The role of human capital cost in accounting

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Abstract *The purpose of this research is to deal with the human capital disclosure issue of present accounting systems. Many companies nowadays derive their competitive advantages mainly from human capital. However, under generally accepted accounting principles, all human-related expenditures are treated as expenses, which are deductions of revenues, thus misleading decision-makers into inappropriate judgments. This paper provides an alternative way of measurement and disclosure of human capital items in financial statements. The paper defines and classifies the human capital of a company in line with a theoretical framework provided by the authors, sorts out company's human capital investments according to cost development stages in human resources, isolates human capital from expenses and finally suggests disclosure in financial statements.*

Foreword

Today, it is knowledge that brings forth wealth. Human brains contribute to the value-added of products. Such development has confounded traditional accounting methods of measuring company performance, i.e. posing the question of the disclosure of human capital. Human capital and knowledge create value-added and even competitive advantages to modern businesses (Ulrich, 1998). Over five years, the semiconductor sector ranked first with an average return on equity of 45 percent, the software and information processing sector featured an average return on equity of 39.8 percent, and the financial sector recorded an average return on equity of 36.3 percent (Dorfman, 1996). These sectors share a common trait: they provide products or services developed by human intelligence instead of commodities manufactured by machinery equipment. In other words, the value-added created by human capital has prevailed over that created by tangible assets, such as machines.

There is much research on the contribution of intangible assets or capital on the value of companies being carried out. Elements contributing to the value of companies are numerous, including organizational capital, customer (relations) capital and human capital (Dzinkowski, 2000). All these factors centered on humans as a foundation for all sorts of capital. However, current accounting research on the definition, forms and categories of human capital has been limited. It is hard to obtain statistical data of human capital from the current accounting system, let alone apply the data to managing human capital, which has become increasingly important to companies' value creation. Against this backdrop, this paper aims to present an in-depth discussion on human capital.

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Under the generally accepted accounting principle (GAAP), financial statements lack proper reporting, measurement and disclosure of items in newly emerging fields such as human capital (Wintermantel and Mattimore, 1997). For example, conservatism states that when exposure to uncertainty and risk is significant, accounting measurement and disclosure should take a cautious and prudent stance – by using ways that do not overstate assets and net income. Only about one-third to one-sixth of the market valuation of firms in the USA is explained by GAAP (Westland, 2002). It is doubtful to make a decision with the reference of financial statements without disclosing human capital (Barcons-Vilardell *et al.*, 1999).

Under the current accounting system, financial statements disclose assets as important tools for companies to communicate with the public. In the balance sheet, machinery equipment is treated as an asset based on its acquisition costs and then deducted as expenses based on depreciation methods in each of the following year. On the other hand, human capital investments such as training and education are all included in expenses.

Scholars have provided evidence which shows that a well-managed investment in personnel training and utilization is conducive to organization performance and productivity (Acemoglu and Pischke, 1999). It is also showed that the results of training investments are reflected in financial performance (Bassi and McMurrer, 1998). Furthermore, human capital is related to organization performance and income (Arthur, 1994). Therefore, human capital is a significant factor both in terms of input and output for modern enterprises; it is at least as important as machinery equipment needed for production in the industrial society of the past. The financial statements provided by the current accounting system are an incompetent disclosure of companies' information contents (Beverly, 1992).

The purpose of financial statements is to provide useful information to investors and creditors, to evaluate companies' future cash flows, and information of companies' resources and claims to resources by creditors and shareholders as well as movements of these resources and claims (Kieso and Weygandt, 1992). However, currently, financial statements compiled according to the GAAP do not satisfy the above purpose because they do not properly disclose companies' investments in human capital and the knowledge assets created by it.

Financial statements without a proper disclosure of human capital are misleading for companies' management, who are used to making decisions based on the information provided by financial statements. Inappropriate decisions, such as layoffs, may thus be reached, thereby hampering companies' performance, far from its intended purpose of raising efficiency. The root of this mismanagement is the treatment of human capital as expenses instead of resources in traditional accounting (Hermanson *et al.*, 1992). It is, therefore, necessary to discuss further the disclosure issue of human capital in financial statements under the current practice.

