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Human resource accounting: a historical perspective and future implications

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Abstract
The purpose of this paper is to provide an overview and history of human resource accounting (HRA) with the objective of promoting both continued academic research and organizational applications. The history of HRA illustrates how academic research can generate improvement in management systems. The paper defines HRA and suggests implications of measuring human capital for financial reporting and managerial uses. Recent Swedish-based HRA applications with respect to measuring human assets and intellectual capital, including the Skandia Navigator, illustrate how intellectual history and developments in business schools can influence business history.

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Introduction

This paper traces the history and development of human resource accounting (HRA). HRA involves accounting for people as human assets. Although HRA has important implications for external financial reporting, in the contemporary economic environment HRA has even greater significance as a powerful managerial tool in internal human resource management decisions. In light of the history of labor and human resource management, HRA suggests a vehicle for improvement of management as well as measurement of human resources. If HRA can demonstrate that improvement in human resource management enhances profits, then managers will integrate human capital implications in their decision making to an enhanced degree.

HRA and external financial reporting

External financial reporting, information disclosed in a company's annual report to shareholders, is geared primarily to external users such as stockholders, bankers, potential investors and lenders. Currently, financial accounting treats human resource costs as current expenses that reduce the net income of the company, as opposed to investments that will provide future benefits to the company and that are reported as assets on the company's balance-sheet.

There are problems with reporting human assets on the balance-sheet. Although various HRA cost- and value-based models have been developed, there is subjectivity in measuring human assets. One reason is that the company does not actually own human assets so that there is risk of employee turnover. Value-based models resolve this problem by estimating the probability of exit along with probabilities of promotions, mortality and future wages.

In contrast, most financial reporting has been objective, historical and cost-based. The reason is that accounting generally takes a conservative position with regard to recording gains and losses. Thus, appreciated market values are not shown for most accounts (with the exception of trading securities expected to be sold in the near future). One main reason why "generally accepted accounting principles" encourage objective, reliable and verifiable measurement is the aim of comparability among organizations. It is of course harder to compare across companies when the measures involve subjectivity and considerable use of estimates. On the other hand, traditional accounting's conservatism has made it difficult for investors to compare human capital investments in firms. The result is likely considerable imperfection in the capital markets because of lack of information about management quality.

In addition to the absence of human resources on the balance-sheet, other significant intangible assets, such as goodwill, have not been shown on the balance-sheet unless paid for in a company purchase transaction. Large expenditures in developing new products and patents are written off to research and development expense rather than capitalized as assets. Indeed, there is a conflict between reporting information that is reliable or easily and objectively measured and information that is relevant to decision making. Although HRA measures incorporate subjectivity, they are very relevant to the real needs of decision-makers and investors.

The relevance of intangible assets has been increasingly recognized. There has been increased interest in accounting for intangible assets for financial reporting purposes on the part of the Financial Accounting Standards Board (FASB) and the

Securities and Exchange Commission (SEC). There also has been international corporate and academic interest. Since a firm's human resources are a prime component of its intangible assets, the stage is being set for a renewed interest in HRA from a financial accounting perspective.

Managerial functions of human resource accounting

Although HRA could be used in some form to improve financial reporting, probably the most important benefit of HRA is that it is a managerial tool. Management can use HRA measures for HR decision making. If management has gone through the process of measuring and has HRA information available, it is likely that important management decisions such as those involving job cuts and layoffs will be made differently. A related point is that the very process of measuring HRA information can have the effect of placing more emphasis on it.

That is, HRA can be thought of as having three major functions:

1 providing numerical information about the cost and value of people as organizational resources;
2 serving as an analytical framework to facilitate decision making; and
3 motivating decision-makers to adopt a human resource perspective.

Flamholtz (1979, 1980) described the HRA paradigm in terms of the "psycho-technical systems" (PTS) approach to organizational measurement. The PTS approach holds that there are two functions of measurement:

1 process functions in the process of measurement; and
2 numerical or informational functions from using the numbers or measurements.

That is, one role of HRA measurement is to provide numerical information as an input to management and financial decisions. But another and even more important role comes from the measurement process, from the act of monitoring and quantifying the costs and value of people from a human resource perspective. From a managerial perspective, the process of measuring, as well as the measurements themselves, send the message that people are valuable organizational resources and should therefore be managed as such.

