

CHAPTER 34

Job Evaluation in Organizations

JOHN M. HANNON

JERRY M. NEWMAN

State University of New York-Buffalo

GEORGE T. MILKOVICH

Cornell University

JAMES T. BRAKEFIELD

Western Illinois University

1. INTRODUCTION	900	3.1. Market-Based Pay Systems	910
1.1. The Influence of Society and Values on Job Evaluation	901	3.2. Knowledge-Based Pay Systems	911
1.2. The Influence of Individuals on Job Evaluation	901	3.3. Skill-Based Pay Systems	911
2. TRADITIONAL JOB VALUATION	902	4. CREATING THE JOB-EVALUATION SYSTEM	911
2.1. Ranking Method	902	4.1. Implementing Job Evaluation	911
2.2. Classification Method	903	4.2. Specifying the Macro Objectives of Job Evaluation	911
2.3. Factor Comparison Method	903	4.3. Specifying the Micro Objectives of Job Evaluation	912
2.3.1. Conduct Job Analysis	904	4.4. Choosing the Job-Evaluation Method	912
2.3.2. Select Benchmark Jobs	904	4.5. Deciding Who Will Participate in the Job-Evaluation Process	912
2.3.3. Rank Benchmark Jobs on Each Factor	904	4.5.1. Compensation/Job-Evaluation Committees	913
2.3.4. Allocate Benchmark Wages Across Factors	904	4.5.2. Employee-Manager Participation	913
2.3.5. Compare Factor and Wage-Allocation Ranks	906	4.5.3. Unions	913
2.3.6. Construct Job Comparison Scale	906	5. MAINTAINING THE JOB-EVALUATION SYSTEM	913
2.3.7. Apply the Scale	906	5.1. Handling Appeals and Reviews	913
2.4. Point Method	907	5.2. Training Job Evaluators	913
2.4.1. Conduct Job Analysis	907	5.3. Approving and Communicating the Results of the Job-Evaluation Process	913
2.4.2. Choose Compensable Factors	907	5.4. Using Information Technology in the Job-Evaluation Process	914
2.4.3. Establish Factor Scales	908		
2.4.4. Establish Factor Weights	908		
2.4.5. Evaluate Jobs	909		
2.5. Single Factor Systems	910		
3. OTHER METHODS OF VALUING JOBS	910		

5.5. Future Trends in the Job-Evaluation Process	914	6.2.2. Convergence of Results	915
6. EVALUATING THE JOB-EVALUATION SYSTEM	914	6.3. Utility: Cost-Efficient Results	916
6.1. Reliability: Consistent Results	914	6.4. Nondiscriminatory: Legally Defensible Results	916
6.2. Validity: Legitimate Results	915	6.5. Acceptability: Sensible Results	917
6.2.1. Hit rates: Agreement with Predetermined Benchmark Structures	915	7. SUMMARY	917
		REFERENCES	917

1. INTRODUCTION

Why is it that Sam Jones, engineer, makes more money than Ann Banks, who is also an engineer in the same company? Is this an example of sex discrimination in wages? What if we were also to report that Ann Banks makes more money in her engineering job than Ted Adams, an entry-level programmer? Would this lessen your suspicions about the wage-setting practices of our fictitious company? If your response is one of uncertainty, then you probably recognize that several factors need to be considered in determining wages for individuals. First, any wages paid to employees should satisfy an internal consistency criterion. Jobs *inside an organization* are compared to a set of standards and each other to determine their relative contributions to the organization's objectives. To satisfy employee expectations about fairness, more valuable jobs should receive higher "scores" in the comparison process. In our example above, internal consistency triggers the question: How does the work of an engineer compare with that of an entry-level computer programmer? The second wage-determination factor is external competitiveness. Wages for jobs inside an organization should be compared against *wages outside the organization paid by competitors*. How much do other employers pay engineers, and how much do we wish to pay our engineers in comparison to what other employers would pay them? Finally, wages are also a function of the distinctive contributions that individual employees make on their jobs. The level of individual contributions depends on an assessment of *performance and/or seniority of people doing the same job or possessing the same job skills*. Before we jump to the conclusion that Sam Jones should not be making more than Ann Banks because they both are engineers, we must first assess whether their individual contributions have been identical. The pay differential may be warranted if Sam consistently performs better than Ann or if he has more seniority.

Of these three factors affecting wages, this chapter concentrates on only one: the process of determining internal consistency. Specifically, we focus on ways that organizations compare jobs in terms of their relative contributions to the goals of the firm. To the extent this process of ensuring internal consistency is successful, several positive outcomes can be expected. Research suggests that internal consistency may improve both employee satisfaction and performance (Lawler 1986). Alternatively, a lack of internal consistency can lead to turnover, grievances and decreased motivation (Livernash 1957). Without a fair structure, employees may resent the employer, resist change, become depressed, and "lack that zest and enthusiasm which makes for high efficiency and personal satisfaction in work" (Jacques 1961).

