8-1973

Human Resource Accounting

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HUMAN RESOURCE ACCOUNTING

by

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Bachelor of Science in Chemical Engineering

University of North Dakota 1970

An Independent Study Submitted to the Faculty

of the University of North Dakota in partial

fulfillment of the requirements for the degree of

Master of Science

Grand Forks, North Dakota

August

1973

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identified by a high ratio of stock price to book value.[2]

Within business firms, decisions are continuously being made regarding the commitment of funds to support the acquisiton, development, maintenance, and utilization of human resources. An example of this would be where the president of a small electronics company has to decide which of two new project proposals to accept. In the case of Proposal A, one of his vice presidents wants to accept a subcontract from a larger company to produce a component for a new computer. With an investment of $1,000,000 in equipment and the transfer of 10 engineers to this project, the vice president projects a $300,000 annual return for the next seven years. In Proposal B, one engineer would be assigned to the construction and operation of a new testing facility. The electronics company again would make a $1,000,000 investment, and expect a $200,000 annual return for the next seven years.

Another example of this would be where an aggressive entrepreneur who, with a team of skilled experts, specializes in buying, revitalizing, and selling small companies has an opportunity to buy either of two companies. The two organizations require the same dollar investment. The entrepreneur estimates that, after two years, he could sell Company B for two times the present price and Company A for three times the present price. Company B appears to be in excellent shape, requiring only the building of a stronger sales force. This can be accomplished by assigning one man from his team to Company B.

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[2] Frederic Andres, "Prosposed Measurement of Corporate Goodwill May Curb Acquisitions," Wall Street Journal, (February 27, 1970), p. 1.

On the other hand, Company A would require assigning five men from his team in order to build up the production, engineering, and marketing areas.

In each of the above examples, a conventional return-on-investment calculation would show that A should be considered superior to B. However, in both situations, the responsible executive will or should rate situation B as better than A. This is because the scarce resource involved is manpower, not money. The ability to increase profits is limited not by investment dollars but by the availability of experienced salesmen, skilled engineers, or capable top-level managers. Any measure which looks only at the dollars that must be committed to the project and ignores the key personnel factor is likely to lead the executive to a nonoptimal decision. Ultimately, the quality of these decisions will be reflected in the performance of the firms. The conventional accounting practice of assigning all human resource costs to the expense category introduces distortions into the commonly employed short-term measures of organizational efficiency. When a firm, in effect, invests by building human capabilities faster then they are being consumed, conventional accounting practice understates net income.

Conversely, if employee resources and favorable external relationships are being liquidated more rapidly than they are being created, profits are overstated. Conventionally reported earnings can be bolstered, for example, bu sacrificing product quality (thereby reducing manufacturing costs by liquidating consumer confidence in the product). Again, there are often ways to produce a temporary improvement in labor cost which may jeopardize worker

loyalty. When customers migrate to other brands and workers to other employers, the firm's long-term investment in them is lost. But losses cannot be recognized if the investments were not recorded.[3] Conventional accounting practice is therefore likely to have undesirable consequences: 1) varying and sizeable errors in the firm's income statement, and 2) mismanagement of human resources since they are not kept under accurate surveillance.

A third difficulty with conventional accounting arises in the firm's capital budget and need not be formally justified against revenue in the current year. However, expenditures for building long-term employee capabilities and favorable relationships with external parties are not included in the conventional capital budget. This practice makes it more difficult for the manager to secure funds for such purposes.

What is Human Resource Accounting? In simple accounting terms the concepts of human resource accounting are merely an extension of the accounting principles of matching costs and revenues, and of organizing data so as to communicate it as relevant information in financial terms. The fundamental difference, of course, lies in the fact that human resources are viewed as assets or investments of the organization. The methods of measuring costs are similar to those used for other assets. However, the concepts of accounting for the condition of human capabilities and value introduce the measurement tools of the behavioural sciences.

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[3] William C. Pyle, "human Resource Accounting", Financial Analysts Journal, (Sept-Oct, 1970), p. 70.

Such social measurements represent, if you will, the other side of the ledger from the cost-based system, and can provide important information on the condition and performance of the human organization by measuring the improvement or deterioration of these assets through time.

CHAPTER I

THEORY OF HUMAN RESOURCE VALUE

A theory of the value of people to organizations is an essential prerequisite for the problem of developing methods of measuring human resource value.