One example is the management of layoffs and down-sizing. Management can use HRA technology to analyze the effects of such decisions and to better understand the long-term implications and hidden costs of management's business decisions. In addition to the significant costs of rehiring qualified employees, layoffs may also affect the morale, productivity and even retention of the employees not laid off.

Historical development of human resource accounting

Whence has HRA arisen? Having introduced HRA and provided some insights into its timely importance to organizations in the contemporary economic environment, we now provide an overview of the history of accounting for human resources. The development of HRA has passed through five stages as follows:

1 *1960-1966*: Derivation of basic HRA concepts from related bodies of theory.
2 *1967-1970*: Basic academic research developing measurement models.
3 *1971-1977*: Rapid growth of interest in HRA.
4 *1978-1980*: Period of declining interest in academia and corporations.
5 *1981-present*: Renewed international interest in HRA theory and practice.

This paper will offer insights on the above stages, starting with the first stage and ending with some thoughts on the current state-of-the-art and future developments. The history has evolved from theory to practice; from the schools of business and commerce to professional application. It illustrates that academic theory can have important practical implications.

Stage I: Derivation of basic HRA concepts

Early interest in HRA came from a variety of sources. Some of the early accounting theorists (Scott, 1925; Paton, 1962) provided support for treating people as assets and accounting for their value. Early organizational psychologists such as Likert were concerned with leadership effectiveness and the "human resource perspective" that was based on the premise that people were valuable organizational resources (Odiorne, 1963; Likert, 1961). In his pioneering monograph *Accounting for Human Assets*, Roger Hermanson (1964, 1986) described a model to measure human resource value in external financial reports. Hermanson's work was instrumental in providing inspiration for the next phase in the development of HRA.

Stage II: Basic academic research developing measurement models

Stage two was a period of basic academic research to develop and assess the validity of models for the measurement of human resource cost and value. It was a time of research designed to formulate the present and potential uses of HRA as a tool for human resource professionals, line managers, and external users of corporate financial information. It included a few exploratory experimental applications of HRA in actual organizations.

The research done during the early stages of the development of HRA was conducted at the University of Michigan. In addition, beginning in 1967, a research team that included the late Rensis Likert, R. Lee Brummet, William C. Pyle, and one of this paper's co-authors, Eric Flamholtz, carried out a series of projects designed to develop concepts and methods of accounting for human resources. The outcomes of this research included an article by Brummet *et al.* (1968a) representing one of the earliest works in the area of human resource measurement, and the one in which the term "human resource accounting" was used for the first time. The authors analyzed the deficiencies of treating employee costs as expenses rather than as assets, and concluded that human resource accounting is primarily used as a managerial tool. In another article published the same year, "Accounting for human resources" (Brummet *et al.*, 1968b), the authors assess the impact that HRA can have on management.

Flamholtz's (1969) PhD dissertation was an exploratory study that formulated a theory of an individual's value to an organization. In the same year, Brummet *et al.* (1969) emphasized HRA as a tool for increasing managerial effectiveness in the acquisition, development, allocation, maintenance, and utilization of its human resources. One of the first attempts to develop a system of accounting for a firm's investments, it studied the application of HRA in R.G. Barry Corporation, an entrepreneurial public company.

Stage III: Significant academic research and growth

The third stage of development of HRA, which dated from 1971 to 1977, was a period of rapid growth of interest in human resource accounting. It involved a significant amount of academic research throughout the Western world and in Australia and Japan; and it was a time of early attempts to apply the HRA theory to business organizations.

Thus, during this stage, the R.G. Barry experiment continued and received considerable recognition because, at least for a few years, the company published pro forma financial statements that included human assets. This, in turn, stimulated increased interest in HRA. Because it was dramatic and innovative, "putting people on the balance-sheet" became the dominant image of HRA for many people. But it was controversial. One objection was that HRA communicated management's ownership or control of employees. Nevertheless, overall interest in HRA increased and this stage was characterized by a considerable amount of published research dealing with HRA, as well as a great deal of seminar activity.

