following key elements:

1. Expanded definition of human capital: The framework should encompass a broader perspective on human capital, beyond just the direct employment-related costs.
2. Multidimensional materiality assessment: The framework should integrate both financial and non-financial dimensions of materiality, incorporating the interests and informational needs of a diverse range of stakeholders.
3. Forward-looking orientation: The framework should facilitate the disclosure of forward-looking information, enabling stakeholders to assess the organization's long- term sustainability and resilience.

3.1 Identification of key data point

The proposed conceptual framework for human capital reporting should identify the following key data points: (Sahari et al., 2018)

Non-Financial data points

- Training hours
- Employee turnover rates
- Employee engagement scores
- Health and safety metrics
- Diversity and inclusion metrics
- Skills and competencies
- Worker productivity and efficiency Financial data points
- Revenue per employee
- Return on assets
- Return on equity
- Earnings per share
- Market capitalization
- Employee-related costs (as per Ind AS 19, mentioned in the editor content)

3.2 Current Reporting Practices Current

Reporting Entity discloses financial information related to the cost of human capital in their financial reports

in compliance with Indian Accounting Standards. Non-financial information, which is mandatory for certain companies, is reported through the Business Responsibility and Sustainability Report (BRSR). In 2021, SEBI replaced the Business Responsibility Report (BRR) with the BRSR, making it a mandatory requirement for the top 1,000 listed companies. SEBI has also encouraged all publicly listed companies to adopt the BRSR on a voluntary basis. Beyond mandatory disclosures, non-financial information can also be reported through Sustainability Reports, Integrated Reports, and the Management Discussion and Analysis (MD&A) section within the annual report. Additionally, risk-related disclosures may address relevant aspects of human capital and organizational sustainability.

3.3 Framework Structuring

a) Table 1: The ESG sub-criteria and relevant stakeholders' information needs from a double materiality perspective. ESG Criteria as per BRSR (National Guidelines on Responsible Business Conduct "nine "Principles with alignment of UN SDG's)

BRSR Principles	**ESG-Sub Criteria**	**Sustainability Goals**
2 6 8	Health and safety of employees	Clean water and sanitation
	Reducing pollution	
	Minimizing release of hazardous chemicals	
2 3 5 8	Fair income	Decent work and economic growth
	Security in the workplace	
	Social protection for families	
	Equal opportunities (gender inequalities)	
	Good work environment	
2 6 10	Investment in skill development	Required Inequalities
	Social protection	
	Human Rights (promote safe, regular and responsible migration)	
3 4 8	Social protection -Health insurance, safety of workers	No poverty
3 4 5 8	Empower women in the work place	Gender Equality
	Legal protection	
	Medical care	
	Health protection	
3 6 8 9	Measures towards health of employees and users of product and services	Good health and well being