The first stage in determining the relative worth of jobs is to assess what the content of these jobs is! This process, as described elsewhere in this Handbook, is called job analysis. A job analyst is charged with the responsibility of acquiring valid (relevant) and reliable (consistent) information about the contents and requirements of jobs. The information obtained through job analysis is usually codified and documented in a job description. It provides a foundation for various human resource management functions, such as establishing selection criteria, setting performance standards, and determining compensation. For our purposes here, the most important function of job analysis is to provide input information into determining the relative worth of jobs within an organization. This process of systematically comparing the contents and requirements of jobs to determine their relative worth (rank ordering) within the organization is called job evaluation. One of the outcomes of this evaluation process is usually a hierarchy of jobs arranged from most valuable to least valuable.

The resulting job structure can be used as a guide in setting pay rates. For the rates to be equitable, jobs that are higher in the structure should be paid more than jobs that are lower in the job structure. This is an important point! Even though this chapter focuses primarily on the ways that organizations determine the relative value (i.e., compared to each other) of jobs, at some point a comparison must be made to external market wages. This external comparison may be the source of an important conflict. Occasionally, jobs that are similar in worth to the organization may be dissimilar in price in the labor market! Suppose, for example, that for a particular organization "skill" and "effort" are judged by top management to be equally important in achieving corporate objectives. Some jobs in that organization may require more skill than effort and other jobs may require more effort than skill.

These jobs will nonetheless be valued similarly in the job structure. The market rates for these jobs, however, may be quite different. Other organizations may not value skill and effort equally. Or perhaps market supply is lower and market demand is higher for people capable of performing the skilled jobs, resulting in higher market wages for the "skill" jobs relative to the "effort" jobs. Thus, for the organization to attract the most qualified workers, it may have to offer wages that are higher than it would offer on the basis of internal consistency alone.

The balance between internal consistency and external competitiveness is a key issue in any employer's compensation strategy. One firm may emphasize an integrated approach to all human resource management, and internal consistency of pay would be part of that strategy. If so, there would be a relatively close correspondence between its job structure and its pay structure. Another firm may emphasize the relationship between its pay level and pay levels in the labor market. In this firm, there may not be as close a correspondence between the company's job structure, as originally determined through job evaluation, and its pay structure. Indeed, as we shall discover, the firm may not even systematically develop a job structure through job evaluation, choosing rather to adopt the external market's evaluation of jobs (i.e., adopt wholesale the market rate without considering internal worth).

This tension between value as assessed within an organization and value as assessed by competitors in the external labor market is but one of several conflicts that may arise in deciding on wages for jobs. Indeed, other "actors" have also influenced the wage-determination process.

1.1. The Influence of Society and Its Values on Job Evaluation

In some societies, at different times through history, egalitarian value systems have been adopted by entire countries. An egalitarian philosophy implies a belief that all workers should be treated equally (Matthew 20.1–16). To some extent, this philosophy underlies the job-evaluation process in those remaining countries that can be classified as communist or socialist. Although some differentials do exist across different jobs, the size of these differentials is much smaller than if this societal influence were not present. Given the recent movement toward capitalism around the world, it is evident that an egalitarian policy may not continue to exert a strong influence over the valuation of jobs.

A second example of societal impacts on wage determination is illustrated by the "just wage" doctrine (Cartter 1959). In the 13th century, skilled artisans and craftsmen began to prosper at the expense of nobles and landowners by selling goods and services to the highest bidders. The church and state reacted by proclaiming a schedule of "just wages" that tended to reflect that society's class structure and that were consistent with the prevailing notion of birthrights. In essence, the policy explicitly denied economic factors as appropriate determinants of pay.

The proliferation of computers and accompanying information explosion in the recent past has forever changed the way work is done. Not surprisingly, countless companies (like Bayer) have been forced to make "retain, reject, or redesign" decisions about their job-evaluation systems. Most have chosen the redesign option in order to keep the values that have made them so successful but incorporate their new perspectives regarding employee autonomy, teamwork, responsibility, and the like (Laabs 1997). Sometimes referred to as competencies or value driver, job characteristics such as leadership required and customer impact are beginning to form the basis for a whole new set of compensable factors (Kanin-Lovers et al. 1995; McLagan 1997).

1.2. The Influence of Individuals on Job Evaluation

Normally great pains are taken to ensure that position evaluation is kept entirely independent from person evaluation (i.e., job evaluation is kept distinct from performance evaluation, which involves the evaluation of individuals as they perform jobs). Seasoned job evaluators counsel novices to determine the worth of a job independent of its incumbent. The focus should always be on the work, not the worker. After all, a job is relatively stable, whereas the person holding that job may change regularly. For the purposes of determining job worth, individuals are viewed as interchangeable. To deal with the distinction between job and person value, organizations traditionally have set upper and lower limits on job worth (called pay grade minimums and pay grade maximums) and allowed salary to fluctuate within that grade as a function of individual performance or worth.

