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Production and Evaluation of a Prototype for a
Computerized Performance Appraisal System

Jennifer A. Parker

A Thesis Equivalent
in
The Department
of
Education

Presented in Partial Fulfillment of the Requirements
for the Degree of Master of Arts
at
Concordia University
Montreal, Quebec, Canada

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Abstract

Production and Evaluation of a Prototype for a Computerized Performance Appraisal System

by: Jennifer A. Parker

This thesis equivalent presents the design and evaluation of a prototype for a computerized performance appraisal system. The system was developed as a generic model that can be tailored to meet the requirements of any position when defined by the end-users. The design of the performance appraisal form, the end-user interaction, and the capabilities of the system will remain the same regardless of the position being evaluated. The items on the form will be determined when the position is specified.

Performance appraisal is one component of the larger area of performance management. Performance management systems are used to structure employee expectations, identify areas for improvement, and encourage personal accountability. The performance appraisal system is used to:

- plan expected results with staff
- monitor performance throughout the year
- reward staff based on performance

A prototype of the system was developed as a microcomputer application using a combination of Clipper (a database programming language), dBase IV (a database program), and R&R Report Writer (a report generator). The system has three levels of use:

(iii)

- entry of performance data
- report generation
- queries

During production of the prototype, the system was evaluated using one-to-one, and small-group formative evaluation techniques prescribed by Dick and Carey (1978). Potential end-users were interviewed to evaluate ease of use; experts in Human Resources evaluated the completeness of the form, as well as the information generated by the system; and experts in Systems Analysis and Design evaluated the flow of information through the system.

For my thesis equivalent, I was responsible for the first eight phases of the Systems Development Life Cycle (outlined in Whitten, Bentley, & Barlow, 1989), as follows:

- 1) surveying project scope
- 2) studying existing systems
- 3) defining end-user's requirements
- 4) selecting a feasible solution
- 5) designing the prototype
- 6) constructing the prototype
- 7) documenting the system
- 8) evaluating the system

Since there is no specific end-user at the moment, implementation of the system is not an element of this thesis equivalent. In the conclusion, recommendations for improvements to the system are presented.

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CHAPTER ONE

Statement of the Problem

The purpose of this project was to design and evaluate a computerized performance appraisal system. The system was developed as a prototype that can be tailored to meet the requirements of any position when defined by the end-users. The design of the performance appraisal form, the end-user interaction, and the capabilities of the system remain the same regardless of the position being evaluated. The items on the form will be determined when the position is specified.

Performance Appraisal

Organizations need to plan and program the development of their human resources, just as they do their other resources. Performance appraisal is a necessary element of information and control in the organization. To be effective, the control system needs data on what is occurring, and a means of correcting performance when change is needed (Mohrman, Resnick-West, & Lawler, 1989).

Performance appraisal is one component of the larger area of performance management (see Figure 1). Performance management systems are used to structure employee expectations, identify areas for improvement, and encourage personal accountability. It is merely the formalization of a continual process of employee evaluation (Swan & Margulies, 1991).

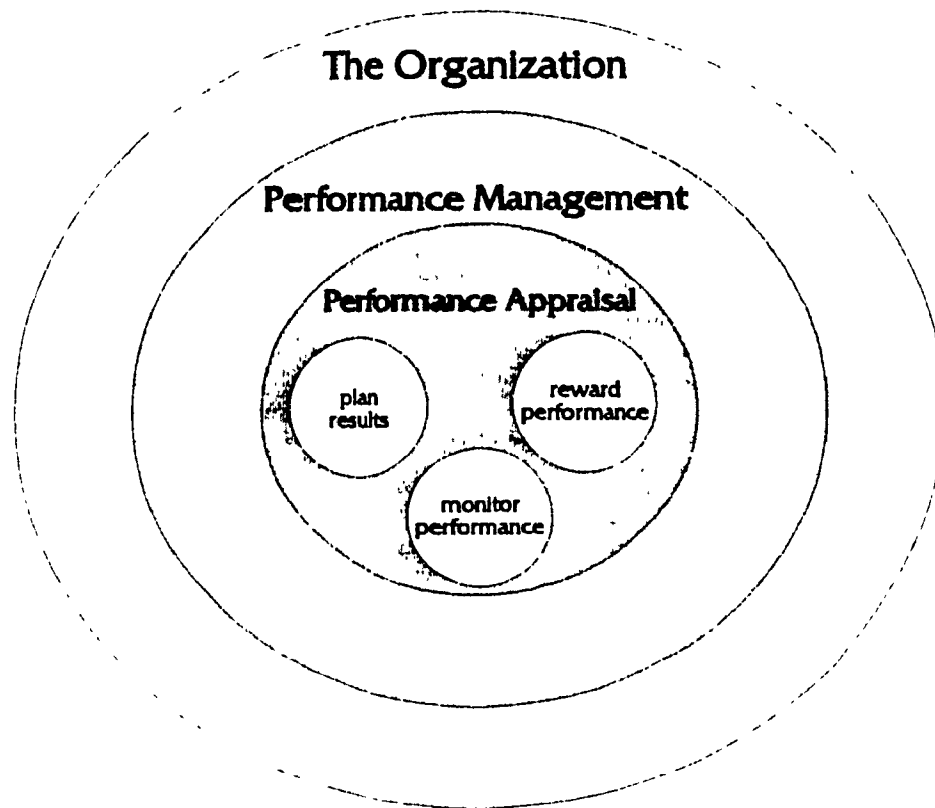


Figure 1. Performance Appraisal and its Supra systems

The performance appraisal system is used to:

- plan expected results with staff
- monitor performance throughout the year
- reward staff based on performance

With the proposed system of performance appraisal, a formal appraisal interview will be carried out on an annual basis, but use of the evaluation data for queries and report generation may be performed (and are encouraged) throughout the year. The annual appraisal is summative, but a

formative evaluation (coaching performance) goes on continually. Supervisors will use the system to record critical incidents as they occur, and to provide feedback to employees frequently.

Baird, Beatty, and Schneier (1982), Burke and Wilcox (1969), and McGregor (1987) sum up three functions of performance appraisal as:

- justification of salary increases, promotions, transfers, and sometimes demotions and terminations
- feedback to the employee - to provide suggestions for changes in behaviour, attitudes, skills and job knowledge
- a tool to assist in coaching and counselling the employee

Results from performance appraisal may also be used to determine training requirements.

The potential end-users of the system are the managers responsible for performance appraisal in their organization. Other groups that will benefit from the information generated by the system are: payroll, training, promotions and demotions, the employees being evaluated, and upper levels of management.

Figure 2 shows a context diagram for the performance appraisal system. It identifies the entities connected to the system and the flow of data through the system.

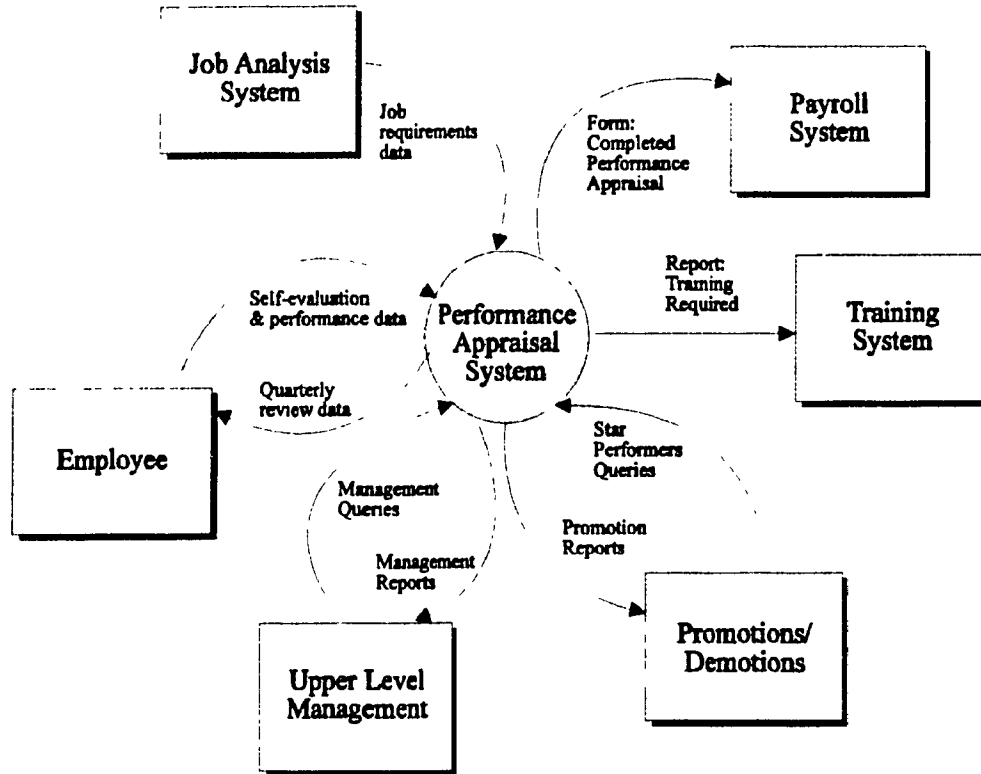


Figure 2. Context Diagram of the Performance Appraisal System

Ideally, through performance appraisal the employees learn how their supervisor views their performance and what they must do to improve their chances for promotion and merit pay (Winsor, 1984). Levinson (1979) states performance appraisal is a tool, not a goal. Results depend on the type and quality of the tool, the purposes for which it is used, and the skill of the end-user.