b) **Map Interconnection**

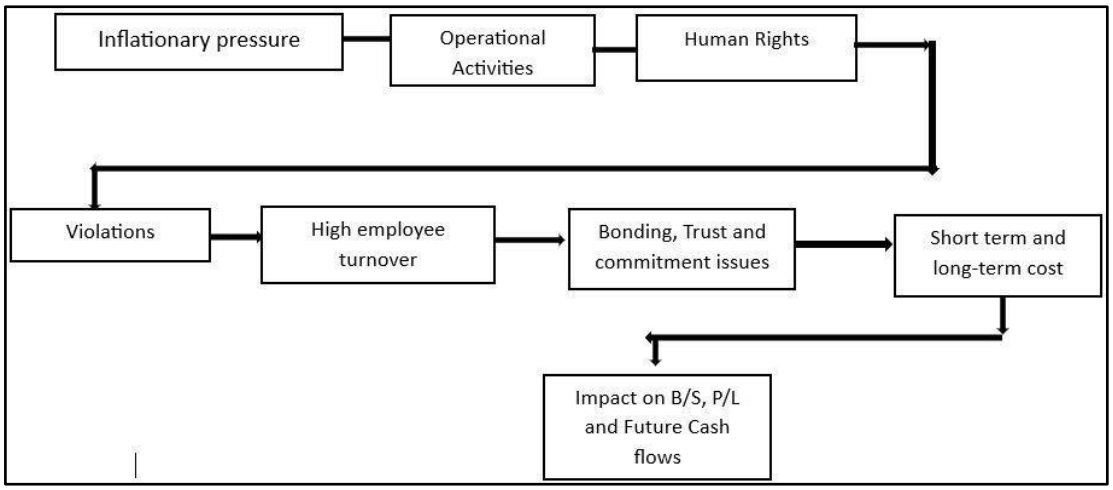
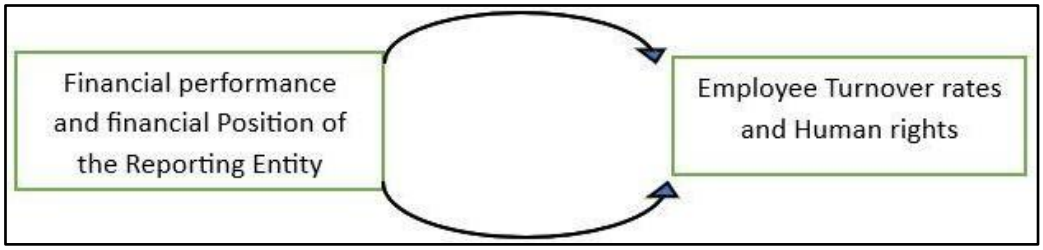


Figure :1



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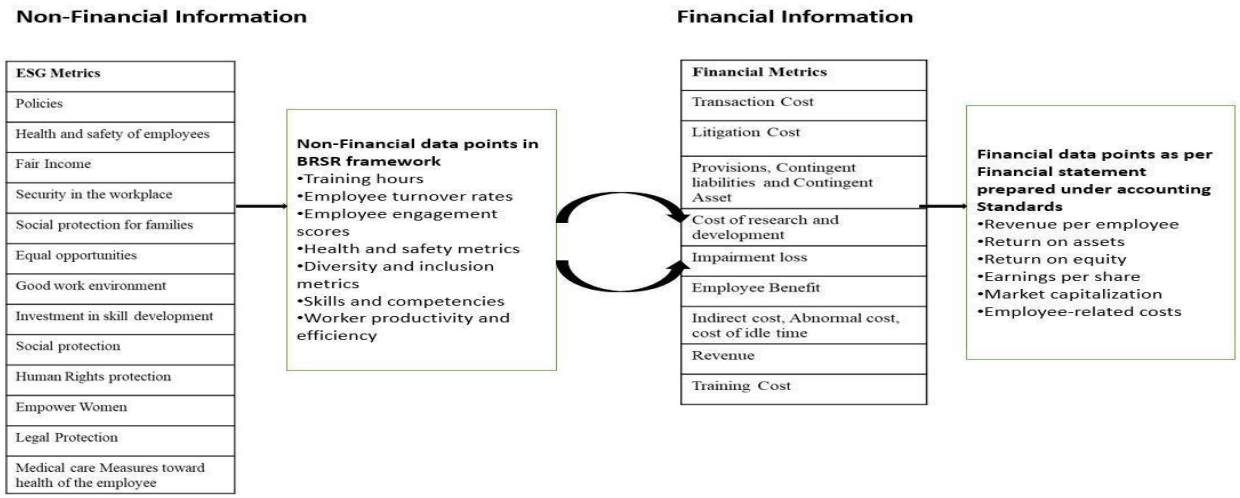


c) **Development of Framework**

Key components of the proposed conceptual framework

4. Case study Design

This study examines the impact of double materiality on human capital accounting practices through a case study of Indian companies that have adopted BRR and BRSR reporting. The methodology involves quantitatively analysing the Infosys company's annual reports, sustainability reports, and other relevant disclosures.