For certain jobs, though, the worth of the job is inextricably linked to the incumbent performing the job (Pierson 1983). This exception is particularly evident for managerial and executive positions. The person's unique abilities and knowledge may shape the job. For these jobs, the relative importance of the individual occupying the job leads to increased emphasis on personal attributes in job valuation. The top jobs in almost any organization seem to be designed more around the talents and experience of the individuals involved than around any rigidly defined duties and responsibilities. For professional workers, too, the nature of their work and the knowledge they bring to the task may make it difficult to distinguish job worth from individual worth. Thus, for professionals such as scientists or engineers, pay may reflect individual attributes, accomplishments, or credentials (i.e., a B.S. in Chemistry, a Ph.D. in Engineering).

2. TRADITIONAL JOB EVALUATION

The traditional way to value jobs involves a mix of internal organizational factors as well as external market conditions in setting pay rates. Various job-evaluation techniques have evolved different strategies for incorporating both of these essential influences into the wage-setting process.

In spite of the long-standing existence and recent expansion of some alternative individual (such as commissions and bonuses), market-based (free agent auctions), and parsimonious (delaying and broadbanding) compensation schemes, formal job evaluation continues to stand the test of time. Like the employment interview, which has been criticized harshly but still is most useful, job evaluation has been accused of being “a barrier to excellence” and “an institutional myth” (Emerson 1991; Quaid 1993). Nevertheless, it, too, remains as an essential building block for human resource management. In fact, over 70% of the organizations in this country are estimated to use job evaluation (Bureau of National Affairs 1976).

As noted in the following sections, for both the ranking method and the factor comparison method, external and internal factors are incorporated throughout the job-evaluation process. In the classification method and the point method, internal factors and external factors are considered separately at first and are later reconciled with each other. In the point method, for example, point totals denoting relative internal worth can be reconciled with market data through statistical procedures such as regression analysis.

Determining which of the job-evaluation processes (outlined in the pages that follow) provides the best fit for a given organization depends on numerous considerations. One may be more appropriate than the other, but there is no one best scheme (Fowler 1996).

2.1. Ranking Method

Ranking simply involves ordering the job descriptions from highest to lowest based on a predetermined definition of value or contribution. Three ways of ranking are usually considered: simple ranking, alternation ranking, and paired comparison ranking. Simple ranking requires that evaluators order or rank jobs according to their overall value to the organization. Alternation ranking involves ordering the job descriptions alternately at each extreme (e.g., as shown in Figure 1).

Agreement is reached among evaluators on which job is the most valuable, then the least valuable. Job evaluators alternate between the next most valued and next-least valued, and so on, until all the jobs have been ordered. For example, evaluators agreed that the job of master welder was the most valued of the six jobs listed above and receiving clerk was the least valued. Then they selected most and least valued jobs from the four remaining titles on the list. After this, a final determination would be made between the last two jobs.

The paired comparison method involves comparing all possible pairs of jobs under study. A simple way to do paired comparison is to set up a matrix, as shown in Figure 2.

The higher-ranked job is entered in the cell. For example, of the shear operator and the electrician, the electrician is ranked higher. Of the shear operator and the punch press operator, the shear operator is ranked higher. When all comparisons have been completed, the job with the highest tally of “most valuable” rankings (the biggest winner) becomes the highest-ranked job, and so on. Some evidence suggests that the alternation ranking and paired comparison methods are more reliable (produce similar results more consistently) than simple ranking (Chesler 1948).

Caution is required if ranking is chosen. The criteria or factors on which the jobs are ranked are usually so poorly defined (if they are specified at all) that the evaluations become subjective opinions

<i>Jobs</i>		<i>Rank</i>
<i>Number</i>	<i>Title</i>	<i>Most valued</i>
1	Shear operator	Master welder
2	Electrician	Electrician
3	Punch press operator	
4	Master welder	
5	Grinder	
6	Receiving clerk	Receiving clerk
		<i>Least valued</i>

Figure 1 Alternation Ranking.

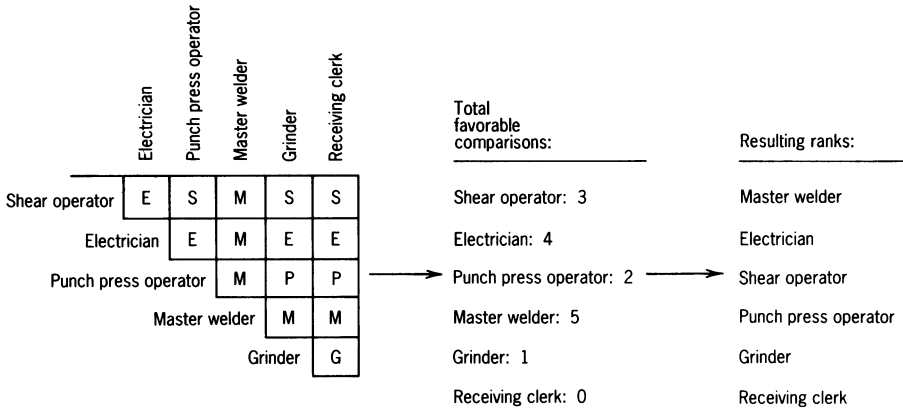


Figure 2 Paired Comparison Ranking. (From Milkovich and Newman 1993)