Kaufman and Thomas (1980) define the purpose of performance appraisal: to collect data, convert into information, and use this information to make decisions (see Figure 3). If decisions are not made, the evaluation is meaningless. Performance appraisal has to have some impact

-- the results used, and used consistently, for specific purposes (Schneier, Beatty, & Baird, 1986a; Levinson, 1979).

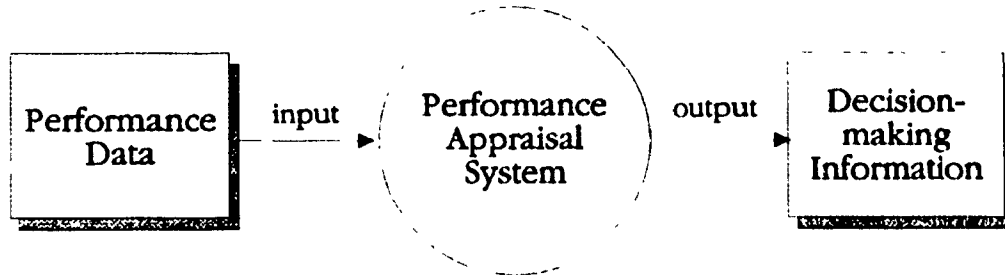


Figure 3. Data Converted to Information

Kaufman et al. (1980) also state that evaluation may determine what is working, what is not working, what to change and what to retain. It helps determine the gap between goals and results (see Figure 4).

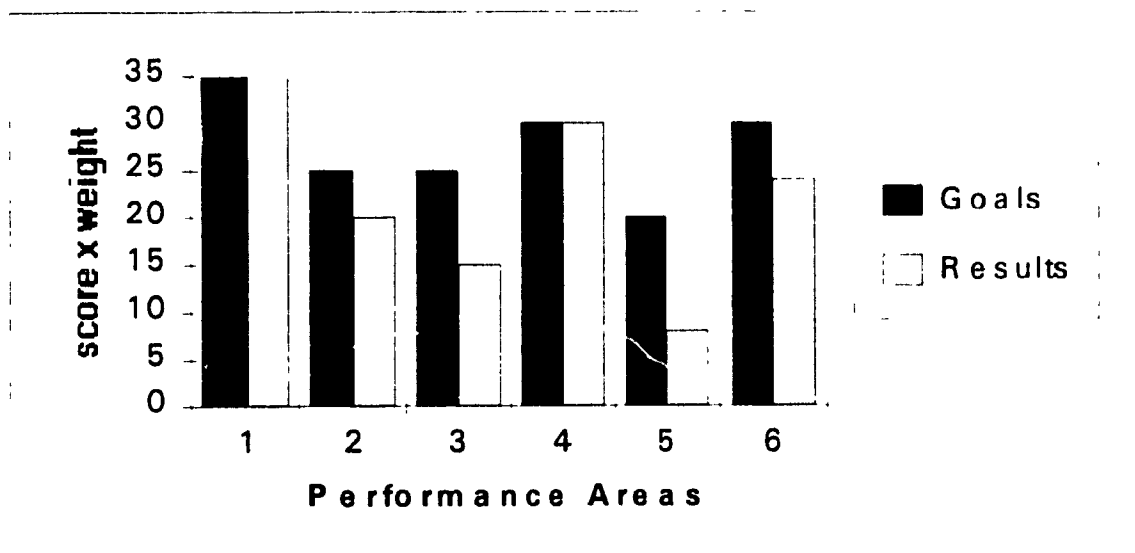


Figure 4. Gap Between Goals and Results

Prototyping

In traditional systems design, a model is developed (based on data that have been gathered) and then diagrammed on paper so that the end-user can review it. An alternative to this approach is prototyping, where a working model is developed on the computer prior to the final design and is used as a tool to solicit feedback from the end-user, in order to define the user requirements. With prototyping, the user can "experience" the system during the design phase rather than after implementation. This interaction leads to feedback which results in revisions and enhancements to the prototype. Whitten, Bentley, and Barlow (1989) identify several advantages of prototyping:

- prototyping encourages end-user participation
- errors in design can be detected early
- with a prototype the system evolves through iteration
- users can see, touch, and feel the system
- feedback is faster

Prototyping often leads to a better product, in a shorter amount of development time. As Whitten et al. (1989) point out, the end-users are not always fully aware of their requirements until they see them implemented. The prototype may actually be discarded after sufficient feedback is obtained from the users, to be reprogrammed in a more traditional language like COBOL. The reasons for this may be due to the prototype's failure to meet performance/

speed requirements, or possibly incompatibility with existing systems. For example, a prototype might be developed on a microcomputer and then reprogrammed for final implementation in a mainframe environment. Many prototypes perform satisfactorily with test databases, but in full scale operation, performance may decline below acceptable levels. Typically the prototype will not incorporate internal controls as those will only be specified when the final design has been developed.

The steps outlined in Whitten et al. (1989) were used to develop the working model of the system:

- a prototype database model was developed and loaded with test data (using dBase IV)
- inputs were created and chained together to form a dialogue, with no security features (using the Clipper programming language)
- outputs were created using a report generator, using the test data from the prototype database (using R&R Report Writer)
- the inputs and outputs were integrated around a user-friendly shell with menus and submenus (using Clipper)
- the graphs were created using a spreadsheet (Microsoft Excel)

CHAPTER TWO

Rationale

Whitten et al. (1989) state that the impetus for a project may be a problem, opportunity, or directive. Problems are undesired situations that prevent the business from fully achieving its objectives. For example, negative feelings about performance appraisal can trigger a project which aims to improve attitudes toward, and therefore effectiveness of, the system. Many studies point to problems with existing performance appraisal systems (see the following section entitled: *Problems with Current Performance Appraisal Systems*, for examples).

An opportunity is a chance to improve the business even in the absence of a specific problem (Whitten et al., 1989). For instance, management is always receptive to ideas for improving information flow within the organization, even when information flow is not currently considered a problem.

A directive is a new requirement that is imposed on the system (Whitten et al., 1989). For example, the US Civil Rights Act (1964) has mandated that before a person can be dismissed from his/her job, there must be documented evidence of poor performance. A directive could also be technical. For instance, if the current system is cumbersome to use or slow to perform, it may be time to computerize it.

Throughout this section I will discuss problems, opportunities, and directives associated with Performance Appraisal.

Problem Areas in Performance Appraisal Practice

Although most agree performance appraisal is a worthwhile activity, it frequently fails to meet the desired objectives. "Effective performance appraisal in organizations continues to be a compelling but unrealized goal." (Banks & Murphy, 1985, p. 335). Managers are often uncomfortable with their role -- believing performance appraisal to be a task for the Human Resources department (Schneier, Beatty, & Baird, 1986b). They often have a blurred perception of the direction in which the organization is heading, making it difficult to pinpoint what they expect from employees (Beaulieu, 1980). To overcome this haziness, managers need to prepare a written business plan that sets forth priorities, goals and strategies. Employees often express dissatisfaction with their performance appraisal review, and other departments in the organization frequently end up with misleading results.

Multiple Uses of Performance Appraisal Data

The outputs of performance appraisal are often inputs for training, setting salary levels, and promotion. There are conflicting views on the validity of using performance appraisal data for multiple purposes. Schneier et al. (1986b) feel that performance appraisal often fails because

it is *not* used as the basis for training, promotion, and compensation. If an organization does not use the results of performance appraisal to assist in decisions, there is an inevitable temptation to fill out the forms with minimal effort and to avoid any possible conflicts with the employee (Mohrman et al., 1989).

Table 1 shows the results for a survey of 510 firms cited in Mohrman et al. (1989) on the intended functions of performance appraisal.

<i>Intended Function</i>	<i>Total</i>
Determining merit pay	459
Providing basis for feedback on performance	442
Planning goals for performance with employees	401
Determining training and development needs	352
Identifying promotion potential	346
Identifying employees with specific skills	236

Table 1. Purpose of Performance Appraisal in 510 Firms

Banks et al. (1985), and Levinson (1979) advise *against* using performance appraisal for multiple purposes. They suggest developing different performance prototypes for each intended use. For example, evaluation results used for salary purposes should focus on the skills required in the current job, whereas for promotion purposes the focus should be on skills required for the new position. The system

designed for this project overcomes this problem by allowing managers and their superiors to choose an appropriate subset of current skills to select candidates for new positions.

There seems to be a consensus that we need to use performance data for various purposes, but that it should be discussed in different forums, or at least collected on different forms. "One way or another, judgements regarding performance, rewards, and sanctions must (and will) be made. It is better to control that process and make it as effective as possible rather than abandon the effort and leave it to chance." (Sashkin, 1986, p. 13).