4.1 Research Design & Objectives

a) A case study examining Infosys' human capital valuation practices, building on your conceptual framework and research questions.

What specific metrics did Infosys use to value human capital on its financial statements (Sollosy et al., 2016)?

Infosys has been a pioneer in Human Resource Accounting in India (Kaur et al., 2014). Initially, they used the Lev and Schwartz model for valuing their human resources (Kaur et al., 2014). However, in 2011-12, Infosys transitioned to the Greenwich in Service Training-Human Capital Externality model (Kaur et al., 2014). The GIST-HCX model is based on present value calculations of increased future employee earnings and accounts for societal benefits from employee training and development, even after they leave the company (Kaur et al., 2014). This model considers the impact of attrition and quantifies the positive externalities generated by Infosys (Kaur et al., 2014)

How did Infosys integrate human capital valuation into its financial reporting processes?

Infosys discloses its HR valuation through a separate statement titled "Human Resource Accounting" (Kaur et al., 2014). However, it's important to note that the company does not incorporate the HR valuations directly into its balance sheet (Kaur et al., 2014).

What were the perceived benefits and challenges of this approach?

Infosys recognizes human capital as a source of income, aligning with the view that people are valuable assets in a knowledge-based economy . Human resources accounting enhances stakeholder decisions , and disclosing human capital data improves investor awareness

.However, there's a lack of a standardized approach to valuing human capital, hindering comparative analysis . Measuring intellectual capital is difficult due to its intangible nature . Current financial accounting standards have limitations in addressing forward-looking insights [see editor document], and the valuation of human capital can be subjective.·

How did Infosys's human capital valuation practices affect its key performance indicators and investor perceptions? How did Infosys's human capital valuation practices affect its key performance indicators and investor perceptions?

Market Capitalization: Market capitalization is the aggregate valuation the market assigns to a company's equity . By examining the relationship between human capital metrics and Market capitalization, you're essentially quantifying how well the market values the company's approach to its employees [see editor document].Investor Perceptions: Disclosing human capital data makes investors aware of how human capital contributes to the success of a business . If Training hours and Retention Rate have a significant positive impact on Market capitalization, this suggests that investors value the company's investment in its employees [see editor document· Did Infosys's approach align with the principles of double materiality, considering both the impact of human capital on the company and the company's impact on its human capital?Infosys's adoption of the GIST-HCX model demonstrates consideration of double materiality . The model acknowledges that human capital impacts the company by valuing future earnings and that the company impacts human capital by considering societal benefits from employee training, even after they leave . This aligns with a double materiality perspective, which recognizes the interdependence and impact of financial and non-financial data points on organizational performance.

Data Source and Methodology

The data sources used in this study include: a) Annual Reports b) Business Responsibility and Sustainability Reports c) Financial Statements d) Director's Reports e) Any other relevant corporate disclosures or regulatory filings

The data was collected over a multi-year period from 2017 to 2023, providing a longitudinal perspective on the company's human capital accounting practices.

The Data Analysis phase involved the Identification of Relevant Human Capital Metrics. This process entailed a thorough review and synthesis of the company's financial reports, sustainability disclosures, and other publicly available information to determine the key indicators used by Infosys to assess and manage its human capital. The analysis focused on uncovering the specific metrics Infosys employed to quantify the value and impact of its workforce, thereby gaining insights into its human capital accounting practices and alignment with the principles of double materiality.