To classify human capital expenditure in financial statements is relatively complicated. At the center of this complexity is the uncertainty with regard to the future economic benefits of human capital investments. Nevertheless, any evaluation of companies' transaction items based on accounting methods must inevitably involve efforts to formulate evaluation rules and procedures. Therefore, it is not reasonable to ignore human capital investments completely simply because of its uncertain future benefits and dismiss it as expenses. Even more, since the present accounting system does not classify human capital expenditure into investments and expenses, how can we examine the uncertainty of future benefit from human capital investments?

Based on the above consideration, this paper attempts to clarify the definition of human capital, identify human capital items conforming to this definition from companies' overall investments in human capital.

Literature review

The definition and properties of human capital

Not all expenditure made by companies in humans is counted as input of human capital. Expenditure about humans, such as staff training programs, is done not in order to exchange it for the labor or services provided for employees in the past or during the short-term period, but in order to induce value-added in the future. The so-called costs or investments do not refer to an absolutely fixed set of accounting items, but vary according to the business objectives, core skills and human attributes concerned.

Existing literature approaches the definition of human capital mainly in three ways:

(1) the transaction cost economy theory;

(2) the human capital theory; and

(3) resource-based view of the firm theory.

The transaction cost economy theory presumes that companies choose to employ personnel in the most efficient way (Argyres and Liebeskind, 1999). When employing personnel, companies can either recruit new staff outside or train/promote existing staff. These two approaches to employment will incur various costs. For example, the former approach incurs hiring costs (transaction costs) and the latter triggers training costs and management costs (bureaucratic costs). Between these two alternatives, companies choose the most efficient way or combination by comparing all relevant costs (Riordan and Williamson, 1985). Human capital within the context of this theory must possess the dual properties of asset specificity and asset uncertainty.

The human capital theory emphasizes the fact that companies decide on the amount of human capital investment they will make by comparing it with the potential future benefits, for instance, improvements in production controls. Human capital in this context refers to technical training and knowledge buildup for employees. Flamholtz (1972a, b) suggests that investments are especially focused on training employees' specialized skills and avoiding these skills to be used by other companies. Human capital referred to in this theory must possess the dual properties of asset specialized skills and non-transferability.

The resource-based view of the firm theory advocates that core skills central to a company's competitive advantages must be acquired from internal development within the company itself and that general technology can be acquired from outsourcing. The core skills are characterized by properties such as value, rareness, not being imitable and immobility (Barney, 1991). Talents capable of core skills are the human capital deserving attention and investments from companies.

By summing up the above theories, this paper defines human capital investments as input made by company in talents and technology that benefit competitive advantages, are valuable and unique, and should be kept out of reach of other companies. In other words, only employees possessing these qualities are qualified as human capital. The skills of employees are a company's assets just like tangible assets (Barney, 1991). In particular, employees with core skills are the fountain source for company to raise competence and profits (Porter, 1985). Therefore, it is also suggested investments in this kind of employees, i.e. human capital investments, should be the focal point of our attention (Porter and Stern, 2001).

To explain ways of identifying companies' human capital investments, researchers used value as the horizontal axis and uniqueness as the vertical axis to divide companies' utilization of human capital into four quadrants (Lepak and Snell, 1999). Among the four quadrants, the one representing both high value and high uniqueness denotes human capital investments. This type of human capital is capable of core skills, key to a company's competitiveness, barred from being used by other companies and very difficult to be obtained by means of sourcing. Therefore, it is best to be developed internally within the company itself by means of human capital investments. In terms of cost accounting attributes, how the company forms, obtains, maintains and segregates these types of employees should translate into quantified disclosure of human capital investments. Of course, the salary offered to these employees in exchange for services and labor in itself is not defined as human capital investments. Salary expenditure is considered as the reward of employees' previous effort.

By investing in human capital, companies improve production efficiency, product or service quality, and product differentiation, thereby obtaining strategic competitive advantages (Ruchala, 1997). The definition of uniqueness varies in accordance with different industrial sector. From the perspective of strategic human resources, human capital can be effectively utilized through a high-performance work system, to maximize the quality of human capital investments in an organization (Becker and Huselid, 1998). To sum up, qualified human capital investments must have contributions to company's strategic goals and are barred by the company from being employed by other competitors. This paper takes uniqueness and high value as bases to classify company's human capital investment.