Managers' Conflicting Roles

Many authors (Burke et al., 1969; McGregor, 1987; Oliver, 1985; Sashkin, 1986; Stroul, 1987) comment on the conflicting roles for the supervisor in the performance appraisal process: 1) as a counsellor (guiding the employee's performance), and 2) as a judge (for salary, promotion, etc.). The organizational goal of using performance appraisal to develop employees through counselling, coaching and career planning, conflicts with the second goal of seeking information on which to base rewards and personnel decisions. Stroul (1987) feels performance appraisal effectiveness rests on managers' abilities to separate these two roles. Meyer (cited in Sashkin, 1981) demonstrated that a clear separation of these roles led to a more effective performance appraisal system

at General Electric in terms of employee satisfaction and performance improvement. To overcome the problem of conflicting roles, Stroul (1987) recommends two interviews, with two different forms -- one for the performance review and one as a development review. Another approach is suggested by a personnel expert (cited in Stroul, 1987) -- one interview, but with four distinct phases:

- Phase 1) feedback - manager reviews performance in a non evaluative way,
- Phase 2) performance evaluation - manager judges performance as concretely as possible,
- Phase 3) overall rating - link to salary adjustments, and
- Phase 4) future options - discuss development and incentives.

Several studies (Blai, 1983; Schneier et al., 1986a; Swan et al., 1991; Winsor, 1984) suggest using performance appraisal annually for salary review but on an ongoing basis for performance improvement. The final interview is less likely to cause anxiety if it is viewed as part of the larger performance management process (Sashkin, 1986). To handle the separation of conflicting roles, the system developed for this project utilizes quarterly reviews for performance improvement and a year-end appraisal for salary review.

Common Rater Errors

Managers frequently use their overall impression of the employee to assign a rating, rather than evaluate the specific items on the performance appraisal (Borman, 1975). Sample (1986) suggests that rating errors indicate an unhealthy organization. Henderson (1980) identifies common rater errors:

- 1) Halo effect (also in Borman, 1975)
rating excellence in one quality influences giving a similar, but undeserved rating in other qualities
- 2) Horn effect
same as halo, but for an *unsatisfactory* rating
- 3) Central tendency
rating all qualities around the midpoint
- 4) Latest behaviour
failing to look at the entire appraisal period
- 5) Initial behaviour (also in Kruger, 1985)
using first impressions, failing to recognize improvements/decline
- 6) Spill over effect
allowing past reviews to unjustly influence current ratings

Some of the reasons for skewing or falsifying results, as identified in an article by Banks et al. (1985) are: conflict avoidance, personal agenda, financial reasons, and

resistance to recording harmful information regarding an employee's performance. Committee appraisals, standardized rating procedures, and training programs help make ratings more objective, but do not resolve the manager's desire to avoid an unpleasant experience in the interview (Maier, 1976). McGregor (1987) proposes that managers dislike criticizing subordinates and Sashkin (1986) confirms that raters are often strongly motivated to avoid giving low ratings. Maier (1976) reinforces the point that the tendency to be generous when rating a subordinate means that appraisals have little value for determining merit pay and identifying candidates for promotion. The problems managers often experience in the appraisal interview reduce the developmental aspects of the performance appraisal program, rendering them ineffective in motivating and developing subordinates (Burke et al., 1969; Stroul, 1987). One way to avoid a defensive attitude in the appraisal interview is to provide feedback throughout the review period and to encourage employee self-evaluation and input.

Rewards for Appraising Performance Accurately

Oliver (1985) and Sashkin (1986) highlight failure to reward managers for appraising performance or developing staff as one of the reasons for performance appraisal failure. Sashkin (1981) gives an interesting example of a manager actually being punished for his skill at training new employees. A consequence of his ability is that new

employees are usually assigned to his unit. This forces him to devote a large amount of time on new employee training, without receiving any special allowances for his sales quotas or operating budget. Managers who do their appraisals well should be rewarded (Levinson, 1979; Schneier et al., 1986a).

A study performed by Napier and Latham (1986) points toward the reasons why managers rate inaccurately -- many appraisers see little or no practical value in performing appraisals and some feel they do not have the necessary skills. In the previous section entitled *Common Rater Errors* it was noted that managers tend to avoid giving negative reviews. Napier et al. (1986) found managers often felt there were no consequences for them if they gave a positive or negative review, or possibly *aversive consequences* for the manager if he/she gave a negative review. Aversive consequences might be a confrontation in the appraisal interview, or criticism from a superior regarding the number of subordinates performing below expectations. Upper management needs to reinforce accurate appraisals (whether positive or negative) and successful development of subordinates. This reinforcement could come in the form of a performance factor on the manager's own appraisal form regarding his/her ability to rate subordinates accurately.

Training Managers

All management personnel should be properly trained to give effective feedback to employees (Sashkin, 1986; Schneier, 1986a; Winsor, 1984). According to surveys conducted by Swan et al. (1991), only 25% of managers who do performance appraisal receive training for it. When there is training it often is only to teach the use of the form and the logistics of the approval procedures. Borman (1975) found that after a brief training session raters provided more accurate performance profiles in terms of more closely mirroring ratee's relative strengths and weaknesses. Latham, Wexley, and Pursell (1975) also found that rating errors were reduced after raters participated in a workshop on observing and rating candidates. The results of this training were found to be sustained over time.

The evaluation issue is complex and involves new mind sets. Beaulieu (1980) recommends at least 40 hours training to bring about the self-confidence managers must have to perform useful performance appraisals. This initial training must be followed by reinforcement training, constant monitoring, and internal consultation with individual managers to ensure success.

Stroul (1987) stresses the importance of training managers to provide ongoing feedback, and developing their interpersonal, interviewing and problem-solving skills. He feels that the key to success is changing peoples' mindsets,

rather than revising evaluation forms -- although he stresses that intelligent design of the system is important. McGregor (1987) proposes that managers resist implementing a performance appraisal system because they lack the skill needed to handle the interviews effectively, and without proper training, mistrust the validity of the appraisal instrument.

Feedback Sessions

Many authors (Kruger, 1985; Schneier et al., 1986a; Swan et al., 1991; Winsor, 1984) feel that managers need to provide feedback on a regular basis, integrating performance appraisal into their daily routine -- noting achievements, giving recognition, motivating higher productivity. Individuals want and seek feedback on their performance to learn more about themselves (Mohrman et al., 1989). The manager should choose a comfortable, informal, private setting for feedback, *sharing* ideas with the employee rather than *imposing*. In a study conducted by Meyer and Walker (1961) it was concluded that the best predictor of whether or not the subject took constructive action based on his performance appraisal was how well his manager handled the feedback session.

Kenkel (1981) found that individuals who know they are being evaluated are more likely to accept negative feedback about themselves and therefore see the need for improvement in their performance. This strengthens the concept of

involving the employee in setting goals and communicating the performance standards to them at the beginning of the appraisal period.

Employee Participation in the Process

Winsor (1984) identifies little involvement by the employee in development of appraisal criteria as one of the reasons for failure of the system. Lasting performance improvement can only be achieved with employee support and input, and *sharing* of power.

Burke, Weitzel, and Weir (1978) found that the amount of preparation subordinates undertook before their appraisal interview influenced both the character of the interview process, and the quality of the outcome in a positive way. They provide several methods to encourage preparation including:

- employee completion of a brief form before the interview
- self-evaluation using same criteria as the supervisor
- employee viewing the supervisor's appraisal and encouraging comments before the interview

However, Blai (1983) warns against relying on employees to report job performance problems. Instead he advises using regular performance reviews as an early warning device.

Silverman and Wexley (1984) hypothesized that employees involved in the construction of behaviourally anchored rating scales (BARS) would have more favourable perceptions of the appraisal and be more motivated to improve. Their

results show that these employees were indeed more satisfied with the interview, as well as more motivated to improve their performance, although no differences were found in their anxiety levels in the interview. Burke et al. (1969) found a .57 correlation between motivation to improve and actual improvement. One question raised is whether these effects would wear off with time and repeated appraisals. Another is to what degree do the employees need to be involved in the development.

McGregor (1987) recommends moving away from *appraisal*, toward *analysis*. Employees examine themselves, and the supervisor helps subordinates relate their personal career planning to the needs and realities of the organization. Only the individual can really know his/her own capabilities, needs, strengths, weaknesses, and goals. The manager will not have to judge. Instead, listening and encouraging, he/she guides subordinates to develop their own potential, with an emphasis on future performance. A study done at General Electric found that setting goals with employees is a productive process that usually improves performance (Goens, 1982). Goal setting is an effective way to direct employees to coordinate their efforts towards achieving the organization's goals.

Employee Reactions to the Process

In a survey of public sector employees, 50% thought the performance standards being used for performance appraisal

were not clear, and that the appraisal was not administered fairly and accurately (Kruger, 1985). Steele (cited in Kruger, 1985) states that a properly executed performance appraisal increases employee satisfaction with his/her company and manager.