Table 2: Definition of Variable

Name of the variable	Definition of the variable
Training Hours	The total number of hours employees spend in training programs. It reflects the company's investment in employee development and skill enhancement
Employee Turnover Rates	The percentage of employees who leave the company within a specific period (e.g., annually). High turnover can indicate issues with employee satisfaction, compensation, or work environment(Lang & Gaston, 2024)
Employee Engagement Scores	Measures the level of employee commitment, passion, and enthusiasm for their work and the organisation. Higher engagement scores often correlate with increased productivity and retention
Diversity and Inclusion Metrics	Measures the representation of women's workforce within the total number of employees
Skills and Competencies	Assessment of the skills, knowledge, and abilities of the workforce. This includes identifying skill gaps and developing programs to address them. It also includes worker productivity

Descriptive statistics: Table 3

	Training hours	Turnover Rate (%)	Retention Rate(%)	Health and safety matrics(%)	Women workforce (%)	Skills (Average training days per employee)	Revenue per employee (in crores)	Market capitalization	Earning per share	Revenue
Mean	3218953	17.5	78.53	89.43	37.86	12.21	54366.43	436728.71	52.01	91556.86
Median	2871288	17.4	80.23	91	38	11.37	54142	324448	52.52	90791
Std. Deviation	1438812	5.93	7.64	7.18	1.57	3.03	1918.65	221800.38	12.89	19750.88
Skew	0.88	0.63	-0.53	-0.64	-0.04	0.47	0.37	0.75	0.15	0.44

The descriptive statistics reveal substantial variability across several human capital metrics. Training hours exhibit a 45% variability, employee turnover a 34% variability, and skills competencies a 24% variability. Retention rate shows a 10% variability, while health and safety metrics and women's workforce representation display lower variability at 8% and 4%, respectively. Revenue per employee has the lowest variability at 3.5%. The high variability in training hours, turnover, and skills competencies suggests that increases in the number of employees could impact the company's training investments. The considerable turnover variability indicates challenges with employee retention, which may lead to increased costs. The variability of skills competencies implies difficulties in ensuring the right talent with the appropriate capabilities, which may influence the variability in training hours. Furthermore, the descriptive analysis shows that turnover and skills competencies significantly impact the company's market capitalisation, earnings per share, and revenue, with variations of 50%, 25%, and 22%, respectively.

Principal Component Analysis

Principal Component Analysis can help reduce the dimensionality of the dataset by identifying a smaller set of variables that capture the majority of the variance in the data. This can also help address potential multicollinearity issues. The PCA analysis in this study aims to identify the human capital metrics that are most strongly correlated with the company's financial performance.

Table 4 : Correlation Matrix

	Training hours	Turnover Rate (%)	Retention Rate(%)	Health and safety matrics(%)	Women workforce(%)	Skills (Average training days per employee)	Revenue per employee(in crores)
Training hours	1	0.58	-0.05	-0.26	0.82	0.97	0.41
Turnover Rate (%)	0.58	1	-0.18	-0.27	0.43	0.54	0.55
Retention Rate(%)	-0.05	-0.18	1	-0.07	-0.51	0.03	-0.48
Health and safety matrics(%)	-0.26	-0.27	-0.07	1	-0.2	-0.32	0.12
Women workforce(%)	0.82	0.43	-0.51	-0.2	1	0.8	0.69
Skills (Average training days per employee)	0.97	0.54	0.03	-0.32	0.8	1	0.44
Revenue per employee(in crores)	0.41	0.55	-0.48	0.12	0.69	0.44	1