All economic theories of value are based explicitly or implicitly upon the premise that the attribute determining whether and to what extent an "object" possesses value is the perceived ability to render future economic "utility", "benefits," or services."[4] Thus, Von Mises once wrote that "whoever wants to construct an elementary theory of value and price must first think of utility."[5] Similarly, Fisher said that ". . .no one will dispute that the buyer of any article of capital will value it for its expected services to him, and that "at the margin" of his purchases, the price he will pay is the equivalent to him of these expected services, or, in other words, is their "present worth," their "discounted value," or "capitalized value."[6]

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[4]Eric Flamholtz, "Toward a Theory of Human Resource Value in Formal Organizations," Accounting Review, 47, (0' 1972),(p. 667.

[5]Von Mises, Human Action,(Yale University Press, 1963), p. 121.

[6]Irving Fisher, The Nature of Capital and Income (MacMillan and Company, Ltd., 1927), p. 189.

If an object is not capable of rendering future economic services, it has no value. In these terms, an object's value is typically constitutively defined as the present worth of the services it is anticipated to render in the future. [7] Thus, a "resource" may be defined as an object that possesses expected future services; objects which do not possess expected future benefits can not, by definition, be "resources."

The concept of "human value" is derived from general economic value theory. Like all resources, people possess value because they are capable of rendering future services. In principle, then, the value of people, like that of other resources, can be defined as the present worth of their expected future services.

From a macroeconomic viewpoint, the services people can potentially provide constitute a form of capital.[8] Similarly, from the viewpoint of a specified firm or other organization, the expected services of employees are a form of asset.[9] In either case, people are resources because they possess expected future service potential.

The concept of an individual's value to an organization is derived from the generic concept of human value. Thus, an individual's value to an organization can be defined as the present worth of the set of future service he is expected to

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[7] Ibid., pp. 188, 202.

[8] Theodore Schultz, "Investments in Human Capital," American Economic Review (March 1961), pp. 1-17.

[9] Raymond J. Chambers, Accounting, Evaluation, and Economic Behavior (Prentice-Hall, Inc. 1966), p. 104.

provide during the period he is anticipated to remain in the organization.

Unlike other resources, however, human beings are not owned by organizations, and hence they are relatively free either to supply or to withhold their services. From an organization's viewpoint, this means that the probability of realizing an individual's services is typically less than certainty. This also suggests that there is a dual aspect to an individual's value: (1) the amount the organization could potentially realize from a person's services if he maintains organizational membership during the period of his productive service life and (2) the amount actually expected to be derived, taking into account the person's likelihood of turnover.

CHAPTER II

THE COST METHOD OF HUMAN RESOURCE ACCOUNTING

Recently, R. Lee Brummet, Eric G. Flamholtz, and William C. Pyle challenged accountants to respond to this need for measures of human resource value.[10] They have also emphasized the need to measure human resource value in order to facilitate 1) decision making involving human resources, and 2) the evaluation of management's utilization of its human resources.[11] For example, they point out that proposed investments in training or developing human assets are seldom assessed in terms of a cost-value calculus. In other words, investments are typically made in training production workers and sending managers to executive development programs without a systematic evaluation of the expected benefits to be derived in relation to costs to be incurred.

Although recognizing the difficulties involved, they suggest that it is important to develop techniques of measuring human resource value in order to facilitate such decisions. Similarly, they agree with Likert and Seashore that "conventional accounting systems fail

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[10] R. Lee Brummet, Eric G. Flamholtz, and William C. Pyle, "Human Resource Measurement--A Challenge for Accountants," The Accounting Review, (April 1968), pp. 217-24.

[11] R. Lee Brummet, Eric G. Flamholtz, and William C. Pyle, "Human Resource Accounting: A Tool To Increase Managerial Effectiveness," Management Accounting (August 1969), pp. 12-15.

to provide information to enable management to determine whether investments in human resources are being maintained and effectively utilized."[12]

In principle, human resource valuation is appropriate for any individual in any specified organization: factory workers and production foreman, salesmen and sales managers, computer programmers and information system designers, corporate presidents and even accountants. It is appropriate not only in profit-oriented enterprises such as commercial or industrial organizations but also in non-profit oriented organizations, including government and universities.

It is very likely, however, that human resource valuation is most relevant and feasible in such relatively human-resource intensive organizations as aerospace, advertising, consulting, entertainment, C.P.A. firms, and universities. Human resource valuation is relevant to such organizations because people are, quite literally, one of the their most valuable (if not the most valuable) assets.