that are difficult, if not impossible, to explain and justify in work-related terms. Further, evaluators using this method must be knowledgeable about every single job under study. And as the organization changes, it is difficult to retain command of all this job information. Even if such a person exists, the sheer number of rankings to complete becomes onerous, if not impossible. For example, using the paired comparison process where 50 jobs are involved requires $(n)(n - 1)/2 = 1225$ comparisons. Some organizations try to overcome these difficulties by ranking jobs within single departments and merging the results. However, without greater specification of the factors on which the rankings are based, merging ranks is a major problem.

2.2. Classification Method

The classification method has been in use for over 100 years. It originated as a technique to reform abuses in hiring and paying government workers. Variations of the classification method are still widely used by public-sector employers. The basic procedure is simple: create a set of job categories and sort jobs into them. The categories should be conceived such that jobs that fall into the same category are more similar to each other than to any jobs in other categories. Then, for pay purposes, jobs are treated equally within each category and are treated differently across categories.

Each category is defined by a *class description*. For example, the federal government classification method describes grade 1 as all classes of positions the duties of which are to be performed under immediate supervision, with little or no latitude for the exercise of independent judgment, (1) the simplest routine work in office, business, or fiscal operations, or (2) elementary work of a subordinate technical character in a professional, scientific, or technical field. These class descriptions should be detailed enough to differentiate jobs but general enough to make it fairly easy to slot jobs. While detailed class descriptions make some evaluations more consistent, they can limit the variety of jobs that can readily be classified. It would be difficult, for example, to slot clerical jobs into classes created with sales jobs in mind.

Job classes can be made more concrete by anchoring them with benchmark jobs. For a job to be used as a benchmark, it must be commonly known, relatively stable in content, and perceived to be paid fairly. Where feasible, there should be at least one benchmark job for each job class.

The appropriate number of job classes depends on the diversity of jobs and on promotion paths. A common rule of thumb is 7 to 14 classes (Belcher 1974). Some argue for having many classes, saying that employees favor frequent advancement to higher grades. Today, however, prevailing opinion argues for having fewer classes, saying that it reduces needless bureaucracy.

A problem with the classification method is that it provides incentive for incumbents to “aggrandize” a job title to get it into a higher classification. This may seem appropriate to a manager whose immediate concern is to secure a pay raise for a subordinate; but others may see it as underhanded, and it may even lead to a pay discrimination lawsuit.

2.3. Factor Comparison Method

In the factor comparison method, jobs are evaluated based on two criteria: (1) a set of compensable factors and (2) wages for a select group of benchmark jobs. The two criteria are combined to form a job-comparison scale, which is then applied to nonbenchmark jobs. Unfortunately, the method’s

complexity often limits its usefulness (Benge et al. 1941). A simplified explanation of this method would include the following steps:

2.3.1. Conduct Job Analysis

As with all job-evaluation methods, information about the jobs must be collected and job descriptions prepared. The Factor Comparison Method differs, however, in that it requires that jobs be analyzed and described in terms of the compensable factors used in the plan. The originators of the method, Benge et al. (1941), prescribed five factors: mental requirements, skill requirements, physical factors, responsibility, and working conditions. They considered these factors to be universal (applicable to all jobs in all organizations) but allowed some latitude in the specific definition of each factor among organizations.

2.3.2. Select Benchmark Jobs

The selection of benchmark jobs is critical because the entire method is based on them. Benchmark jobs (also called key jobs) serve as reference points. The exact number of benchmarks required varies; some rules of thumb have been suggested (15 to 25), but the number depends on the range and diversity of the work to be evaluated.

2.3.3. Rank Benchmark Jobs on Each Factor

Each benchmark job is ranked on each compensable factor. In Table 1, a job family consisting of six jobs is first ranked on mental requirements (rank of 1 is highest), then on experience/skills, and so on.

This approach differs from the straight ranking plan in that each job is ranked on each factor rather than as a whole job.

2.3.4. Allocate Benchmark Wages across Factors

Once each benchmark job is ranked on each factor, the next step is to allocate the current wages paid for each benchmark job among the compensable factors. Essentially, this is done by deciding how much of the wage rate for each benchmark job is associated with mental demands, how much with physical requirements, and so on, across all the compensable factors. This is done for each benchmark job and is usually based on the judgment of a compensation committee. For example, in Table 2, of the \$5.80 per hour paid to the punch press operator, the committee had decided that \$0.80 of it is attributable to the job's mental requirements, another \$0.80 is attributable to the job's experience/skill requirements, \$2.40 is attributable to the job's physical requirements, \$1.10 is attributable to the job's supervisory requirements, and \$0.70 is attributable to the job's other responsibilities. The total \$5.80 is thus allocated among the compensable factors. This process is repeated for each of the benchmark jobs.