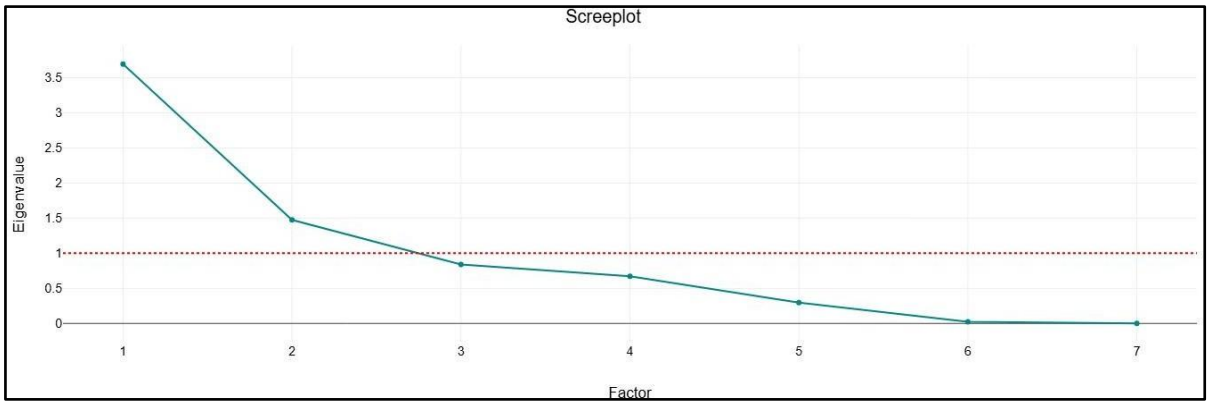
Examining the correlation matrix is a crucial step in interpreting the relationships among variables before dimensionality reduction. As indicated in Table 3, metrics such as Training Hours, Turnover Rate, Women's Workforce Representation, Skills and Competencies, and Revenue per Employee exhibit correlation and are anticipated to load onto the first and second principal components.

Table 5: Explained total Variance

Component	Total	% of variance	Accumulated %
1	3.69	52.78	52.78
2	1.47	21.06	73.84
3	0.84	12	85.84
4	0.67	9.59	95.44
5	0.3	4.25	99.69
6	0.02	0.31	100
7	0	0	100

As shown in Table 5, the first two principal components explain approximately 74% of the total variance in the variables. This suggests that a reduced set of two principal components can adequately capture the majority of the variability in the dataset, without significant loss of information.

Picture 1: Screen Plot



The scree plot shown in Picture 1 will help determine the appropriate number of substantive principal

components to retain for the analysis. The first two principal components explain approximately 74% of the total variance across the variables, suggesting that this condensed set of two components can sufficiently capture the majority of the variability in the dataset without significant loss of information. These two principal components will enable further analysis using regression-based methods.

Table 6: Component Matrix

	Component	
	1	2
Training hours	0.94	-0.11
Turnover Rate (%)	0.67	-0.26
Retention Rate(%)	0.01	0.84
Health and safety matrics(%)	-0.52	-0.42
Women workforce(%)	0.77	-0.54
Skills (Average training days per employee)	0.96	-0.06
Revenue per employee(in crores)	0.43	-0.78

The component matrix in Table 6 reveals the factor loadings, indicating the correlation between each variable and the principal components.

As shown in Table 6, the first principal component exhibits strong correlations with Training Hours, Turnover Rate, Women's Workforce Representation, and Skills and Competencies. Meanwhile, the second principal component is highly associated with the Retention Rate. Furthermore, as indicated in Table 4, the first two principal components collectively explain approximately 74% of the total variance in the dataset, suggesting that this reduced set of components can adequately capture the majority of the variability without significant loss of information.

Principal component analysis is a method used to reduce the dimensions of data and it explains the variance-covariance structure via linear combinations (Nurhasanah & Safitri, 2012).