Employees often complain about the share of praise they receive and the amount of information they are given about their job performance (Renwick & Lawler, 1978). Many of those surveyed by Renwick et al. (1978) felt that getting ahead in an organization depends more on whom one knows than on job performance, although this attitude was felt most strongly by people who were dissatisfied with their jobs. Winsor (1984) found that negative evaluations promote defensive behaviours such as ego-protecting responses and not listening.

Several studies have shown that if the employee is allowed to voice his/her opinions freely in the appraisal interview, there is more likely to be a feeling that the supervisor is helpful and constructive (Burke et al., 1978; Burke et al., 1969).

Kenkel (1981) feels that if employees disagree about their evaluation, it may be due to the fact that they have information of which the supervisor is unaware. If both parties have access to all available information, it is more likely that their impressions will be similar. One solution might be to give employees read-only access to the database

where the manager is recording critical incidents throughout the year, or to provide feedback throughout the year.

Performance-to-date charts can be given to employees on a quarterly basis, indicating how close they are to achieving their year-end objectives. The system proposed by Swan et al. (1991) would eliminate, or at least reduce the problem by encouraging employees to give the manager relevant information during the year and also complete a self-evaluation prior to receiving the supervisor's rating.

Diagrams Summarizing Common Problem Areas

Data flow diagrams (DFDs) are used in systems analysis to depict the flow of data, storage of data, and the processes that respond to and change data in a system. They are not flowcharts, as they do not explicitly show control of flow through a system, and the processes depicted are not necessarily shown in sequence (Whitten et al., 1989).

Figures 5 and 6 show physical data flow diagrams to depict how performance factors are sometimes derived, and a "worst case scenario" of existing performance appraisal systems, respectively. In the design section of this thesis, these DFDs have been redesigned and re drawn to reflect the new computerized system. I have chosen to use the DeMarco-Yourdon symbol set in the construction of the DFDs, as outlined in Whitten et al. (1989).

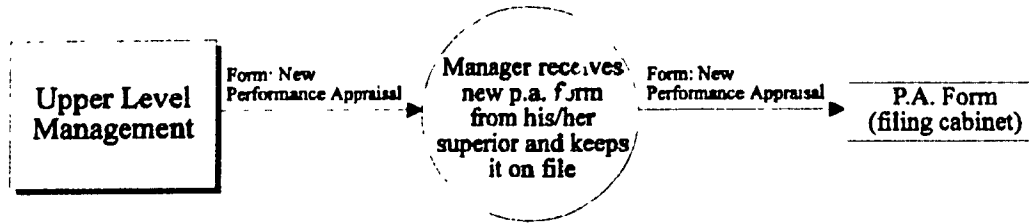


Figure 5. Data Flow Diagram Depicting Poor Performance Appraisal Form Design

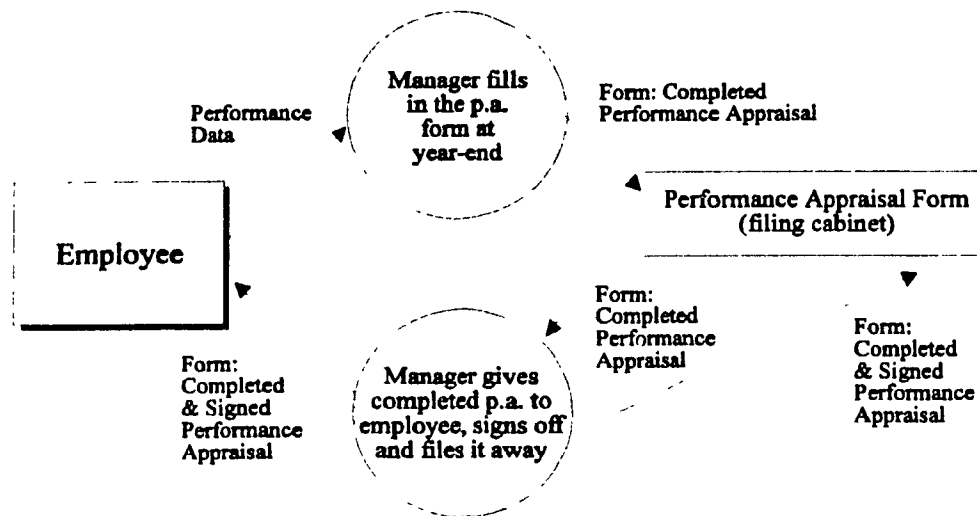


Figure 6 Data Flow Diagram Depicting the File and Forget Method of Appraisal

These DFDs reflect a performance appraisal system with many of the problems identified in current performance appraisal practice. The weak areas are as follows:

- lack of feedback to the employee during the year
- failure to record critical incidents over the year
- non-integration of the performance appraisal into the overall performance management system
- little discussion of the results with the employee
- lack of input from the employee and the manager on design of the form

- failure to use the results from the performance appraisal -- simply filed away and forgotten
- no interface with the performance appraisal system and other areas within the organization

Methods of Evaluating Performance

Swan et al. (1991) present an overview of seven commonly used performance appraisal methods. No single method serves all purposes, each having its own strengths and weaknesses. A combination of methods may prove to be the most valuable.

Global Essays. The manager writes an essay describing overall performance of an individual for the past year. The accuracy and fairness of this technique is questionable.

Trait Rating. Personality traits such as problem solving, team work, and creativity are rated. The traits tend not to be job-relevant, and are often a poor tool for employee development. Trait rating is most useful if specific job-relevant traits are evaluated.

Peer Ranking. Managers rank their employees with respect to other employees. This is useful if combined with another method to explain why and how one employee is better or worse than another. This technique reduces central tendency by forcing the manager to differentiate scores among his/her subordinates.

Organizational Records. This method is based entirely on hard facts, for example production rates, sales figures, and amount of waste. Unfortunately, these facts are not

always available and in any team effort it is difficult to measure individual contributions. Also it is not a useful method for providing feedback.

Critical Incidents. Applying the critical incident method places a great deal of emphasis on observation and documentation. The difficulty lies in classifying the incidents and determining what they imply. Recording critical incidents is useful as supporting evidence for other methods.

Behaviorally Anchored Rating Scales. An elaborate and scientific technique, BARS are expensive to develop. A rigorous analysis of each job produces job-relevant scales for each performance dimension. To use BARS effectively, it is necessary to collect a great deal of data and give training in their proper use.

Objectives and goal-setting. Management by objectives is a method strong in the areas that are weak in the BARS and trait rating methods. They are objective, flexible, job-relevant, and feedback-oriented.

Choice of Methods for the Computerized System

Winsor (1984) feels that performance on the job is most appropriate for evaluation, although personality and non-task behaviours can still be included, with lesser importance given to them. Rothaus, Morton, and Hanson (1965) have shown in several of their studies that a discussion of personality and mannerisms, rather than job-

related behaviour, results in significantly less satisfaction for both the supervisor and the subordinate, and reduced motivation to improve performance. Banks et al. (1985) recommend focusing on behaviours affecting performance rather than personality characteristics.

The choice of a measurement method depends on the purpose. Since most organizations want performance appraisal to satisfy multiple purposes, multiple measures would seem to provide the most effective system. The system designed for this project incorporates a combination of:

- goal setting
- recording critical incidents
- organizational records
- trait rating
- BARS

There is also an emphasis on employee input and self-evaluation, to promote a feeling of ownership, and commitment to the process. This combination of methods is very similar to the system proposed by Swan et al. (1991) as shown in Figure 7.