After the wage for each job is allocated among that job's compensable factors, the dollar amounts for each factor are ranked. The job that has the highest wage allocation for mental requirements is ranked 1 on that factor, next highest is 2, and so on. Separate rankings are done for the wage allocated to each compensable factor. In Table 3, the parts-inspector position has more of its wages allocated to mental demands than does any other job and so it receives the highest rank for that factor.

There are now two sets of rankings. The first ranking is based on comparisons of each benchmark job on each compensable factor. It reflects the relative presence of each factor among the benchmark jobs. The second ranking is based on the proportion of each job's wages that is attributed to each factor. The next step is to see how well the two rankings agree.

TABLE 1 Factor Comparison Method: Ranking Benchmark Jobs by Compensable Factors^a

Benchmark Jobs	Mental Requirements	Experience/ Skills	Physical Factors	Supervision	Other Responsibilities
A. Punch press operator	6	5	2	4	4
B. Parts attendant	5	3	3	6	1
C. Riveter	4	6	1	1	3
D. Truck operator	3	1	6	5	6
E. Machine operator	2	2	4	2	5
F. Parts inspector	1	3	5	3	2

^aRank of 1 is high.

Source: Milkovich and Newman 1993.

TABLE 2 Factor Comparison Method: Allocation of Benchmark Job Wages across Factors

Benchmark Jobs	Current Wage Rate (\$/hr)	Factors				
		Mental Requirements \$	Experience/ Skills \$	Physical Factors \$	Supervision \$	Other Responsibilities \$
A. Punch press operator	5.80	= 0.80	+ 0.80	+ 2.40	+ 1.10	+ 0.70
B. Parts attendant	9.60	= 2.15	+ 2.35	+ 1.90	+ 0.60	+ 2.60
C. Riveter	13.30	= 2.50	+ 3.10	+ 2.45	+ 4.50	+ 0.75
D. Truck operator	8.50	= 3.40	+ 3.20	+ 0.60	+ 0.80	+ 0.50
E. Machine operator	11.80	= 3.60	+ 2.90	+ 1.75	+ 2.90	+ 0.65
F. Parts inspector	11.40	= 4.50	+ 2.20	+ 1.20	+ 2.50	+ 1.10

Source: Milkovich and Newman 1993.

TABLE 3 Ranking Wage Allocations^a

Benchmark Jobs	Factors					
	Mental Requirements \$	Experience/Skills \$	Physical Factors \$	Supervision \$	Other Responsibilities \$	
A. Punch press operator	0.80	6	2.40	2	1.10	4
B. Parts attendant	2.15	5	1.90	3	0.60	1
C. Riveter	2.50	4	3.10	1	4.50	3
D. Truck operator	3.40	3	3.20	6	0.80	6
E. Machine operator	3.60	2	2.90	4	2.90	5
F. Parts inspector	4.50	1	2.20	5	2.50	2

Source: Milkovich and Newman 1993.

2.3.5. Compare Factor and Wage-Allocation Ranks

The two rankings are judgments based on comparisons of compensable factors and wage distributions. They agree when each benchmark is assigned the same location in both ranks. If there is disagreement, the rationale for the wage allocations and factor rankings is reexamined. Both are judgments, so some slight tuning or adjustments may bring the rankings into line. The comparison of the two rankings is simply a cross-checking of judgments. If agreement cannot be achieved, then the job is no longer considered a benchmark and is removed.

2.3.6. Construct Job Comparison Scale

Constructing a job-comparison scale involves slotting benchmark jobs into a scale for each factor based on the amount of pay assigned to each factor. Such a scale is illustrated in Figure 3. Under mental requirements, the punch press operator is slotted at \$0.80, the parts attendant at \$2.15, and so on. These slottings correspond to the wage allocations shown in Figure 3.

2.3.7. Apply the Scale

The job-comparison scale is the mechanism used to evaluate the remaining jobs. All the nonbenchmark jobs are now slotted into the scales under each factor at the dollar value thought to be appro-

\$ Value	Mental requirements	Experience/skills	Physical demands	Supervision	Other responsibilities
.00					
.20					Truck operator
.40			Truck operator	Parts attendant	Machine operator
.60					Punch press operator
.80	Punch press operator	Punch press operator		Truck operator	Riveter
1.00			STOCKER		STOCKER
.20	STOCKER		Parts inspector	Punch press operator	Parts inspector
.40				STOCKER	
.60			Machine operator	Parts inspector	
.80			Parts attendant		
2.00	Parts attendant	Parts inspector			
.20		Parts attendant			
.40			Punch press operator		
.60	Riveter	STOCKER	Riveter		
.80		Machine operator		Machine operator	Parts attendant
3.00		Riveter			
.20	Truck operator	Truck operator			
.40	Machine operator				
.60					
.80					
4.00					
.20					
.40	Parts inspector			Riveter	
.60					
.80					
5.00					