Another indication of the practical dissemination of academic theory was that, during this stage, the American Accounting Association established committees on HRA in 1971-1972 and 1972-1973; and these committees published reports on the development of HRA. The AAA's involvement proved a catalyst for additional research.

Empirical research studies found that HRA had an impact on decision making. Some examples of the effect of HRA on external decisions included Elias's (1972) experiment that determined that external users' decisions on investments in common stock were made differently with the inclusion of HRA information. Following the work of Elias, Hendricks (1976) found that stock investment decisions were significantly affected by additional HRA cost accounting information. Schwan (1976) further extended the Elias and Hendricks studies by examining the effects of HRA cost information on financial decisions in comparison with decisions based on conventional financial information. The results showed that the firm with HRA information was considered better prepared; and the inclusion of HRA information resulted in statistically significantly better predictions of a firm's net income. Likewise, Acland (1976), who presented quantified behavioral indicators to financial analysts, found that financial analysts prefer a firm with improving financial operating performance but with declining behavior indicators. Such preferences decrease when the human resource indicators are provided.

One study of the effect of HRA on internal managerial decisions was Zaunbrecher's study of the impact of HRA cost information on a personnel selection decision (Zaunbrecher, 1974; Spiceland and Zaunbrecher, 1977). Their results indicated that HRA information was considered even

when conflicting traditional information was presented along with it. Tomassini (1974) studied differences in decision preferences involving the length of a layoff and found that HRA data can affect managerial decisions, both at the choice and the process levels. Flamholtz (1976) studied whether human resource value numbers influence the decisions made by certified public accountants. He found statistically significant differences in decisions made using:

- traditional personnel numbers; and either
- non-monetary HR value numbers; or
- monetary HR value numbers.

He did not find differences using non-monetary versus monetary measures. Flamholtz suggested that the results may have been due to the nature of the research design, and called for future research.

Lombardi and Flamholtz (1979) also found a difference in decisions between traditional information and HRA information, but no difference between monetary and non-monetary HRA information. Using Air Force colonels as subjects, Harrell and Klick (1980) found that, contrary to the Flamholtz findings, participants placed significantly greater weight on monetary information and that their decisions were more consistent when they used monetary information. Again the need for future research was emphasized, and a number of researchers heeded the call.

In addition to study of the effect of HRA information on decisions, research during the third stage involved the continued development of concepts and models for measuring and accounting for human resource cost and value. Likert and Bowers (1973) included a number of non-monetary behavioral measures, including those involving human resources, in their computation of a monetary estimate of the expected change in the value of a human organization. They expanded the earlier work of Likert (1967) which focused on non-monetary behavioral variables.

Flamholtz (1971, 1972) utilized both non-monetary and monetary measures in drawing upon behavioral and economic variables. The Flamholtz model proposes that an individual's value to an organization is based on the future services that are expected to be rendered to the organization in future roles or service states. It views the movement of people among organizational roles over time as a Markovian stochastic or probabilistic process with service rewards. An individual's "conditional value" consisting of promotability, productivity and transferability, is considered in combination with the probability of the individual's occupying various service states, to result in a monetary measure of an individual's "expected realizable value." Drawing on the Flamholtz model, Ogan (1976) proposed a model that focused on measuring an individual employee's "certainty-equivalent net benefits." Gambling (1974) extended the Flamholtz model by applying a dynamics simulation in order to capture the relevant variable in accounting for human resources. Several other models that combined behavioral and economic approaches were Myers and Flowers (1974), Macy and Mirvis (1976), and Mirvis and Macy (1976).

In their model, Lev and Schwartz (1971) consider the human capital concept and discount the employee's future earnings to the present value. Morse (1973) combined the Flamholtz model and the Lev and Schwartz model into one which specified the present value of the organization's human assets to equal the present value of human resources less the present value of payments to employees. Sadan and Auerbach (1974) also synthesized the contributions of Lev and Schwartz and Flamholtz in their stochastic model for valuation of human resources. During this stage other models included Jaggi and Lau (1974) and Lau and Lau (1978). For further assessment of human resource measurement models, see Grove *et al.* (1977), who attempted to clarify and evaluate the various methodologies.