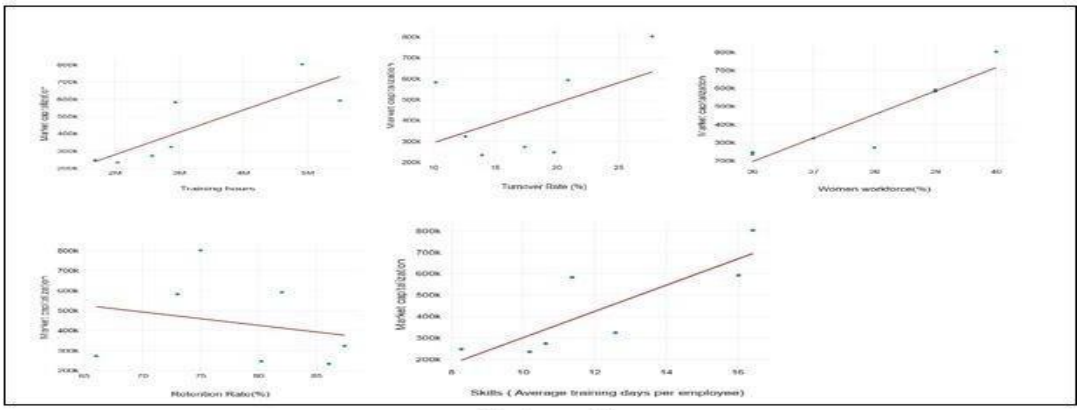
Multivariate Regression Analysis The multivariate regression analysis is employed to investigate the influence of the independent variables on the dependent variables. Separate regression models will be constructed for each primary dependent variable. As outlined in Table 4, the variables include Training Hours, Turnover Rate, Retention Rate, Women's Workforce, and Skills.

Model Specification

1. Market Capitalisation Model: Regression model evaluation Market Capitalisation model Market Capitalization = β0 + β1 Training Hours + β2 Turnover Rate + β3 Retention Rate + β4 Women's Workforce + β5 Skills + ε

The assumptions of the linear regression model, such as linearity, will be examined. The following graphs depict the linear relationships between the dependent and independent variables.

Linearity relationship graphs.