Figure 3 Job Comparison Scale. (From Milkovich and Newman 1993)

prate. This is done by comparing the factors in the job descriptions of nonbenchmark jobs with the factors in the reference points. Consider the position of parts stocker, a nonbenchmark job. The evaluator reads the stocker job description, examines the first compensable factor on the job comparison scale (mental requirements), and locates two benchmark jobs between which the mental requirements of the stocker job rank. After examining the job descriptions for punch press operator and parts attendant the stocker job might be judged to require greater mental demands than those required for the punch press operator but less than those for the parts attendant and might be slotted at a rate of \$1.40 for mental requirements. The final worth of each job is derived from a summation of the dollars allocated to the job across all compensable factors.

Historically, only about 10% of employers using formal job evaluations have used the factor comparison approach (Nash and Carroll 1975). The method is complex and difficult to explain, particularly to employees who are dissatisfied with the final ranking their job achieves. In addition, as the agreed-upon wage rates of the benchmark jobs change, the relationships among the jobs may change, and the allocation of the wages among the factors must be readjusted. So continuous updating is required.

In spite of these difficulties, the factor comparison approach represents a significant improvement over simple ranking and classification. First, the criteria for evaluating jobs (i.e., the compensable factors) are agreed upon and made explicit. Second, the use of existing wage rates of benchmark jobs as one of the criteria for designing and explaining the pay structure is unique. In a sense, factor comparison more systematically links external market forces with internal, work-related factors. Finally, in the factor comparison approach, we see the use of a scale of degrees of worth (dollars) for each compensable factor in the job-comparison scale.

These three features—defining compensable factors, scaling the factors, and linking an agreed-upon wage structure with the compensable factors—are also the basic building blocks on which point plans are based.

2.4. Point Method

Like factor comparison, designing a point system is rather complex and often requires outside assistance by consultants. But once designed, the plan is relatively simple to understand and administer, which accounts for its widespread use. Indeed, it is the system used by the vast majority of companies in this country (Milkovich and Newman 1993).

Point methods have three common characteristics: (1) compensable factors, with (2) numerically scaled factor degrees to distinguish different levels within a factor, and (3) weights reflecting the relative importance of each factor.

With the point method, as with all job-evaluation plans, the first step is job analysis. The next steps are to choose the factors, scale them, establish the factor weights, and then evaluate jobs.

2.4.1. Conduct Job Analysis

Information about the jobs to be evaluated is the cornerstone of all job evaluation. While ideally, all jobs will be analyzed, the relevant work content—the behaviors, tasks performed, abilities/skills required, and so on—of a representative sample of jobs forms the basis for deriving compensable factors.

2.4.2. Choose Compensable Factors

Compensable factors play a pivotal role in the point method. In choosing factors, an organization must decide: “What factors are valued in our jobs? What factors will be paid for in the work we do?” Compensable factors should possess the following characteristics:

Work Related They must be demonstrably derived from the actual work performed in the organization. Some form of documentation (i.e., job descriptions, job analysis, employee and/or supervisory interviews) must support the factors. Factors that are embedded in a work-related logic can help withstand a variety of challenges to the pay structure. For example, managers often argue that the salaries of their subordinates are too low in comparison to other employees or that the salary offered to a job candidate is too low for the job. Union members may question their leaders about why one job is paid differently from another. Allegations of illegal pay discrimination may be raised. Line managers, union leaders, and compensation specialists must be able to explain differences in pay among jobs. Differences in factors that are work related help provide that rationale. Properly selected factors may even diminish the likelihood of these challenges arising.

Business Related Compensable factors need to be consistent with the organization’s culture and values, its business directions, and the nature of the work. Changes in the organization or its business strategies may necessitate changing factors. While major changes in organizations are not daily occurrences, when they do occur, the factors need to be reexamined to ensure that they are consistent with the new circumstances.

Acceptable to the Parties Acceptance of the pay structure by managers and employees is critical. This is also true for the compensable factors used to slot jobs into the pay structure. To achieve acceptance of the factors, all the relevant parties' viewpoints need to be considered.

Discriminable In addition to being work related, business related, and acceptable, compensable factors should have the ability to differentiate among jobs. As part of differentiating among jobs, each factor must be unique from other factors. If two factors overlap in what they assess in jobs, then that area of overlap will contribute disproportionately to total job points, which may bias the results. Factor definitions must also possess clarity of terminology so that all concerned can understand and relate to them.