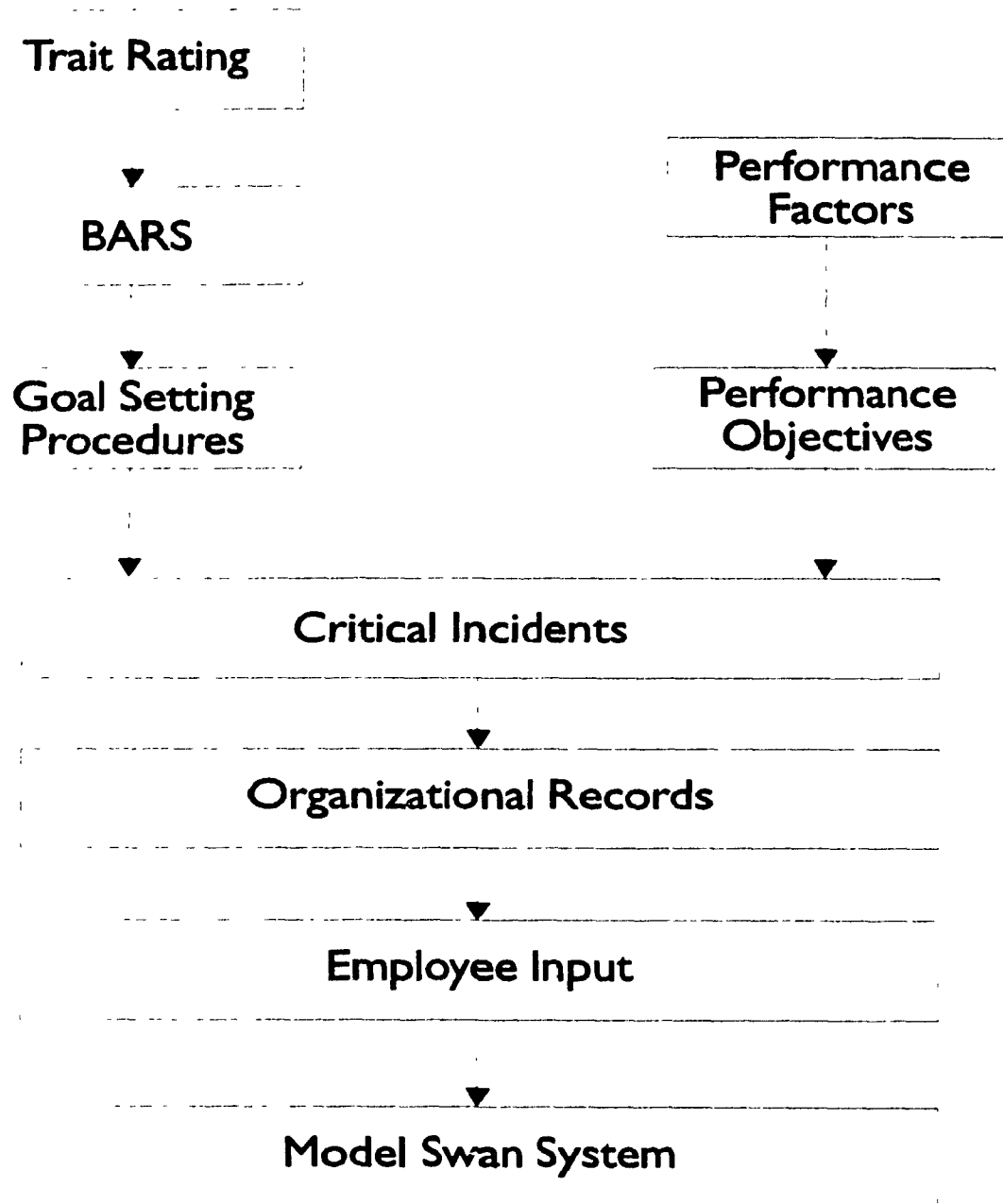


Figure 7. Contribution of Techniques to the Swan Program

Advantages of Computerizing Performance Appraisal

The P.I.E.C.E.S. framework, developed by James Wetherbe (cited in Whitten et al., 1989), is useful for classifying problems, opportunities, and directives within a system into the categories of:

- Performance
- Information and Data
- Economics
- Control and Security
- Efficiency
- Service

Table 2 summarizes the problems, opportunities, and directives identified in existing performance appraisal systems that can be tackled through the use of a computerized system.

There are several benefits to computerizing the performance appraisal system. One of the computer's strongest features is its ability, given the appropriate software, to quickly transform meaningless data into useful information (Adams, 1993). Adams (1993), and Stern and Stern (1990) give these five key criteria for ensuring that information is useful: accuracy, timeliness, completeness, conciseness, and relevance. The computer is very efficient at "looking up" information.

<p style="text-align: center;"><i>The P.I.E.C.E.S. Framework</i></p> <p style="text-align: center;"><i>To Analyze Problems, Opportunities & Directives</i></p> <p style="text-align: center;"><i>in Existing Performance Appraisal Systems</i></p>		
<i>P</i>	The need to improve Performance	<ul style="list-style-type: none"> - delay between request for information and response is too long in a manual system (eg: identify best candidate for a promotion)
<i>I</i>	The need to improve Information & data	<ul style="list-style-type: none"> - information is not presented in a useful form (graphs, trends, comparisons) - information is not timely and concise - data is not easily accessible - weighted score not used because it is tedious to calculate manually
<i>E</i>	The need to improve Economics	<ul style="list-style-type: none"> - improved use of p.a. will allow the organization to realize more fully its objectives, and become more profitable
<i>C</i>	The need to improve Controls & security	<ul style="list-style-type: none"> - decision-making errors are occurring (eg: all employees rated around the middle and then given the same raise) - system is deviating from planned performance
<i>E</i>	The need to improve Efficiency	<ul style="list-style-type: none"> - same data input redundantly by different departments (eg: payroll, training) - inefficient systems for recording critical incidents
<i>S</i>	The need to improve Service	<ul style="list-style-type: none"> - inconsistent, inaccurate, and unreliable results - not interfaced with other information systems in the organization

Table 2. The P.I.E.C.E.S Framework

The end-users of the computerized system can quickly generate a number of reports each based on a user-specified combination of skill areas. Graphs and charts can transform pages of data into concise, decision-making information. The immediacy of this feedback improves the quality of the decision. Computer errors commonly occur in the data entry phase. The end-users of the computerized system will fill out the forms directly on the computer, thus minimizing the likelihood of data entry error.

In order to evaluate performance accurately, the supervisor must have information and documentation to support the evaluation (Sample, 1986; Schneier et al., 1986b; Swan et al., 1991). Many authors (Kellogg, 1965; Sample, 1986; Schneier et al., 1986b; Swan et al., 1991) advise recording critical incidents (both positive and negative) on a regular basis. Levinson (1979) advises gathering information from different sources -- peers, the employee, supervisor (line and perhaps second line), and work logs. This minimizes an appraisal based on opinions, focusing instead on documented facts. The proposed performance appraisal system will have a component to record and organize critical incidents soon after they occur, providing more data when it comes time to conduct the summative performance appraisal interview. According to Banks et al. (1985) the goal should be to increase the use of valid input data in appraisal decisions.

Many authors confirm the need to prioritize and weight objectives and appraisal items (Raia, 1974; Sashkin, 1986; Schneier et al., 1986b; Swan et al., 1991). A weighted score is difficult to calculate in a manual performance appraisal system. Frequently a "ball park" figure is arrived at, often with little numerical relationship to the individual item scores. A computer can easily apply an assigned weighting to arrive at a more meaningful final score. Once the results are on the computer, the information flow in the whole organization can be improved. The performance data will be accessible to other departments (provided they have proper authorization). This will reduce inputting of data redundantly in other information systems, thereby reducing data inconsistencies.

CHAPTER THREE

Description of the System

I have chosen to computerize a manual form developed by human resource experts Richard Kemerer and Associates (see Appendix A), as it closely matches the system proposed by Swan et al. (1991). This computerized form (complete with a sampling of performance items) is the prototype used for evaluation and improvement of the computerized system.

The Manual Performance Appraisal System

The manual performance appraisal form is currently being used at the managerial level to evaluate the position of **Manager** in a large insurance company, which includes approximately 120 employees (agency managers, branch managers, associate managers, assistant managers, and manager trainees). So as not to confuse the manager being appraised with the supervisor performing the evaluation, the manager being appraised will henceforth be referred to as the employee.

Many authors (Blai, 1983; Burke et al., 1969; Schneier et al., 1986a; Stroul, 1987; Swan et al., 1991; Winsor, 1984) recommend integrating performance appraisal into the larger system of performance management. Performance appraisal is one of three management components in the organization used for the prototype. The three components of their performance management system are:

- Job Profile
used to structure employee expectations
- Needs Assessment
used to identify individual learning needs
- Performance Appraisal
used to assess performance, and encourage accountability

Job Profile

The job profile is intended to provide employees with a thorough analysis of their job requirements. Schneier et al. (1986b) state that a complete job analysis provides a basis for determining performance measures (i.e. items for the appraisal form). The job analysis defines the skills required for successful performance and provides the framework for developing required training for both new and existing employees. Other employees interested in a promotion to the position can identify skills required and the areas that they need to develop. Current employees in the position can identify the specific skills included in each of their major job accountabilities and the expected performance.

Six key result areas (KRAs) were identified for the manager job profile by Richard Kemerer and Associates, in consultation with the Human Resource department in the organization (see Figure 8).