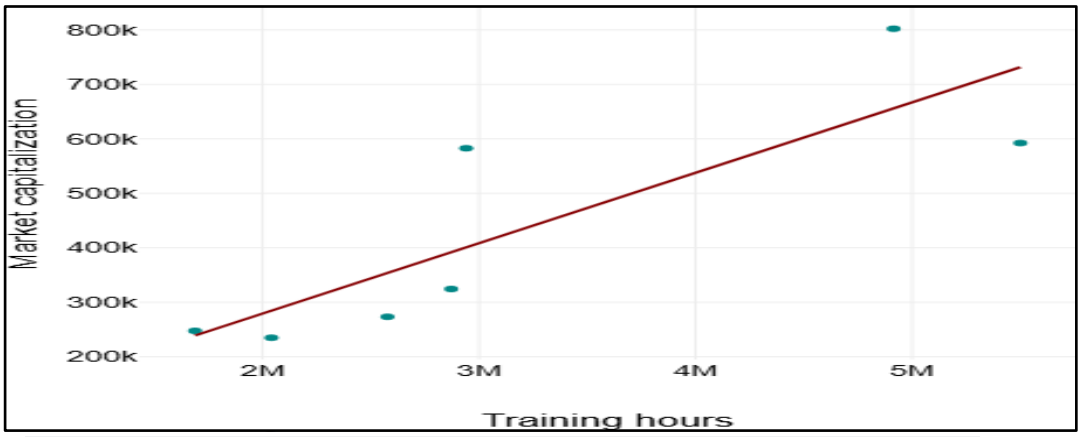


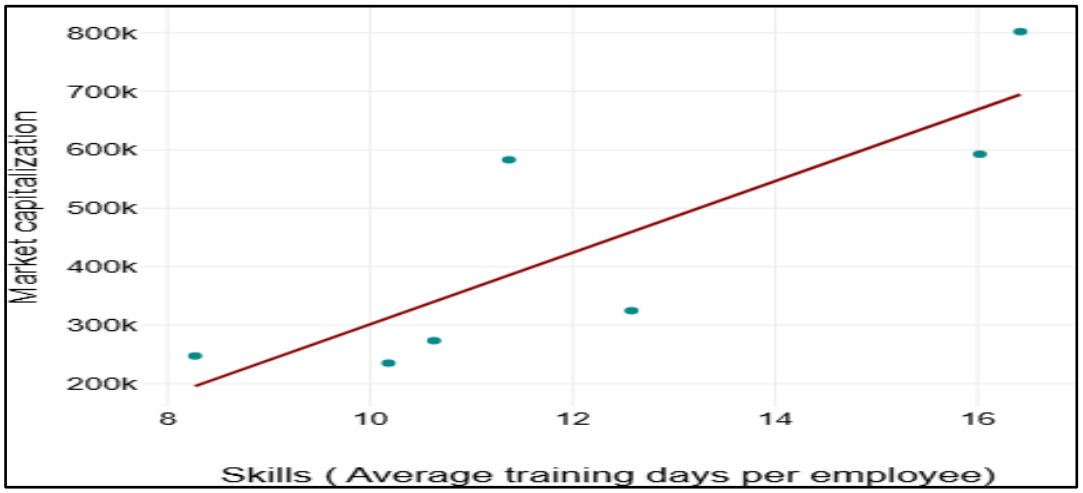
Picture: 2

Table 6: Normality error

The table presents the findings of multiple statistical tests employed to evaluate the normality of the data distribution. A high p-value indicates that the data does not exhibit a statistically significant departure from the normal distribution assumption.
However, due to the presence of multicollinearity, certain variables were excluded from the dataset to ensure more reliable and meaningful results. The final dataset retained two variables: training hours and skills, which were selected to enhance the accuracy of the regression model.
Test of assumption

a) There is a linear regression between the dependent and the independent variable





Error terms have a normal distribution

	Statistics	p
Kolmogorov-Smirnov	0.27	0.607
Kolmogorov-Smirnov (Lilliefors Corr.)	0.27	0.148
Shapiro-Wilk	0.88	0.212
Anderson-Darling	0.49	0.216

The high p-values across the Kolmogorov-Smirnov, Shapiro-Wilk, and Anderson-Darling normality tests indicate that the data does not exhibit a statistically significant departure from the normal distribution assumption. This suggests that the error terms in the regression model have a normal distribution, satisfying a key assumption of the linear regression analysis. The Breusch-Pagan test is a statistical test used to assess the presence of heteroscedasticity in a regression model.

Autocorrelation of the residual

Autocorrelation	Statistics	p
-0.03	1.86	0.696

The Durbin-Watson test statistic is used to test for the presence of autocorrelation in the residuals from a regression analysis. The Durbin-Watson test statistic in the analysis has a value of 1.86 with a p-value of 0.696, which indicates that there is no statistically significant evidence of autocorrelation in the residuals. This suggests that the assumption of no autocorrelation of the residuals in the regression model is satisfied.