While human resource accounting is conceived here as an integral part of the total accounting and information system, it has in its initial phases of application been viewed as a concept directed at improving the management of the people. Some of the efforts that have been made in developing and applying this concept in practice have been directed towards assisting in specific people decisions. These applications are perhaps best described by way of example. A public accounting firm is,

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[12]R. Lee Brummet, William C. Pyle, and Eric G. Flamholtz, "Accounting for Human Resources," Michigan Business Review (March 1968), p. 21.

by its very nature, human resource intensive, and represents an ideal proving ground for the application of human resource accounting concepts. The primary assets of such a firm are its clients and the human capabilities of its people. The financial or physical assets represent a relatively minor part of the firm's total value and consist largely of cash, receivables, financial capital and office equipment. As a result, conventional accounting systems which deal with these elements alone are of limited use for managing the all-important human resource.

The long-term survival of a public accounting firm is substantially enhanced by its efforts to develop its human resources; to do this requires adequate management information: the cost of employee turnover, the effectiveness of hiring and training policies, the adequacy of mix of professional skills and the means for measuring human resource performances--information on these issues can be provided by a good human resource accounting system.

The high turnover rates usually experienced by a public accounting firm result from a variety of factors, including the perceived lack of opportunity, job satisfaction and remuneration. But the costs associated with this turnover are often elusive, and their elements cannot be readily determined from conventional accounting data. Accounting firms accept the fact that they have some responsibility to train professionals; nevertheless, it has become increasingly important for them to know how much and what kind of training should be provided--where it should be directed and what proportion of professional staff should be trained within the firm or hired fully trained at the senior

level from outside.

The traditional yardstick of performance in a public accounting firm has normally been chargeable hours--the time an employee devotes to client service. Unfortunately, however, the use of this fact as a single measurement may discourage investment in human resources, since the latter is often seen as a feat which is only accomplished at the expense of chargeable hours.[13]

If the goal were limited to devising a method of valuing human resources only for the proper allocation of human resources, the project would be a good deal simpler. The objective, however, is to devise a method of valuing human resources which will be consistent with the valuation of physical resources. One chooses this goal becuase one views the overall management problem as one of properly allocating resources--all resources--available.[14] The first thoughts in valuing a human asset were to start with a man's salary and, in some way, to capitalize it. But two factors seemed to limit the usefulness of this approach. The first was the looseness of the connection between a man's value and his salary. Such considerations as age, seniority, bargaining skills, corporate sense of obligation, and known value to other employers may override considerations of an employee's real value to his company. The second major limitation was the imputed interest rate in the capitalization of the employee's salary.

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[13]Michael O. Alexander, CA, "Investments in People", Canadian Chartered Accountant, 48, Supplement, pp. 169-85.

[14]"Report of the Committee on Human Resource Accounting", Accounting Review, (July 1971), p. 40.

Because of the lack of experience in valuing human assets and in establishing suitable standard rates of return, one was unable to determine the rate at which the salary should be capitalized.

Since one cannot develop a direct approach based on the special characteristics of human assets, they turned to the management-oriented accounting literature to see how physical assets are measured and how we might utilize this measure in an ROI calculation. One can find a three-stage cost progression--original, replacement, and opportunity.[15]

If the physical asset is a piece of land or a manufacturing plant, the asset is carried at the original cost or book value to the compnay. According to standard accounting procedure, certain assets are written down (depreciated) from original cost as thier value is used up. Of course, except on the day of acquisition of the asset, there is no necessary connection between the actual value of the asset and its book value.[16]

To find the dollar value equivalent to book value for

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[15]Ibid., pp. 169-171.

[16]Misevaluation of Investment Center Performance," HBR March-April 1966, p. 98.

an employee would require collecting or imputing the costs involved in recruiting, hiring, and training that employee.[17] Some gross estimates would have to be made on many items, such as the percentage of the first year's salary which should be carried as a training expense, but it is theoretically possible to come up with an approximate dollar value.

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[17] Ibid., p. 98-99.