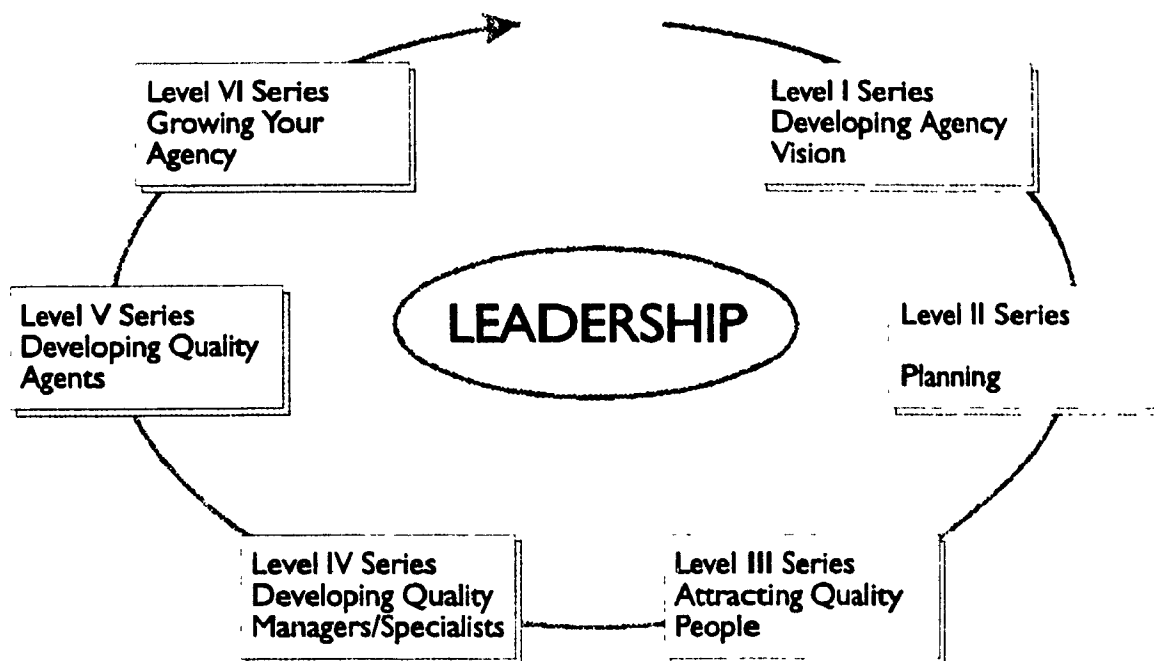


Figure 8. Manager's Key Result Areas

These six KRAs were also used to define performance areas for the appraisal form, under the heading: Skills Assessment (Professional). Each of these six KRAs was then broken down into smaller tasks. The employees involved, along with the Human Resource department, validated the accuracy of the task analysis. As an example, the task analysis for the fourth KRA (Developing Quality Managers/Specialists) is shown in Figure 9. This task analysis is used in the performance appraisal form to describe each KRA in greater detail, giving both supervisor and employee a clear idea of what each KRA involves.

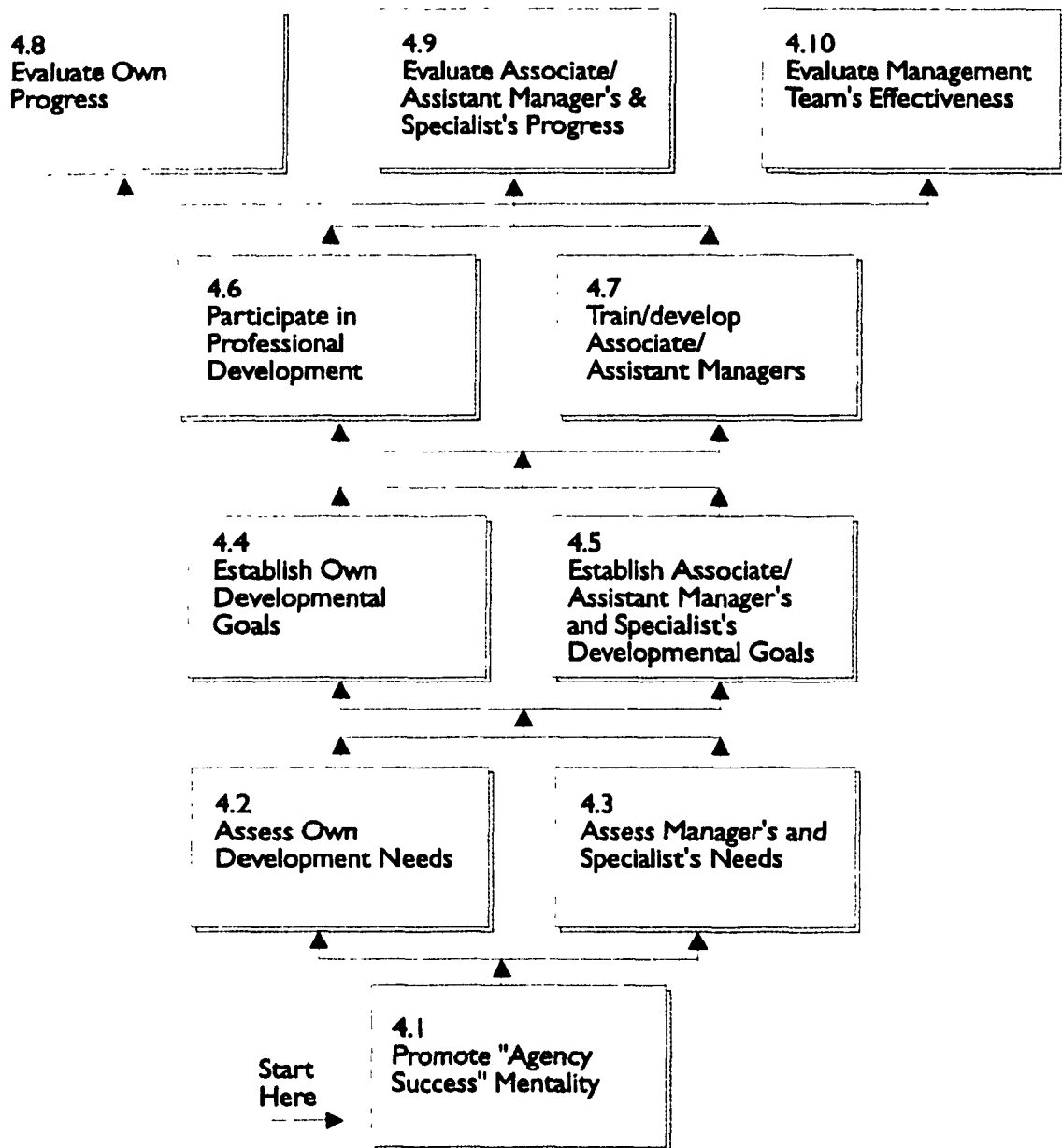


Figure 9. Task Analysis: Developing Quality Managers/Specialists

Needs Assessment

For the second component of the performance management system, Richard Kemerer and Associates conducted a needs assessment to identify training needs and to align employees' expectations with those of their supervisor. The questions were grouped in the same sequence as the task analysis in the job profile. For each task in their job profile, employees:

- rated the relative importance of the task to successful job performance (on a scale from 1 to 7), and
- rated their need for development on this task (on a scale from 1 to 7).

This information was used to establish developmental needs and possibly to correct employees' conceptions of the relative importance of particular tasks in their job profile (if out-of-line with that of their supervisor).

Performance Appraisal

The existing manual performance appraisal system is used on an annual basis. The front page of the form contains employee demographics and descriptions for six areas in which to set objectives. At the beginning of the year, the supervisor and the employee fill in this page, defining measurable objectives for the coming year. The appraisal is not used again until the end of the year, when the employee fills out his/her results achieved for each objective set at the beginning of the year. The employee also scores his/her

performance on a 7-point scale for each of the six key result areas and for each of the eight organization-wide personal skills, with a comment for each. The supervisor uses the employee self-evaluation as a coaching tool, to generate discussion on areas needing improvement. After discussing the self-evaluation, the supervisor finalizes the scores, assigns an overall score, and writes the development plan for the coming year. These results are discussed at another meeting, where the objective-setting for the next year is carried out.

The Computerized Performance Appraisal System

The computerized system can only be developed and implemented effectively if a thorough job analysis has been done and a job profile for the performance appraisal created by the organization.

Recommended Process to Determine Key Result Areas

Figure 10 shows a data flow diagram depicting the process the designer of this computerized system recommends when developing key result areas for the appraisal form covering a particular job family. Note that upper management consults with all concerned parties and then finalizes performance factors for the appraisal form (compare this process to the old process shown in Figure 5).