Possible ways to disclose human capital

American Accounting Association has defined, according to the definition made by the Committee in Human Resource Accounting, that human capital accounting is a process for the recognition and measurement of human capital and the provision of such information to users as a reference (AAA, 1973). The purpose is to use accounting to improve the quality of financial statements and incorporate the variable of human capital as expressed in financial statements into management decisions. Scholars agreed that since 1980s, advanced industrial countries such as the USA and Japan evolved from a production mode featuring manufacturing industries to one driven by high technology and services. Under this transition, the productivity and value of personnel are increasingly emphasized. Therefore, human capital accounting has become a major theme of research (Flamholtz, 1972a, b).

The purpose of human capital accounting is to provide useful information to users of financial statements. By so doing, companies can capitalize investments in human resources instead of treating human capital as a negative factor when calculating net income. Thereby, the contribution of human capital to companies can be measured. In other words, human capital accounting information can increase the efficiency of human resource management to facilitate the decisions relating to the acquisition, development, allocation, utilization, evaluation and reward of human resources. In addition, financial statements based on human capital accounting first aim to disclose human capital and its related items, then, depending on the conditions of the company concerned and feasibility, seek to express the utilizing conditions and acquirement costs of human capital in monetary value.

Human capital is an important component of human resources Lepak and Snell (1999) suggest that the uniqueness of human capital can be discussed according to its different functions. This paper adopts the idea of human capital accounting and regards inputs contributed by employees with uniqueness as human capital.

The disclosure methods currently adopted can be categorized as monetary measurement and non-monetary measurement. For the purpose of analysis, the former is divided into input and output sides while the latter usually simplified by the Likert model (Likert and Bowers, 1973). Monetary measurement expresses the value of human capital with monetary figures, which are further analyzed from the perspectives of input costs and output value. The methods of monetary measurement of input costs are:

- the acquirement cost method; and
- the replacement cost method and the present value of a future stream of payments method.

The acquirement cost method and replacement cost method both present an objective disclosure of human resources, which can serve as a reference for input decisions when expressed in financial statements. The present value of a future stream of payments method requires an estimate and discount of employees' future salaries, and therefore its applicability is limited.

The methods of monetary measurement of output value are:

- the bidding method; and
- the economic value-added approach.

The bidding method is more objective in the auction process and hence more useful to larger organizations. The economic value-added approach, on the other hand, is less practical since it is still controversial as to whether the economic value-added equals human capital. Therefore, the current method of disclosing human capital in financial statements emphasizes the reporting and measurement of the input cost items of human capital that have been translated into salary expenses. Furthermore, discussions on the human capital accounting items derived from possible disclosure methods adopted by companies and how different disclosure methods may affect decision making are still lacking in existing literature. This paper strives to provide discussions and analysis on the above-mentioned points by adopting monetary inputs as a measurement of human capital to clarify ways of investing in and disclosing human capital.

Identification of human capital and relevant accounting items

Costs, as defined in the context of management accounting, refer to "the resources being sacrificed or exhausted in order to achieve a certain goal," or simply to exchange companies' assets for employees' services or labor. Hongren *et al.* (2000) suggest that investments mean "the resources or assets used for making profits". Therefore, when identifying accounting items relating to human capital, human input items, i.e. salary expenses paid by companies to employees, must first be excluded. This is because salary expenses are rewards offered by companies to the services and labor that employees have already provided, not investments that will increase companies' core competitiveness. For this reason, this paper excludes salaries paid to employees from human capital investments.

The traditional human capital accounting theories identify the following items of human capital investments (Flamholtz, 1973):

(1) *Formation and acquisition costs at the early stages of development.* Formation and acquisition costs of human capital are called human capital acquisition costs at the early stages of development. They are

divided into outsourcing acquisition costs and internal transfer costs. Outsourcing acquisition costs are the direct costs of human capital, i.e. directly related to human capital acquisition costs. They comprise recruitment, selection, hiring and placement costs. Of these components and accounts in the present accounting system, recruitment costs refer to the costs involved in discovering and confirming human resources, such as related expenditures paid to the staff responsible for recruitment, advertisement expenses, postage, traveling expenses and escorting expenses. Selection costs are the costs for the process of determining whether or not to hire an applicant, such as expenditures paid to the staff responsible for holding examinations and costs related to renting exam places and making exam papers. Hiring and placement costs refer to the costs incurred from settling employed personnel to certain positions in a company, including expenses related to signing contracts, traveling expenses, moving expenses and housing expenses.