There are two basic ways to select and define factors: Adapt factors from an existing standard plan or custom design a plan. In practice, most applications fall between these two. Standard plans often are adjusted to meet the unique needs of a particular organization, and many custom-designed plans rely heavily on existing factors. Although a wide variety of factors are used in conventional, standard plans, they tend to fall into four generic groups: skills required, effort required, responsibility, and working conditions. These four were used originally in the National Electrical Manufacturers Association (NEMA) plan in the 1930s and are also included in the Equal Pay Act (1963) to define equal work (Gomberg 1947). The Hay System is perhaps the most widely used (Milkovich and Newman, 1993). The three Hay factors are know-how, problem solving, and accountability (note that Hay Associates does not define its guide chart–profile method as a variation of the point method) (Hay Associates 1981). Adapting factors from existing plans usually involves relying on the judgment of a task force or job evaluation committee. More often than not, the committee is made up of key decision makers (or their representatives) from various functions (or units, such as finance, operations, engineering, and marketing). Approaches vary, but typically it begins with a task force or committee representing key management players. To identify compensable factors involves getting answers to one central question: Based on our operating and strategic objectives, what should we value and pay for in our jobs? Obviously, custom designing factors is time consuming and expensive. The argument in favor of it rests on the premise that these factors are more likely to be work related, business related, and acceptable to the employees involved.

In terms of the optimal number of factors, it is generally recommended to stay below 10 in order to avoid dilution of effect, information overload, and factor redundancy. Five to 7 factors are usually a manageable number to capture the essence of jobs in an organization. With regard to the number of total points to be allocated across the factors, most firms choose either 500 or 1000 points.

2.4.3. Establish Factor Scales

Once the factors to be included in the plan are chosen, scales reflecting the different degrees within each factor are constructed. Each degree may also be anchored by the typical skills, tasks, and behaviors taken from benchmark jobs that illustrate each factor degree. Table 4 shows the National Metal Trade Association's scaling for the factor of knowledge.

Belcher (1974) suggests the following criteria for determining degrees:

1. Limit to the number necessary to distinguish among jobs.
2. Use understandable terminology.
3. Anchor degree definition with benchmark job titles.
4. Make it apparent how the degree applies to the job.

Using too many degrees makes it difficult for evaluators to accurately choose the appropriate degree and may result in a wide variance in total points assigned by different evaluators. The threat this poses to acceptance of the system is all too apparent.

Some plans employ 2D grids to define degrees. For example, in the Hay plan, degrees of the factor know-how are described by four levels of managerial know-how (limited, related, diverse, and comprehensive) and eight levels of technical know-how (ranging from professional mastery through elementary vocational). An evaluator may select among at least 32 (4×8) different combinations of managerial and technical know-how to evaluate a job.

2.4.4. Establish Factor Weights

Once the degrees have been assigned, the factor weights must be determined. Factor weights are important because different weights reflect differences in importance attached to each factor by the employer. There are two basic methods used to establish factor weights: committee judgment and statistical analysis. In the first, a standing compensation committee or a team of employees is asked to allocate 100% of value among the factors. Some structured decision process such as Delphi or other nominal group technique may be used to facilitate consensus (Elizur 1980). For the statistical method, which typically utilizes multiple regression analysis, the weights are empirically derived in

TABLE 4 Illustration of a Compensable Factor Scheme**I. Knowledge**

This factor measures the knowledge or equivalent training required to perform the position duties.

First Degree

Use of reading and writing, adding and subtracting of whole numbers; following of instructions; use of fixed gauges, direct reading instruments and similar devices; where interpretation is not required.

Second Degree

Use of addition, subtraction, multiplication, and division of numbers including decimals and fractions; simple use of formulas, charts, tables, drawings, specifications, schedules, wiring diagrams; use of adjustable measuring instruments; checking of reports, forms, records and comparable data; where interpretation is required.

Third Degree

Use of mathematics together with the use of complicated drawings, specifications, charts, tables; various types of precision measuring instruments. Equivalent to 1 to 3 years applied trades training in a particular or specialized occupation.

Fourth Degree

Use of advanced trades mathematics, together with the use of complicated drawings, specifications, charts, tables, handbook formulas; all varieties of precision measuring instruments. Equivalent to complete accredited apprenticeship in a recognized trade, craft, or occupation; or equivalent to a 2-year technical college education.

Fifth Degree

Use of higher mathematics involved in the application of engineering principles and the performance of related practical operations, together with a comprehensive knowledge of the theories and practices of mechanical, electrical, chemical, civil or like engineering field. Equivalent to complete 4 years of technical college or university education.

Source: Milkovich and Newman 1993.

such a way as to correlate as closely as possible to a set of pay rates that is agreed upon by the parties involved (Delbecq et al. 1975). The criterion is usually the pay rate for benchmark jobs, and the predictors are the jobs' degree levels on each of the factors.