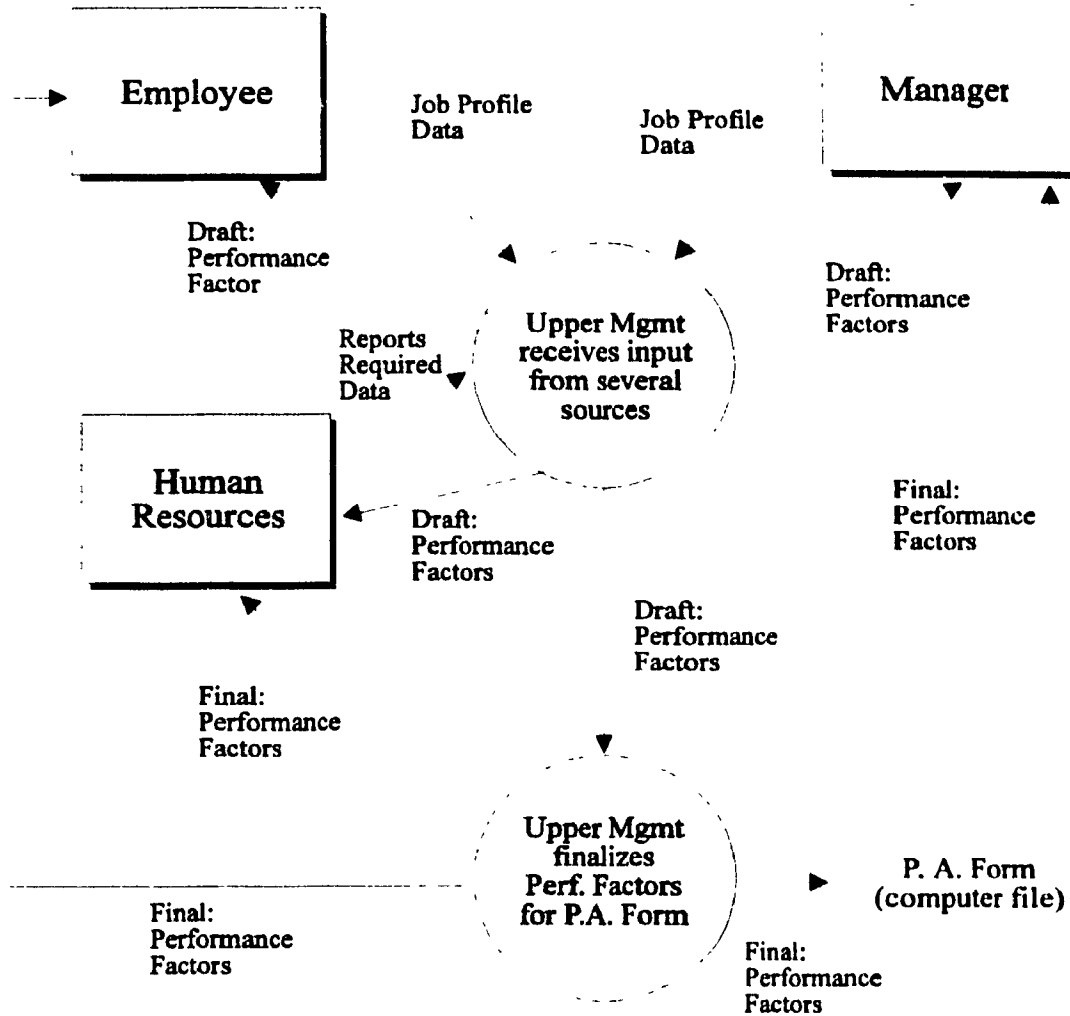


Figure 10. Data Flow Diagram Depicting Ideal Performance Appraisal Form Design

Physical Differences from the Manual System

The 7-point scale on the manual performance appraisal form has been changed to a 5-point scale. Swan (1991) suggests that a 7-point scale indicates a precision of measurement that may not really exist. The items on the original have been reclassified as follows:

- 1) performance objectives
- 2) performance factors
 - a) professional
 - b) leadership

A weighting factor has been added for each item to account for the relative importance of each task in the employee's overall score. The performance factors on this computerized form can be modified (by the designer) to suit the needs of a different position being evaluated, when identified and validated by the new end-user.

Logistical Differences with the Computerized System

One of the key differences in the computerized system, is the integration of the appraisal process into the year-long management cycle. This is accomplished by using the system to record critical incidents on a regular basis, and by providing quarterly feedback reports. Unlike the manual system, the ease of reformulating objectives in the computerized system promotes reassessment of priorities whenever special needs arise.

Figures 11, 11a, 11b, and 11c show levelled data flow diagrams of the process for integrating the new performance appraisal system. Note that the new system has a greater volume of information/data flowing in and out than the scenario depicted for the old system in Figure 6, and that the results are now being used to make administrative decisions. The appraisal system is used here to:

Process 1.0) plan expected results with staff

Process 2.0) monitor performance throughout the year

Process 3.0) reward staff based on performance

as discussed in the statement of the problem in chapter one.

Data Flow Diagram Process 1.0. The manager and employee plan results for the coming year. This includes:

1.1) setting objectives and choosing weights

1.2) reviewing performance factors, appraisal criteria, and choosing weights

Data Flow Diagram Process 2.0. The manager monitors employee progress. This involves:

2.1) recording critical incidents as they occur

2.2) reviewing employee self-evaluations and performing quarterly reviews.

Upper management may query the database at any time.

Data Flow Diagram Process 3.0. The manager rewards employee performance. This includes:

3.1) reviewing year-end self-evaluation

3.2) performing year-end review and getting approval from superior

3.3) reviewing results with employee and signing off

3.4) setting up development plan for coming year

The information generated at year-end is used to assist with promotions/demotions and salary level decisions, to make development and training plans, and to provide feedback to the employee.

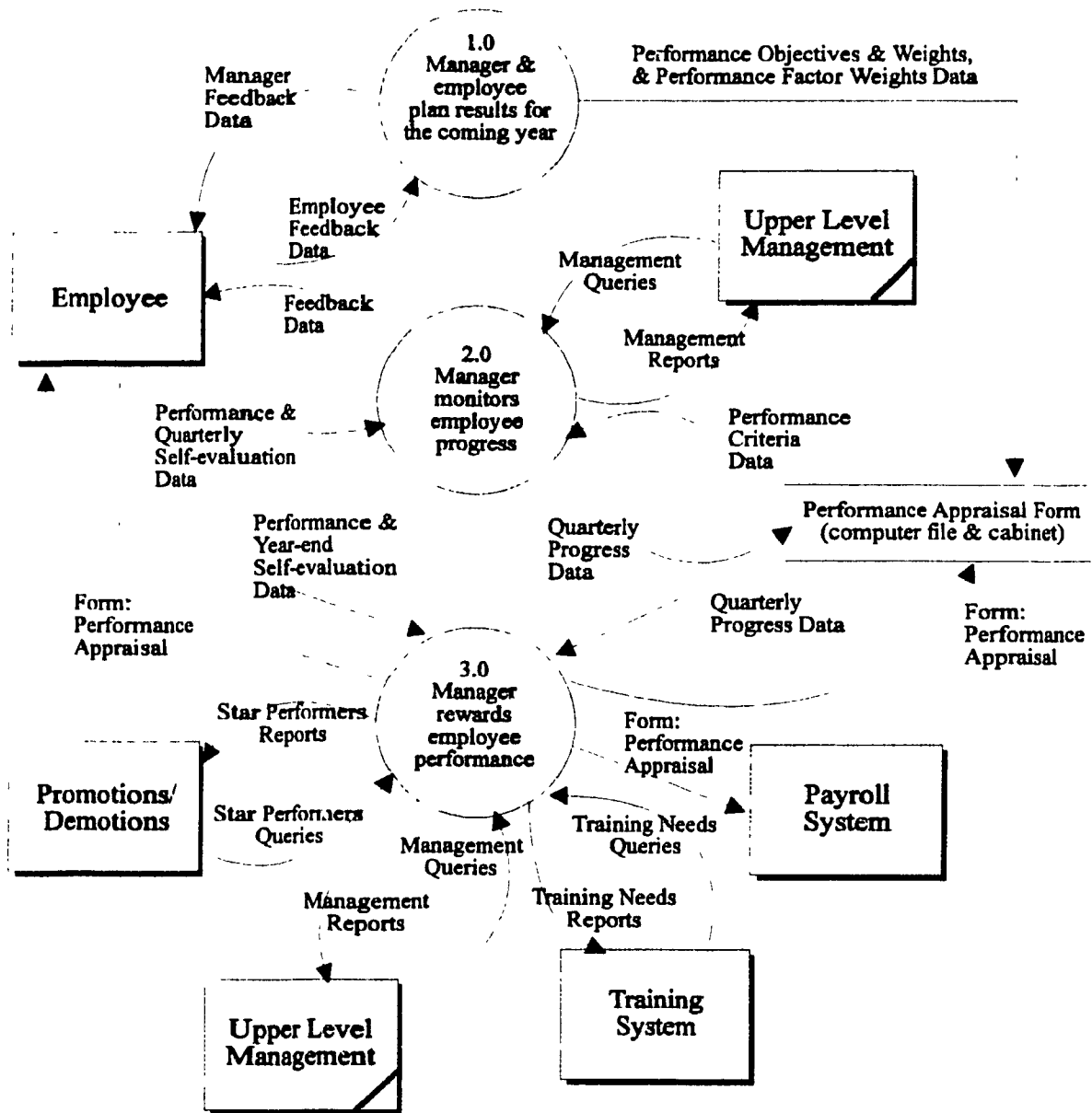


Figure 11. Data Flow Diagram of the new Performance Appraisal System (Level 0)