Internal transfer costs, on the other hand, are the indirect costs of human capital. They are incurred for reasons related to human capital but not necessarily traced back to any specific event of human capital formation. These include costs of promotion and transfer within a company. Outsourcing acquisition costs and internal transfer costs together make up human capital acquisition costs.

This paper asserts that human capital acquisition costs should be disclosed or recorded as human capital investments only when they possess the properties of uniqueness and high value as far as the industry is concerned.

(2) *Learning costs in the middle stage of development.* The learning costs of human capital include training costs for current and new employees, on-the-job training (OJT) costs and the opportunity costs of trainers' time. Training costs for current and new employees and OJT costs are direct costs of learning costs. These are the costs for unskilled or semi-skilled employees to become competent of the techniques or experiences required for general or designated tasks and also for employees to understand the policies and products of their companies. These include items such as orientation costs, general training costs and OJT costs.

Orientation costs are costs involved in acquainting employees with companies' policies, products, machines and even environments. Their accounting accounts in present accounting system include related expenditures of orientation instructors, teaching materials costs, inefficiency losses due to hiring new employees and related expenditure spent on new employees during the trial period.

General training costs are the costs not immediately or directly related to current operations or the costs believed by companies to have the effect of raising operational efficiency, for example providing training to promising employees for their management abilities in the future. Because management abilities are not instantly attainable and employees under training may not have the opportunity to exercise such abilities, the costs involved are categorized as general training costs. The accounting items under this category include tuition and equipment expenses. Moreover, OJT costs are the costs spent to increase employees' abilities to carry out their current tasks. In addition to the tuition and equipment expenses of general training costs, OJT costs also include the opportunity costs occurring due to employees' leave during the training period.

The above-mentioned opportunity costs of trainers' time are the indirect costs borne by companies for using their own employees as trainers, i.e. the opportunity costs incurred from the loss of productivity due to employees acting as trainers.

This paper asserts that as long as companies invest in the learning of the human capital possessing the property of uniqueness, they should disclose or express such investments.

(3) *Replacement costs at the final stages of development.* At the final stages of human capital development, the replacement costs include discharge costs, inefficiency losses before discharges, and the average costs of recruiting, hiring and training personnel to fill in the vacant positions, as well as the losses or opportunity costs incurred during the period when the positions remain vacant. The corresponding accounting items include recruitment, selection, hiring and training costs.

Discharge costs are the direct costs of the personnel replacement process. These include the compensation and contract violation penalty paid to the personnel being laid off. The costs derived from the inefficiency losses before discharging, the average costs of recruiting, hiring and training personnel to fill in the vacant positions, as well as the losses or opportunity costs incurred during the period when the positions remain vacant are indirect costs of the personnel replacement process.

The accounting items of human capital derived from the above-mentioned stages of development can be summarized as follows:

- related expenditure paid to personnel responsible for recruitment;
- advertisement expenses during recruitment;
- reasonable and necessary traveling and settling expenses for applicants and new employees;
- administrative expenses relating to recruitment;
- related expenditure paid to new employees during the trial period;
- training costs;
- discharge costs;

- opportunity costs derived from new employees assuming positions and from positions remaining vacant; and
- costs incurred by inefficiency losses before discharges.

Of the above human capital accounting items, items the first seven are listed by current financial accounting as expenses, while the last two items are listed in management accounting only as a reference for making a decision. However, from the perspective of the definition of human capital, if these human capital accounting items are presented as assets and disclosed in companies' annual reports and categories or notes of financial statements, the applicability and comprehensiveness of information provided by companies will be enhanced.

Based on the definitions of human capital by both traditional theories and the above-explained theories, this paper asserts that companies' investments in human capital should follow the dual principles of uniqueness and value. Companies should identify personnel with high value and high uniqueness and then recognize the involving formulation and acquisition costs, learning costs and replacement costs to determine companies' investments in human capital.

A theoretical framework

Business resources are oftentimes limited, so that when resources are scarce, expenses are often reduced in order to minimize book losses. However, under present accounting principles, which list all investments in human capital as expenses, costs incurred in the development of human resources favorably influencing strategic goals or creating future advantages cannot be extracted from pure wages that are part of human capital expenditure. This results in inadequate information contained in the expense account, potentially leading to inappropriate distribution of resources and decisions.