CHAPTER III

A WORKING MODEL OF HUMAN RESOURCE ACCOUNTING USING THE COST METHOD

In 1967 William C. Pyle and several members of the R. G. Barry Corporation, a leisure footwear manufacturer based in Columbus, Ohio, proposed and implemented concepts of measuring investments in human resources.[18] During the first half of 1967, the team members met regularly to develop a set of theoretical constructs for categorizing and measuring the ways in which a firm invests in its human organization. The remainder of the year was devoted to translating these concepts into detailed procedures for recognizing investments in human resources as well as expirations that might occur in these assets.[19] In January 1968 the team established an investment accounting system for the firms 95 managers. In June 1969, the system was extended to cover 424 factory and clerical employees in one location. At the end of the first quarter of 1970, the firm reported net investments in personnel amounting to $1,766,100.

Management is now using the new accounting system for

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[18]William C. Pyle, "Accounting for Investments in Human Capital: (Research proposal, Institute for Social Research, The University of Michigan, September, 1966).

[19]William C. Pyle, "An Accounting System for Human Resources," Innovation, Number 10, 1970, pp. 46-54; Robert L. Woodruff, "What Price People," The Personnel Administrator, (January-February, 1969).

human resource planning and reporting purposes.[20] Managers are now preparing capital budgets for human resources. For example, on an individual bases, the firm invests approximately $3,000 in replacing a first line supervisor, $15,000 for a middle manager and upwards of $30,000 in hiring and developing a top level executive. Appropriate personnel costs are now formally recognized as long-lived assets which need not be justified as operating expenses, hence make it easier for a manager to secure funds for hiring, transferring and developing human resources.

Having recognized investments in human resources and estimated their lives, it is also easier to plan for the orderly replacement of personnel based upon estimates of tenure used for amortization purposes. Recruiting expenditures and the cost of the time of familiarizing a new employee with the corporate environment are examples of such investments. This amortization assumption, of course, is only applicable to those investments whose service life corresponds to the tenure of an employee. Human resource accounting system at the R. G. Barry Corporation recognizes that certain investments such as training and development may well have a maximum service life less than an employee's expected remaining tenure. The first step in estimating the service life of an employee is to determine his "maximum tenure: with the organization. This is equal to the employee's past tenure plus his maximum remaining tenure based upon the firm's mandatory retirement age.

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[20]William C. Pyle, "Monitoring Human Resources--'On Line'," Michigan Business Review, (July 1970), pp. 19-32.

Obviously, amortizing investments on this basis would overstate assets since it is not reasonable to expect that every person will remain until age 65. For this reason an "expected tenure" figure is determined based upon an assessment of the probability that a particular individual will remain until age 65.

Under the human resource accounting system, turnover information is presented both as a rate and in terms of its monetary impact. If human assets expire before the end of the expected service life period, through premature separations or skill obsolescence, the remaining net asset value is charged off against current earnings. The conventional practice of reporting turnover merely as a rate obscures its true significance because employee separations represent a greater financial loss if they occur among employees in whom the firm has invested either more recently or more heavily.

For example, during 1969, the Barry Corporation's net investment in human resources increased by approximately $124,000 reflecting the fact that new investments were being undertaken more rapidly than they were being consumed. If the manager of one division had increased conventional profits at the expense of improper maintenance or utilization of employees, the profit figure incorporating human resource accounting would have been reduced in amount of any abnormal separation losses. These statements were being adjusted only for internal management purposes.

Although the primary reason for adoption of human resource

accounting has been to improve the management of the business, the Barry Corporation's Treasurer, Edward Stan, reports that these data also have important implications for interested outsiders: "A review of our past balance sheets indicates that we have always been able to attract more borrowing power than our 'cold figures' would justify on the surface. In making lending limit determinations, representatives of financial institutions have made trips to our facilities, have analyzed our financial statements, and have talked to our people. In making these assessments, the human resource accounting system, we are now able to provide them with more precise information to consider in their evaluations."[21]

"The use of human resource accounting in acquisitions is also very important. In the process of evaluating different candidates, we have to make human asset appraisals--just like the banks do on us. Human resource accounting makes the process easier, and, after the acquisition, gives us a base for a continued surveillance and measurement of the human asset gains or losses."[22]

Data from the firm's human resource accounting system have not yet been incorporated into the compan's audited financial statements. Nevertheless, as seen on page 21, the Barry Corporation's 1969 Annual Report contained a pro forma

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[21]William C. Pyle, "Human Resource Accounting", Financial Analysts Journal, (Sept-Oct 1970), p. 71.