In 1974, the first edition of Flamholtz's book *Human Resource Accounting* (Flamholtz, 1974, 1985, 1999) was published, presenting the state-of-the-art of HRA.

Stage IV: Declining interest in HRA

The fourth stage in the evolution of HRA from 1977 to 1980 was characterized by a decreased interest in HRA. Although it waned, interest in HRA did not completely die, and some worthwhile activity took place. For example, Ansari and Flamholtz (1978) suggested that the development of management science facilitated the development of HRA as a managerial tool. In the same year Oliver and Flamholtz (1978) conducted an empirical study on the perceived uncertainty of decisions, decision style, and tolerance for ambiguity and found that HRA monetary replacement cost information did make a difference in layoff decisions.

One reason for declining interest in HRA was that most of the relatively easy preliminary research had been accomplished. The remaining research required to develop HRA was complex, could

only be accomplished by a relatively few scholars, and required the cooperation of organizations willing to serve as research sites for applied research studies. Since relatively few individuals had either the skills required to do such research or the qualifications required to obtain the necessary corporate participation, few major studies were performed. Furthermore, the required research involved the application of HRA in organizations, and the cost of subsidizing such research was significant, while the benefits either were uncertain or would accrue to the field as a whole and not necessarily to the sponsoring firm. It was at this point that HRA seemed to have been an idea that was promising but that would not be developed much further. Significant trends in the environment changed that within a few years.

Stage V: Resurgence of interest in HRA

Stage five, the current stage of HRA development dates from 1981. It has involved the beginnings of a resurgence of interest in HRA as well as some (albeit relatively few) practical applications. The first sparks of renewal occurred during 1980, and since that time there have been an increasing number of significant new research studies dealing with the development and application of HRA as well as an increasing number of attempts to apply HRA based on the theory. There has been considerable interaction between theory and application.

For example, the US Office of Naval Research (ONR) sponsored research dealing with the feasibility of applying HRA to the navy. Flamholtz's resultant study involved the development and application of a model for measuring the replacement costs of civilian industrial engineers. This was the first project of significant scope by a major institution in either the public or the private sector (Flamholtz and Geis, 1984; Flamholtz, 1999).

Around this time there was also growing recognition that most of the world's advanced economies had made a gradual yet fundamental transformation in shifting from industrial economies in which plant and equipment are the core assets, to post-industrial economies in which human capital and intellectual property are the core assets. The potential success of an organization now lies in its intellectual capabilities rather than in its physical assets. Accordingly, organizations must pay attention to the development and deployment of intellectual capital, or the sum of human capital and intellectual property.

While long-dominant companies such as US Steel and General Motors have declined, new companies such as Microsoft, Intel and Amgen have emerged as the hallmark of the new era. The make-up of the Standard and Poors 500 index has significantly changed, away from manufacturing toward technology companies, which rely more heavily on their human resources than industrial firms.

Unfortunately, accounting has not responded to this change in circumstances – and it is likely that investors have paid a price due to lack of information about managerial and human capital. As a result, measurement tools cause anomalies. Accounting today is still based on an industrial paradigm in which only physical and tangible property is considered an asset. But organizations now need systems that continually assess and re-assess the people they employ, including their skills, talents and behavioral attributes, while paying attention to how human resources impact the bottom line. One accounting tool that is relevant to the measurement and, in turn, the management of intellectual capital, specifically human capital, is HRA.

Organizational applications of HRA

A number of organizational applications of HRA concepts and models have arisen during the fifth phase in response to the earlier academic work. Some examples of these applications and research include the following (Flamholtz, 1999).

A US bank with more than $20 billion in assets applied HRA to measure the replacement cost of tellers and management trainees to resolve an internal debate over their true cost. Another example is that a major US financial institution sponsored a project to measure the value of human assets acquired in a corporate purchase in order to determine the amortization of human capital for corporate income tax purposes. A third example is a major US aerospace firm that sponsored a study using HRA to measure the value of executive time saved when corporate aircraft were used in place of commercial aircraft. A fourth example is that a $450 million industrial component distributor was experiencing a high rate of employee turnover but the human resource manager could not get the CEO's attention until HRA methods were used to quantify the cost of the turnover. A fifth application is that a major Canadian industrial company has established a project to account for human resources in order to assess costs and benefits of layoff decisions. A sixth

application is that an international certified public accounting firm has initiated a project to develop an operational system of accounting for the cost and value of its human resources.