This paper attempts to segregate human resources in businesses, delineating human capital that is compatible with business strategic goals, has high value and is highly unique. The boundaries of human capital investments and human capital expenses are drawn according to the stages in which business invests in human resources. It is hoped that the detailed accounting items that replace the indiscriminate lumping of all human resource expenditure as expense items will more precisely disclose information about the business financial state. Finally, the delineation of the investment in the maintenance and protection of human capital that ensures the sustainability of the core competitive human resource is also discussed.

The theoretical structure constructed in this paper is shown in Figure 1. The horizontal axis represents value of employees and implies the investments in highly valuable human with potential to create business competitive advantages. The value increases along the right direction. The vertical axis is the degree of employees' uniqueness, representing the degree of the unique capacity of human to provide business competitive advantages that cannot be

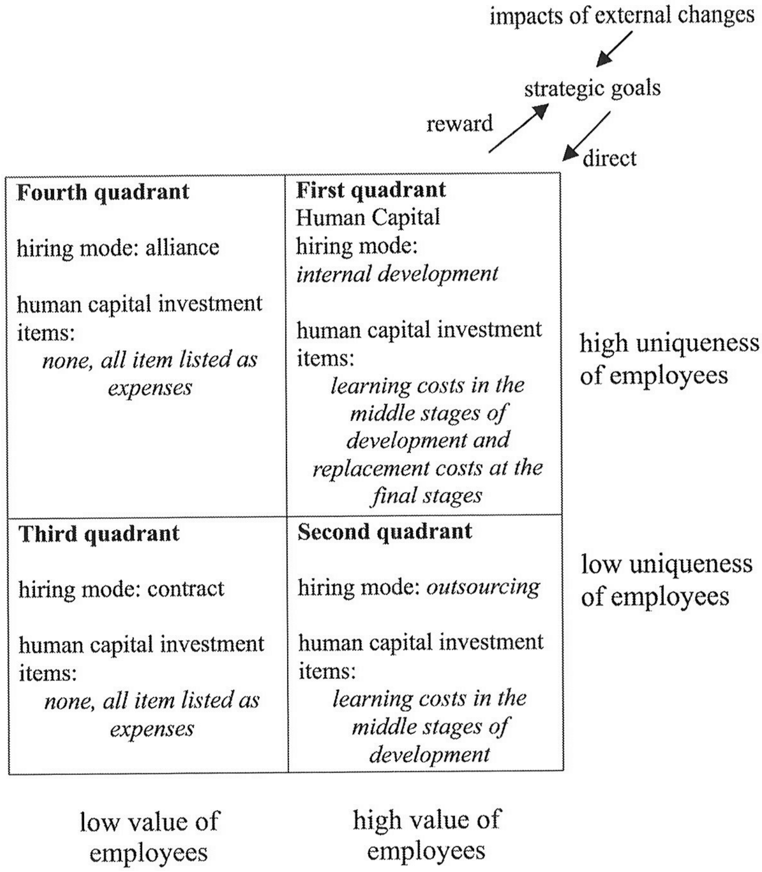

Figure 1.
Framework of human capital expenditure classification

easily mirrored, formulated and acquired. The uniqueness increases in the upward direction.

The human capital expenditure in the fourth quadrant of Figure 1 represents employees with high uniqueness and low value, such as lawyers or accountants. These employees are highly specialized with national certificates, hence are highly unique. Nevertheless, companies employ these people to deal with contingent or routine affairs. These people are not directly helpful to companies' core skills and value and therefore are not considered highly valuable. Since it is time-consuming and hardly economically efficient to train these professionals, companies rarely train lawyers or accountants within themselves. The best way to acquire this type of employee is by establishing alliances.

The human capital expenditure in the third quadrant of Figure 1 represents employees with low uniqueness and low value, such as cleaning and security personnel. Since this type of employee is easily acquired from the manpower market and also easily replaceable, it is not unique. Moreover, it provides low-end manual labor that is not considered valuable by companies. Therefore, these employees can be hired by means of contracts. The expenditure involved here is exchanging company's assets for personnel's labor service, and therefore is listed as expenses in accounting.

From the perspective of accounting, exchanging company assets simply for services is categorized as expenses. Companies pay salaries to personnel in the third and fourth quadrants in exchange for their services, such as auditing fees paid to accountants and wages and welfare paid to security services. Therefore, this expenditure should be listed as expenses, not human capital investments.