[22]Ibid., p. 71.

balance sheet and income statement that reflect human assets and changes in those assets during the period. This information is contrasted with their conventional financial statements in a special section of the report dealing with human resources. Net investments in managerial personnel of approximately one million dollars are recognized. The liabilities and stockholders' equity side of the balance sheet indicates approximately $500,000 for "Deferred Federal Income Taxes as a Result of Appropriation for Human Resources" and an equal amount for an "Appropriation for Human Resources" under retained earnings.

Turning to the income statement, a net change of $173,569 in human resource investments during 1969 is applied as a positive adjustment to income before taxes. After making a provision for deferred federal income tax this change results in an upward adjustment of about $87,000 to conventionally determined net income of about $700,000. This adjustment reflects the fact that during 1969, new investments in human resources were undertaking more rapidly than they were written off.

Treasurer Stan believes such information will eventually become acceptable for external reporting purposes: "Although a milestone has been reached by incorporating human resource accounting data into a published balance sheet and profit and loss statement, its true significance will not be apparent until comparative years' data are available. In order for such information to become useful for outside financial analysts,

a credibility must be established and an activity-results pattern set up. Once this has been accomplished, the analyst, whether he is an investor or lender, will have an important additional tool for his decision making."[23]

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[23]Ibid, p. 73.

R. G. Barry Corporation and Subsidiaries

Pro-Forma

(Financial and Human Resource Accounting)

BALANCE SHEET	1969 Financial and Human Resource	1969 Financial Only
Assets:		
Total Current Assets	$10,003,628	$10,003,628
Net Property, Plant, and Equip.	1,770,717	1,770,717
Excess of Purchase Price of Sub over Net Assets Acquired	1,188,704	1,188,704
NET INVESTMENTS IN HUMAN RESOURCES	986,094	--
Other Assets	106,783	106,783
	$14,055,926	$13,069,832
Liabilities and Stockholder's Equity:		
Total Current Liabilities	$ 5,715,708	$ 5,715,708
Long Term Debt	1,935,500	1,935,500
Deferred Compensation	62,380	62,380
Deferred Federal Income Taxes as a result of Appropriation for Human Resources	493,047	--
Stockholders' Equity:		
Capital Stock	879,116	879,116
Additional Cap in Excess of Par	1,736,253	1,736,253
Retained Earnings:		
Financial	2,740,875	2,740,875
Appropriation for Human Resources	493,047	--
Total Stock Equity	5,849,291	5,356,244
	$14,055,926	$13,069,832
STATEMENT OF INCOME		
Net Sales	$25,310,588	$25,310,588
Cost of Sales	16,275,876	16,275,876
Gross Profit	9,034,712	9,034,712
Selling, Gen and Admin Exp	6,737,313	6,737,313
Operating Income	2,297,399	2,297,399
Other deductions, net	953,177	953,177
Income before Federal Income Taxes	1,344,222	1,344,222
HUMAN RESOURCE EXPENSES APPLICABLE TO FUTURE PERIODS	173,569	--
Adjusted income before Federal Income Taxes	1,517,791	1,344,222
Federal Income Taxes	730,785	644,000
Net Income	$ 787,006	$ 700,222

CHAPTER IV

REPLACEMENT COST METHOD

Because of the inherent weakness in the book-value method of valuation, managers developed a concept whereby assets are valued not at their original cost, but at what it would cost to replace them right now. Because of our continuing inflationary trend, this current-value figure is usually larger than the original. It might also differ from the original by some amount ascribed to the timing of the acquisition.

The replacement cost concept has its parallel in valuing a human resource. One would have to adjust the value of an employee according to price trends and/or because one hired and trained him in a atypical fashion. In essence one would value a human at the estimated cost to us of replacing him with another person of equivalent talents and experience.

There is an additional adjustment under this method which is more significant in the case of a human resource. Much of the recruiting and training is done on a speculative basis. One hires and starts to train, let us say, thirty engineers. As one proceeds , one weeds some out, and others leave of their own volition. Eventually one ends up with four good engineers, one of whom becomes an outstanding designer. We should recognize

that as one eventually has to replace this designer, one will have to begin again with another group of thirty engineers. Therefore, a major portion of the costs of hiring the thirty men should be included in the replacement cost for the one outstanding designer.

Though current replacemtn cost comes close to being an ideal method of asset valuation, it suffers from two deficiencies:

1. Management may have some particular asset which it is unwilling to replace at current cost, but which it would want to keep using becuase the asset has a value greater than its scrap value. There must be some method of valuing such an asset.