Initial results of either the committee judgment or statistical approach for deriving factor weights may not lead to completely satisfactory results. The correspondence between internal value (the job-evaluation results) and the external value (what the market says you should be paying) may not be sufficiently high. Several procedures are commonly used to strengthen this relationship. First, the sample of benchmark jobs may be changed through adding or deleting jobs. Second, the factor degree levels assigned to each benchmark job may be adjusted. Third, the pay structure serving as the criterion may be revised. And finally, the factor-weighting scheme may be modified. Thus, a task force beginning with exactly the same factors and degrees could end up with very different job-evaluation plans, depending on the benchmark jobs used, the pay rates chosen as the criterion, and the method employed to establish the weights.

2.4.5. Evaluate Jobs

To translate weights and factor scales into actual job points, the maximum number of points to be used in the system is first divided among the factors according to their weights. The points for each factor are then attached to that factor's scale. For example, if a factor is weighted 20% in a 500-point system, then a total of 100 points is assigned to this factor; and if there are five degrees on the factor, then each degree is worth 20 points.

In the point method, each job's relative value, and hence its location in the pay structure, is determined by the total points assigned to it. A job's total point value is the sum of the numerical values for each degree of compensable factor that the job possesses. In Table 5, the point plan has four factors: skills required, effort required, responsibility, and working conditions. There are five degrees for each factor.

In addition to factor definitions, the evaluator will be guided by benchmark jobs and written descriptions that illustrate each degree for each respective factor. Thus, the evaluator chooses a degree

TABLE 5 The Point Method of Job Evaluation: Factors, Weights, and Degrees

(3) Weights	(1) Factors	(2) Degrees				
40%	Skills required	1	2	3	4	5
30%	Effort required	1	2	3	4	5
20%	Responsibility	1	2	3	4	5
10%	Working conditions	1	2	3	4	5

Source: Milkovich and Newman 1993.

for each factor according to the correspondence between the job being evaluated and the benchmark jobs or descriptions for each factor scale. Then the ratings are multiplied by the factor weights and the products are summed. In the above example, skills required carries a greater weight (40% of the total points) for this employer than does working conditions (10% of the total points). Thus, a job's 240 total points may result from two degrees of skills required ($2 \times 40 = 80$), three each of effort required ($3 \times 30 = 90$) and responsibility ($3 \times 20 = 60$), and one of working conditions ($1 \times 10 = 10$); ($80 + 90 + 60 + 10 = 240$).

Once the total points for all jobs are computed and a hierarchy based on points established, then jobs are compared to each other to ensure that their relative locations in the hierarchy are acceptable. Almost without fail, certain naturally occurring clusters of jobs will emerge.

2.5. Single-Factor Systems

The premise underlying single-factor approaches is that the job content or value construct is unidimensional. In other words, proponents argue that internal value of jobs can be determined by evaluating them against each other on a single factor, instead of the more traditional 5- to 10-factor systems. The two most widely known single-factor plans are Jaques's time span of discretion (TSD) and Arthur Young's decision banding (Jaques 1970). In time span of discretion, each job is made up of tasks and each task is judged to have an implicit or explicit time before its consequences become evident. Jaques defines TSD as "the longest period of time in completing an assigned task that employees are expected to exercise discretion with regard to the pace and quality of the work without managerial review" (Jaques 1964). According to Jaques, TSD is distinct from job evaluation in that it represents measurement (of time units) rather than subjective judgement.

The single factor used in the decision banding method is the decision making required on the job (Patterson and Husband 1970). It identifies and describes six types of decisions that may be required on the job. In order from simplest to most complex, they are: defined, operational, process, interpretive, programming, and policy making. Under this approach, results of job analysis are examined to determine the highest level of decision-making required of the job. Each job is then placed in the corresponding decision band.

Over 50 years ago, Lawshe and others demonstrated that a few factors will yield practically the same results as many factors (Lawshe 1947). Some factors may have overlapping definitions and may fail to account for anything unique in the criterion chosen. In multifactor plans, 3 to 5 factors explained most of the variation in the job hierarchy. In a study conducted 30 years ago, a 21-factor plan produced the same job structure that could be generated using only 7 of the factors. Further, the jobs could be correctly slotted into classes using only 3 factors. Yet the company decided to keep the 21-factor plan because it was "accepted and doing the job."

3. OTHER METHODS OF VALUING JOBS

3.1. Market-Based Pay Systems

For every organization, prevailing wages in the labor market will affect compensation. For some jobs and some organizations, market wage levels and ability to pay are virtually the only determinants of compensation levels. An organization in a highly competitive industry may, by necessity, merely price jobs according to what the market dictates. For most companies, however, to take all their jobs (which may number in the hundreds or thousands) and compare them to the market is not realistic. One can only imagine the effort required for a company to conduct and/or participate in wage surveys for thousands of jobs every year. Alternatively, one computer company was able to slot thousands of jobs into 20 pay grades using a version of the point factor method.

Market pricing basically involves setting pay structures almost exclusively through reliance on rates paid in the external market. Employers following such an approach typically match a large percentage of their jobs with market data and collect as much summarized market data as possible. Opting for market pricing usually reflects more of an emphasis on external competitiveness and less of a focus on internal consistency (the relationships among jobs within the firm).