Employees in the third quadrant of Figure 1 represents are of low uniqueness and high value. For example, electronics companies employees with a master's degree. The degree in itself is not unique and can be easily acquired from the employment market. However, this type of personnel is equipped with the specialty capable of creating a significant extent of value to the company despite their low uniqueness. Therefore, this type of employee can be hired from outsourcing. Furthermore, if these employees are continually trained, they may be elevated to the first quadrant with both high uniqueness and high value. In terms of accounting costs, all related expenditure with the exception of training expenditure should be listed as expenses. Although this type of employees has a valuable contribution to companies' strategic goals, yet being less unique, easily attainable and easily transferable, its contribution to the uniqueness of company's human capital is not high both in terms of the formulation and acquisition costs at the early stages of development and in terms of the replacement costs at the final stages of development. According to accounting analysis, these costs should be listed as current period expenses, i.e. the price companies paid for using these human resources, and deducted from current period revenues. For this type of employees, only the learning costs at the middle stages of development under the consideration of contract conditions and personnel mobility can be considered as human capital investments. Giving continuous training under certain conditions, these personnel are the future source of company's human capital with high uniqueness and high value.

Employees in the first quadrant of Figure 1 are human capital acquired from internal development in companies themselves. Because it has a valuable contribution to companies' strategic goals and is highly unique, it is necessary to continuously invest in those personnel as the core competitiveness and the sustainable human capital of company. Investment items in this regard include learning costs at the middle stages of development and replacement costs at the final stages of development. For instance, continuous investments in this type of human capital can either sustain or increase company's competitive advantages, while investments in the related replacement costs can make up for the potential losses of competitive advantages.

Employees in the first quadrant are managers, technical experts, and personnel related to the development of a company's strategic goals, these are the "inner core" of the company (Boxtall, 1998). Firms which focus on augmenting their specific human resource advantages by attracting and retaining highly skilled human capital have higher potential to be more competitive in international markets than less human resource oriented ones (Chadee and Kumar, 2001). If expenditure in this type of personnel is considered expenses instead of human capital investments, then first of all the human capital conducive to the creation of a company's future economic value is not presented. Second, when making decisions to trim expenses, the company is likely to be misled into cutting human capital investments, thereby reducing its ability to survive and compete in the future.

Of course, any company's strategic goals are subject to be changed along with external factors, such as technological innovation, and the passage of time. Likewise, the value and uniqueness of employees defined by each company are affected. Therefore, human capital in the first quadrant should be adjusted with the external environment when necessary.

In the framework of human capital expenditure classification constructed in this paper, in order to provide more information, it is not appropriate to clump direct investments in human capital belonging to the first or second quadrant together with other human capital expenditure as expenses under the same accounting category and then deduct them from revenues. The direct investments in human capital belong to the first quadrant such as learning costs in the middle stages of development and replacement costs in the final stages of development, and those direct investments belong to the second quadrant, such as learning costs in the middle stages of development.

In addition, indirect investments in human capital, defined in this paper as accommodating measures of human capital, should also be considered investments rather than expenses. These include a company's active provision of benefit, sharing profits, granting stock options, keeping promotion channels open and maintaining good employer-labor relationships. These measures bring about a sense of satisfaction with both employment contracts and psychological commitments. In a more passive sense, measures such as contracts specifying employment duration and property right establish barriers to transfer of human capital to competing companies. Although this type of expenditure is not invested in human capital that is directly related to a company's competitive advantages and development strategies, it should be regarded as peripherally linked to the maintenance of human capital.

This paper proposes a sketch to calculate human capital investments. Traditional accounting does not distinguish human capital investments from other expenses, but this sketch seeks to sort out human capital investments that are pivotal to a company's competitive advantages. This method can prevent a company from losing the competitiveness when making cost reduction decisions. The sketch is illustrated in Figure 2.