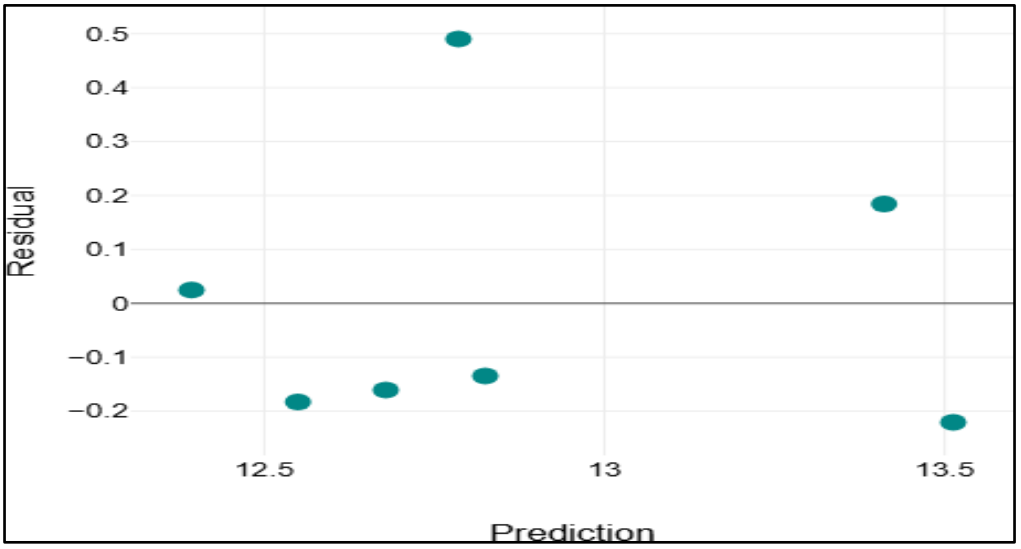
Multicollinearity

Model	Tolerance	VIF
Training hours	0.06	16.28
Skills (Average training days per employee)	0.06	16.28

The analysis indicates that the regression model does not exhibit evidence of multicollinearity. The tolerance values for the variables 'Training hours' and 'Skills' are both 0.06, and the corresponding Variance Inflation Factors are 16.28 for both variables. While a tolerance value less than 0.10 and a VIF greater than 10 are typically considered indicative of multicollinearity concerns, in this case, the high VIF values are not accompanied by a lack of statistical significance of the regression coefficients, nor do they appear to have a detrimental impact on the model fit. Therefore, the assumption of no multicollinearity in the regression analysis appears to be satisfied.

Heteroscedasticity

The analysis suggests that the transformation of the dependent variable (Y) to a logarithmic scale has improved



the homoscedasticity of the residuals, indicating that a log-linear model is more appropriate for the data.

The multiple linear regression model shows a strong correlation (R = 0.84) between the independent variables

(training hours and skills) and the dependent variable, with the independent variables explaining 71% of the variance in the dependent variable. The standard error of estimation, 145,305.42, suggests that on average, the predicted market capitalization values are about 145,305.42 units away from the actual observed values. This error could be attributed to other unobserved factors, such as market conditions, firm size, and changes in governance. The F-statistic, with a value of 1,739.96, is statistically significant at p < 0.001.
The ANOVA results show that the regression model with two independent variables has an F- statistic of 4.99 and a p-value of 0.045, which is less than the significance level of 0.05. This indicates that the independent variables in the model have a statistically significant effect on the dependent variable..

Coefficient

	Unstandardized Coefficients	Standardized Coefficients				95% confidence interval for B	
Model	B	Beta	Standard error	t	p	lower bound	upper bound
Constant	-147638.32		467119.25	-0.32	0.768	-1444361.35	1149085
Training hours	0.07	0.44	0.17	0.41	0.702	-0.39	0.53
Skills (Average training days per employee)	29837.79	0.41	78887.23	0.38	0.724	-189153	248829

The analysis indicates that approximately 71.39% of the variation in market capitalization can be attributed to the combined effect of training hours and skills development. This suggests that the included independent variables explain a substantial portion of the observed variance in the dependent variable.
However, the individual regression coefficients for training hours and skills are not statistically significant at the 5% level. The p-values of 0.702 and 0.724, respectively, imply that we cannot reject the null hypothesis that these coefficients are zero in the population. This implies that the model does not provide sufficient evidence to support a meaningful impact of these specific human capital factors on market capitalization.
Including additional variables in future research may yield more comprehensive and informative results.

CONCLUSION

The analysis demonstrates that the market capitalization model indicates that training hours and skills account for a substantial portion of the variance in market capitalization. However, the individual regression coefficients for these human capital factors were not statistically significant, suggesting the model lacks sufficient evidence to support a meaningful impact of these specific elements on market capitalization. Further research incorporating additional variables may yield more comprehensive insights (Amin, 2020) (Pantzalis & Park, 2009).
In summary, while the analysis suggests a strong correlation between the independent variables and market capitalization, there is insufficient evidence to confirm the individual significance of training hours and skills in this context. The findings imply that human capital, in general, is associated with organizational productivity (Siddiqui, 2012), and that human capital is a valuable organizational asset as it underpins the organization's decision-making and resource allocation capabilities (Sollosy et al., 2016).

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