2. There may be no similar replacement for a certain existing asset. This situation is caused either by a changing technology, where an asset has to be replaced by a "new model," or by the simple fact that the asset is custom-made. One feels that a proper system of asset valuation must include a methodology for valuing assets in these circumstances.[24]

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[24] "Report of the Committe on Human Resource Accounting", Accounting Review, 48, Supp., pp. 169-85.

CHAPTER V

COMPETITIVE BIDDING METHOD

Deficiencies in the replacement cost approach led to the development of a concept of opportunity cost. This is the value of an asset when there is an alternative use for it. For example, a manager who has a piece of land might decide that its appropriate value is the price for which he could sell the land, rather than its value to him, let us say, as a parking lot. Although opportunity cost is frequently difficult to determine, John Dearden, in pointing out the theoretical advantage of current economic value over alternative approaches[25] has led one to surmise that the closely related proposal is both practical and workable.

Whereas a piece of land is salable, the lack of such an open market for people makes it difficult to transfer directly the opportunity cost approach to employees. Nevertheless, those organizations which have the most pressing need for quantifying the value of key personnel--that is, the companies which are trying to allocate their personnel to the most profitable activity--can overcome this difficulty. Thus: On the one hand, if a company has at least two divisions, projects, or contracts--both of which desire or require a particular man or particular group of men--the

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[25]"Problem in Decentralized Profit Responsibility", HBR (May-June) p. 79; "Problem in Decentralized Financial Control", HBR (May-June), p. 72.

the firm.

The concept of an investment center is central to our proposed scheme for valuing assets and ensuring that they are allocated to their most profitable use. This approach provides the manager with a framework for developing both an income-statement and a balance-sheet viewpoint and for relating these two views to the company's overall objectives.

In situations where the lack of supervisory responsibility for physical assets (such as in shared physical assets) makes it impractical to set up a separate unit as an investment center, it is possible to achieve the same result by establishing a profit center. There are five steps:

1. Identify and define the responsibility (profit) center.

2. Detemine the assets, both physical and human, used by the center.

3. Place a value on both the physical assets (using Dearden's current economic value) and the human assets.

4. Establish a profit goal based on this investment value and on the expected rate of return.

5. Use this profit goal as a performance evaluation criterion.

In order to demonstrate this method, that is, valuing human resources in its simplest form, one has to start with certain assumptions: One has a company with two or more investment centers. The managers of at least two of these investment centers cover the same scarce employee or group of employees. These competing managers are highly motivated and recognize that one of the most significant criteria of

their performance is their return on investment. The top management of the firm has established expected rates of return on investment. Physical assets in the ROI calculations are valued at their current economic value.

A concept of valuing and allocating assets can be illustrated in terms of a multidivision electronics company. Suppose the vice president of the microcircuit division has physical assets of $1,000,000 (current economic value) under his control and is able to show profits of $300,000 per year; while the defense products division has $2,000,000 of physical assets and is showing a profit of only $160,000 per year. The situation would be such that the new vice president of the defense products division has made a thorough study of existing problems and has decided that the real weakness of his organization lies in its design capability. On the basis of his own prior experience working with the design engineers in the microcircuit division, he believes that his investment center could earn $300,000 a year with the same physical assets if he could arrange for the transfer of a particular team of eight design engineers from microcircuitry into his defense products division.[26] This is illustrated on page 28.

The most important consideration, when the vice president of defense products begins to plan his bid, is the expected rate of return for his division.[27] This target ROI, which is established by the president of the company, is a critical development of the

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[26]Robert N. Anthony, Management Accounting, 3rd edition (Homewood, Illinois, Richard D. Irwin, Inc., 1965), pp. I, 270-272, 359-360.

[27]Joel Dean, "Profit Performance Management of Division Managers," The Controller, September 1957, -. 423.

A HYPOTHETICAL EXAMPLE OF VALUING
INVESTMENT CENTER ASSETS

	Microcircuit division	Defense products division
Current economic value of physical assets	$1,000,000	$2,000,000
Profit	$ 300,000	$ 160,000
Return on investment -- Actual	30%	8%
Return on investment -- Target	15%	10%
Anticipated profit with addition of 8 engineers	---	$ 300,000
Anticipated profit with loss of 8 engineers	$ 200,000	---
Maximum bid to meet target return on marginal investment	$ 667,000	$1,400,000
Maximum bid to meet target return on total investment	$1,000,000	$1,000,000

system.