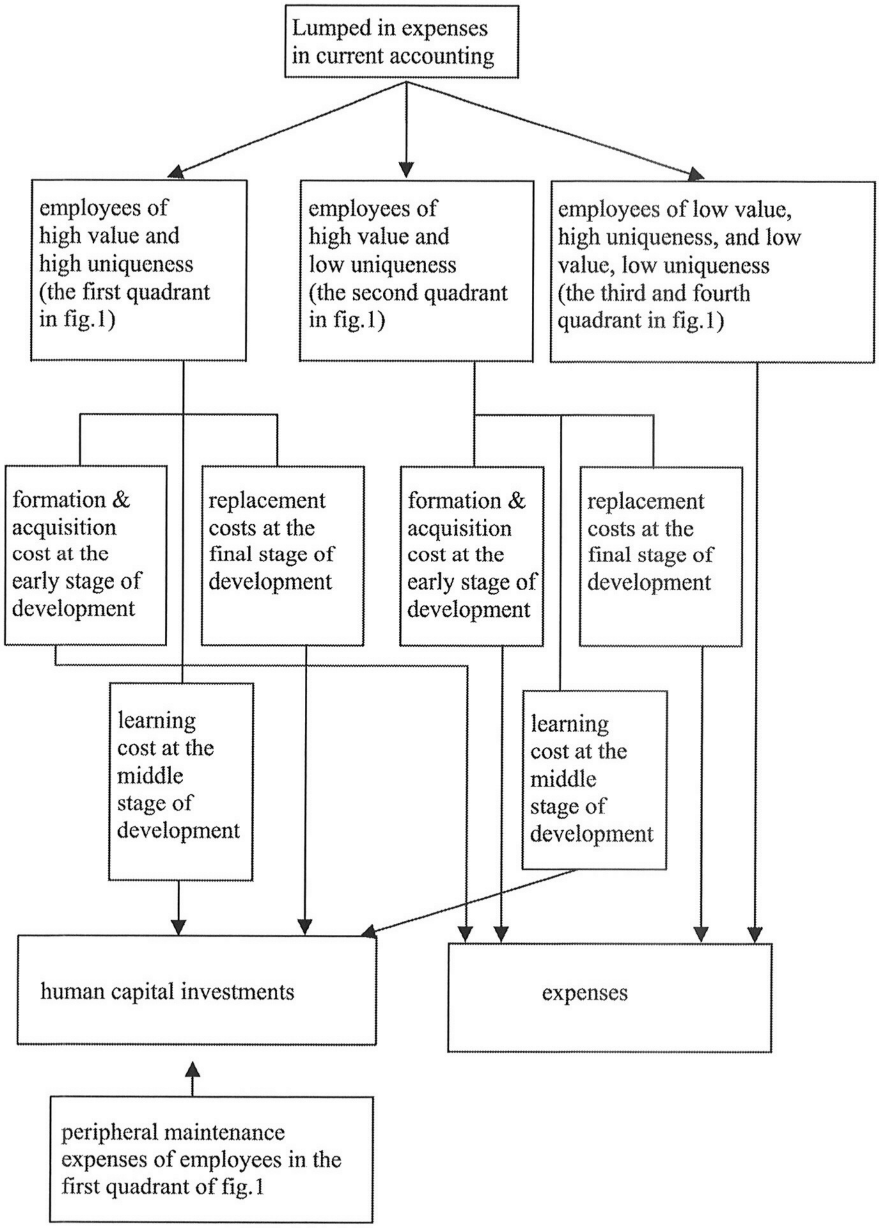

Figure 2.
Accounting sketch of human capital expenditure

Conclusion

The succession of the human intellect over machines and equipment in the contribution to industrial value makes a financial statement that relegates human capital expenditure to expenses inadequate if not obsolete. This paper explores the definition of human capital and human capital expenditure classification within business, based on two interacting principles, i.e. the value of employees to competitive advantage and the uniqueness of employees. It is suggested that companies' human capital expenditure is analyzed in detail, and that the human capital investments conducive to competitive advantages are extracted from expenditure. Moreover, instead of listing human capital expenditure indiscriminately as expenses, this paper identifies the different stages of development of human capital to reflect the truth of important investments made by businesses in the process of survival, development and profit creation.

Unavoidably, definition of human capital and human capital expenditure classification may involve subjective interpretations. However, the establishment of systems is intrinsically subjective. The crux of the problem lies in the fact that more and more businesses rely on the intensive knowledge and methodology created by human resources to compete and survive. Is blindly relegating all the company's inputs on human resources to expenses really a superior alternative to the systemic tracing of the source of business competitive advantages and the treatment of human capital that creates competitive advantages as capital investments? This paper attempts to break this myth with the theoretical framework promulgated above.

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