From the examples cited above, it is clear that there has been an interaction of the evolution of management practice with HRA's intellectual history. Major institutions have chosen to develop and/or apply HRA in response to a solid research foundation that was established through work on small firms. In the initial periods of development of HRA the major studies involved relatively small, entrepreneurial firms. By 1980, scholars had documented their research findings, and managers of well established firms had begun to adopt HRA practice in response to the academic findings. This historical record runs counter to the beliefs of many critics of business school research, who sometimes have complained that research tends to be unrelated to practice.

Recent Swedish-based developments

In addition to the research cited above, another major catalyst to the resurgence of interest in human resource accounting was research conducted at Stockholm University by members of the faculty of the Personnel Economics Institute, including Jan-Erik Grojer, Ulf Johansson, and Brigitta Olsson. This "Stockholm school" of human resource accounting has led to a critical mass of scholars who are concerned about the development of the field.

Contributions by this group have ranged from a monograph authored by Grojer and Johanson (1991) entitled "Human resource costing and accounting" to an empirical study by Bo Hansson of the relevance of HRA information in investment decisions, using data from the Swedish stock exchange. Hansson (1997) presented evidence that supports the hypothesis that HRA information is critical for increased accuracy in investment-related decisions, especially in knowledge-intensive organizations.

As in the USA, in Sweden there has been interaction between academic research and practice in industry. The Skandia Group, an international corporation that offers insurance and financial services, has experimented with HRA. Leif Edvinsson, vice-president and corporate director of Intellectual Capital and Skandia Future Centres, has taken a major role in Skandia's initiatives to develop its intellectual capital and become the field's model for human and intellectual capital asset management.

Under the direction of Edvinsson, the Assurance and Financial Services Division (AFS), Skandia's fastest growing division accounting for 60 per cent of its gross volume, pioneered the field of knowledge management by creating the first intellectual capital supplement to a corporate annual report in 1991. Designed to reflect the value of intellectual capital within the organization, it measured the impact that human capital has on shareholder-owned structural capital, and gauged how intellectual assets had been leveraged over the preceding year. Edvinsson argues that it is more important for companies to measure the relative value of intellectual capital from one year to the next than to arrive at a grand total of their intellectual and human assets.

The Skandia Navigator concept, which resulted from the work conducted by AFS, has since been applied to other divisions in Skandia and further developed into a general model that assists Skandia in measuring its intellectual capital. The Skandia Navigator, designed to provide a balanced picture of the financial and intellectual capital within an organization, consists of four intellectual capital focus areas:

1 customer focus;
2 process focus;
3 the human focus; and
4 the renewal and development focus.

In dividing intellectual capital using such broad categories, intellectual capital has a greater potential of being transformed into financial capital because the relationships among the focus areas themselves can serve as lead indicators.

In addition to providing a general overview of intellectual capital, the Skandia Navigator provides a management process with which to develop and predict the future value of this capital. Skandia's leaders hope to foster a sense of worth and value in the corporate culture by encouraging constant improvement on the part of its employees. By supporting this development, Skandia is in a prime position to become a strong global leader in the efforts focused on human assets and intellectual capital management.

Conclusions and future implications

The history of HRA illustrates how intellectual conceptualization and empirical testing in academic settings can serve industry's practical needs. It has been in the fifth phase of the development of HRA that large firms have begun to adopt HRA techniques. After a 30-year history of

intellectual development, firms are initiating new projects involving the application of HRA. Accountants, lawyers, corporate acquisition specialists, and company management, including human resource professionals, are applying HRA. Now that firms have begun to apply HRA, its development might be expected to proceed at an increasing rate. At the same time, study needs to be undertaken on how HRA technology can be adapted and extended to the measure of various types of intellectual property. In addition to improving internal managerial decisions such as in layoffs, implementation of HRA will lead to better overall firm valuation techniques and better decision making in buy-sell-merge transactions.

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