Suppose that the expected return for the defense products devision is 10%, as shown in the exhibit. The vice president can bid up to $1,000,000 for the eight engineers in order to achieve the 10% target return on his total investment. (A $300,000 profit at 10% would call for an investment base of $3,000,000; and, since physical assets are worth $2,000,000, the human resources could come up to $1,000,000.) Of course, since he is already earning 8%, any higher bid up to $1,750,000 will result in an improvement over his current rate of return. (An investment base of $1,750,000--$2,000,000 in physical assets and $1,750,000 in human resources--with a $300,000 profit results in an 8% return.)

Of course, the lower the executive is able to bid successfully, the better off his is, since he must carry the asset value (his winning bid price) for these engineers in his investment base. Further, if the incremental gain resulting from additional cost of the engineers in his division is less than 10% of the bid price, or asset value, the executive will have to make up the differential later on. Once the engineers are worth an incremental profit of $140,000, perhaps, $1,400,000 should be the maximum bid, rather than some higher figure up to $1,750,000.

In any case, the vice president of defense products can decide how much these engineers are worth to him and bid accordingly. The 10% target return objective, together with the inclusion of the successful bid in his investment base, forms the crux of the system.[28]

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[28]Ezra Solomon, The Management of Corporate Capital (Chicago, Graduate School of Business, University of Chicago, 1964.)

Suppose that the vice president of the microcircuit division has a target rate of return of 15%. His division is currently earning 30%. The eight engineers have never previously been bid on, so he must make a new assessment of thier value to his division. He reasons that loss of these engineers will require him to go through a hiring and training process, and this will create added expense. Meanwhile, he will also suffer from losing the skilled engineers. He may therefore conclude that their loss will result, say, in a $110,000 reduction in his division's profit. He can bid $1 million for these men and meet his target rate of 15% on the total investment. However, another interpretation of the same bid is the undertaking of a $1,000,000 increase in his investment base in order to receive a marginal rate of 10% or to save $100,000 in profits. On an incremental basis, this is lower than his target rate of return. Accordingly, the vice president may feel that $667,000 is a better bid in order to maintain his target return on an incremental basis.

Eventually, the two executives will bid for the eight design engineers. If the vice president of microcircuitry is the high bidder, and thus retains the eight bid-for engineers in his organization, he will include their asset value (the winning bid price) in his division's investment base.

On the other hand, if the vice president of defense products is the high bidder, he will acquire the right to make an "offer" to the engineers. If they accept the offer, the vice president will then include their asset value in his division's investment

base. At the same time, the asset base of the microcircuit divison will be decreased by the amount at which it had been carrying the eight engineers.

The expected benefits of this competitive bidding proposal are: First, investment center managers will be motivated to operate under a set of conditions which will lead to the allocations of human resources in accordance with company goals. The potential benefits that will accrue to many companies by this accomplishment alone appear substantial, because under existing management concepts such proper allocation is often left to chance, or at best to intuition.

Second, after having allocated scarce human resources to essential tasks, investment center managers will continue to strive to make efficient use of the abilities of such employees. And, finally, in so doing the managers will be motivated to preserve and enhance the value of these human resources.

CHAPTER VI

IMPLICATIONS OF HUMAN CAPITAL REPORTING

Disclosure of human capital values by business enterprises will provide financial statement users with valuable information. The relevance of this information lies in the fact that it concerns organizational changes in the firm's labor force that wasn't previously reported by accountants. Following are some inferences for decision makers (investors as well as management) that could be drawn from reported values of human capital.

(a) The determination of human capital values suggests a new set of financial ratios.[29] For example:

The ratio of human to nonhuman capital indicates the degree of labor intensiveness in the firm. The extent of labor intensity is believed to have widespread implications for the firm's operations. For example, economists, especially in the area of industrial organization, investigate the effect of labor (or capital) intensity on inter- and intra-industry variations in rates of return. The relative degrees of labor and capital intensity within countries are believed to affect world trade. Lacking direct measures for labor intensity, economists use indirect ones

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[29] Baruch Lev and Aba Schwartz "On the Use of the Economic Concept of Human Capital in Financial Statements", Accounting Review, (January 1971), p. 103.

such as value added per employee, or sales per employee. Such measures are crude since they treat all employees as equal; a highly skilled engineer and a janitor are given the same weight in the measure. The suggested ratio of human to nonhuman capital assigns different weights to different employees according to their earning power. Labor intensity thus measured reflects the quality as well as the quantity of the labor force.

The firm's total value of human capital can be disaggregated according to sub-groups of the labor force. Several ratios are suggested by such a disaggregation. For example, the ratio of the value of scientific staff to the total value of human capital. This ratio indicates the extent of "skill (scientific) intensity" in the firm. Skill intensive industries are those with a relatively large scientific and research staff, e.g., chemical products, electronics, pharmaceuticals, etc. The effect of skill intensity on rate of return and growth is a currently debated issue. Here again researchers use extremely crude measures to detect the effect of skill intensity such as R & D expenses, number of college graduates as a percentage of the total number of employees, etc. Such measures are not sensitive to variations within the scientific employee group, whereas the suggested measure reflects such variations.

(b) Reported human capital values will provide information about changes in the structure of the labor force. For example, differences over time in the values of a firm's human capital may result from changes in the age distribution of employees.

Recall that human capital values are determined by capitalizing earnings over the expected useful life (to the enterprise) of employees. Therefore, a change in the age distribution of the labor force would obviously affect the firm's human capital values. Suppose, for example, that no change has taken place in the structure of the labor force during 1960 (no employees were hired or laid off). In this case, the value of the firm's human capital at the end of 1969 would be smaller than that of the previousl year (assuming, of course, no changes in the earnings profiles). The firm's time series of human capital value thus contains information about changes in the structure of the labor force. The phenomenon of an "aging firm" often discussed in organization theory, will be indicated by such a time series when other factors (number of employees) are held constant. It has been suggested that the aging of the firm's labor force affects its rate of growth and relative share in the industry vis-a-vis the "younger" and more aggressive firms. Such hypotheses can be tested by using the reported values of human capital.

(c) The difference between the general and specific values of human capital (discussed in the preceding section) is another source of valuable information for management and the analyst. The specific value of human capital is based on the firm's actual wage scale while the general value is based on industry-wide wage averages. The difference between the two therefore indicates to what extent the firm's wage scale is above, on a par with or below the standard. Such information which is not currently communicated with users, may explain

the observed phenomenon of firms which consistently pay higher wages than the industry averages. It is sometimes argued that such firms emphasize the professional elite and hence experience a higher rate of competition and growth than the competitors. Others are skeptical about such a hiring policy claiming that when wages are equal to employees' marginal productivity[30] then no extra returns can result from employing superior employees. Reporting the general and specific values of human capital will thus enable users to investigate the effects of specific wage and hiring policies.

Management might try to increase profits in the short run by hiring low quality employees. Such a policy can produce damaging effects which will be realized only in the long run. However, if human capital values are reported they will directly reflect the change in hiring policy and thereby deter management.

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[30]Ibid., p. 101-112.

CONCLUSION

THE VALUE OF HUMAN RESOURCE ACCOUNTING

In a general sense the real value of an asset--if such a value exists--might be viewed as the present discounted value of the future income that the asset will yield. People however, are vastly different from other types of assets. amd thier value cannot be viewed with the same concepts. Except, perhaps, for professional athletes, human resources are not legal property of their organization and cannot be sold. The principles of market or net realizable value, therefore, are only of limited interest. A further difference is that, unlike physical assets such as buildings or machinery which normally depreciate in value with use, the value of human resources can substantially appreciate with experience.

Any quantification of the value of people to an organization should more properly be related to the reasons for knowing that value and decision to be made. For example, what is the relative importance of one type of skill to others in the organization? If the job is to be left vacant, or if the person is irreplaceable, his value is more appropriately related to the resulting economic loss. Such values are often difficult to determine unless revenues or income can be directly associated with the activities of the employee, as in the case of salesmen,

maintenance personnel or those providing professional services for a fee.

As with other types of assets, concepts of human resource values are important questions to which answers can be found. But a good knowledge of the cost elements associated with investments in people can substantially improve management decisions involving the human resource. When human resource accounting employs measurements of the monetary investments in individual employees and organizational groupings, these measurements are generally familiar to accountants. Cost-based accounting and social measurement techniques, when applied to specific human resource problems such as those described in this paper, can greatly aid the assessment of the condition of human resources, their utilization and the return on this investment.

When human resource accounting is included as a dimension of the information system, managers will be better motivated towards improving the performance of people in their organization.

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