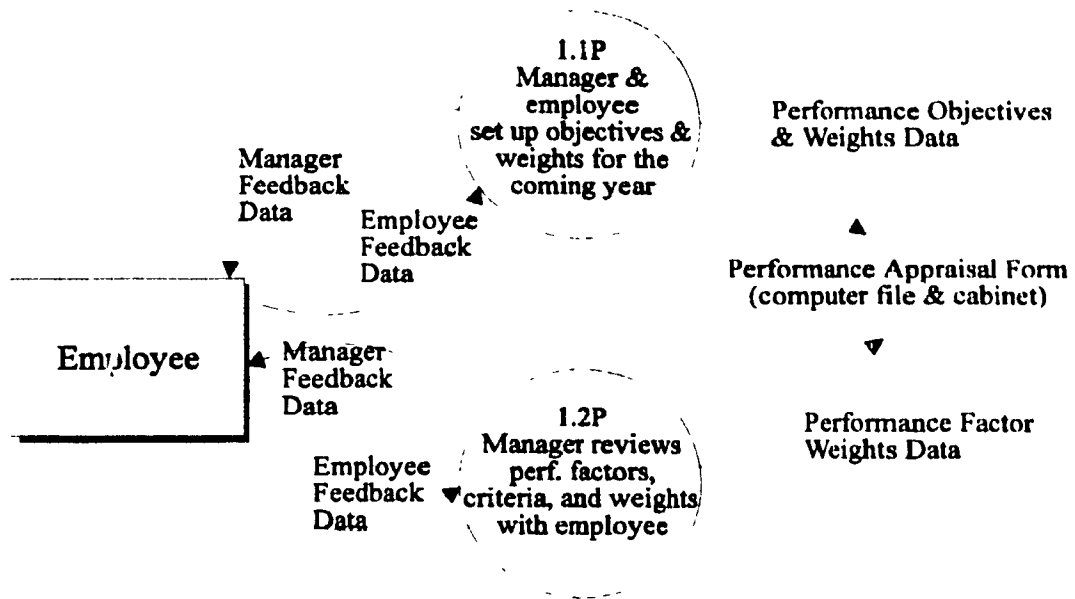


Figure 11a. Process 1.0 Exploded

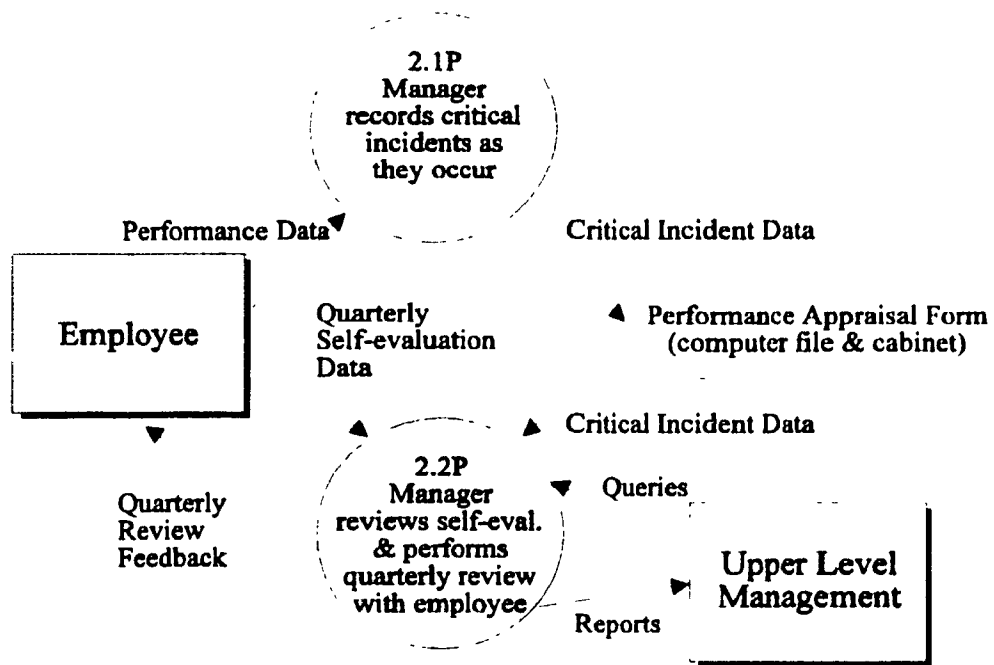


Figure 11b. Process 2.0 Exploded

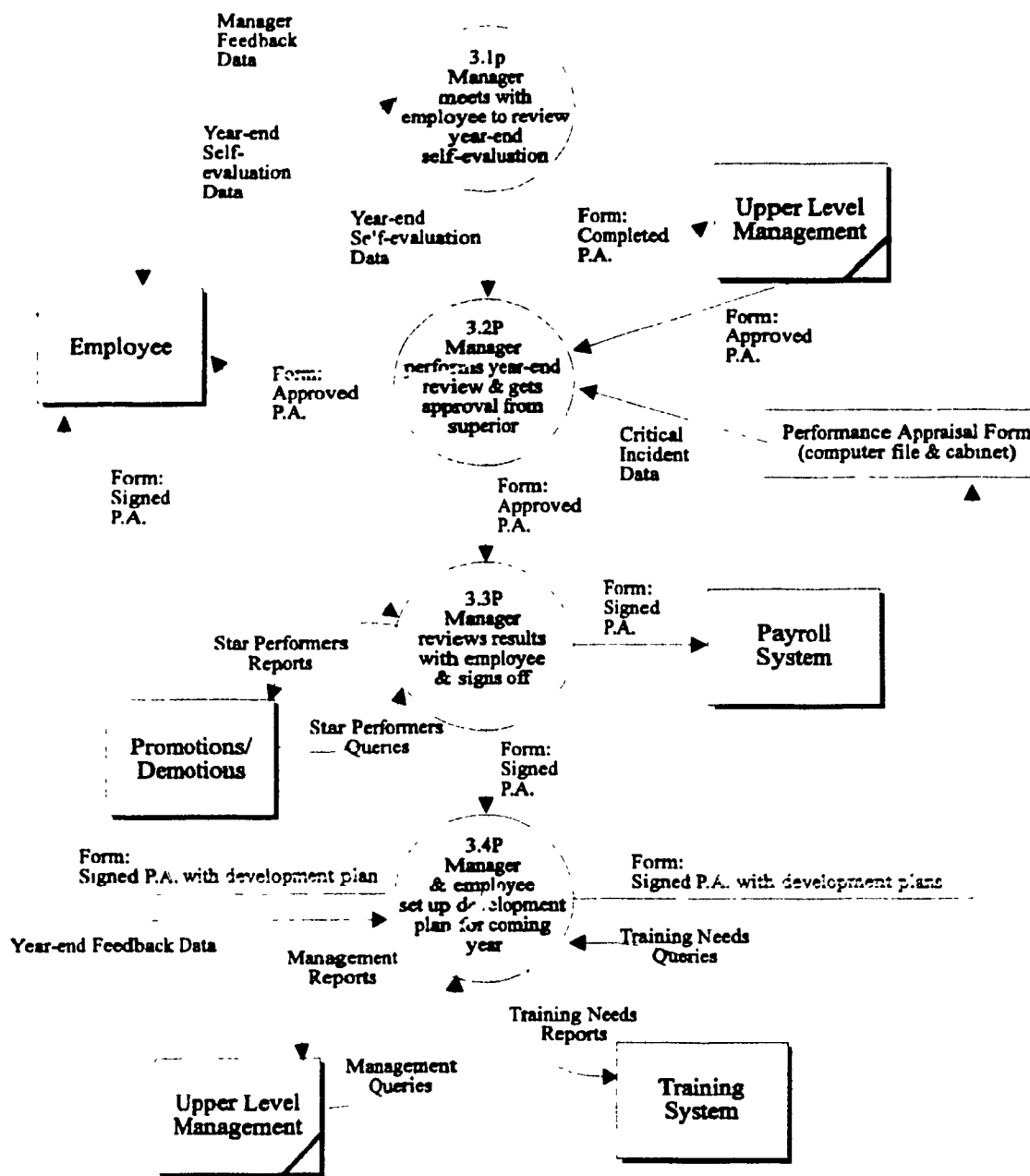


Figure 11c. Process 3.0 Exploded

Components of the Computerized System

The computerized performance appraisal is a three level system consisting of:

- data entry
- report generation
- queries

Level I - Data Entry

Employee Demographics. Demographic data is entered for each new employee (see Table 3). This information can be modified or deleted as necessary.

Name:	Employee Number:
Division:	Region:
Date started in Position:	Supervisor Number:

Table 3. Demographic Information

Performance Objectives. At the beginning of each year the supervisor and the employee define performance objectives for the year in measurable terms. This establishes a set of expectations clearly understood by both parties -- a crucial step in effective performance appraisal (Blai, 1983; Levinson, 1979; Sashkin, 1981; Schneier et al., 1986b; Swan et al., 1991; Winsor, 1984). The performance

objectives are formed by choosing standard items from four lists (an action verb, a result with a measurement, a deadline, and a standard). Samples from each of the four lists are shown in Appendix B. It is estimated that 5 to 10 objectives will be entered, and that these will be changed whenever appropriate.

Weights. The desired knowledge, skills, and abilities identified in the job profile make up the performance factors on the appraisal form. Once these factors are established for a particular job family (through the process discussed earlier), they will remain fairly stable over time. The supervisor does not alter these items, but may wish to prioritize them.

Weights can be chosen for the objectives and the performance factors by the supervisor if desired. These weights allow the employee to focus on priority tasks and ensure that the overall score calculated for each employee reflects these priorities.

Critical Incidents. A computerized notepad is attached to each performance factor to record critical incidents (both positive and negative). The supervisor is encouraged to use this notepad whenever critical incidents occur and the employee is encouraged to use his/her copy in the same way, recording his/her version of events over the year. The critical incidents are automatically organized by performance factor and quarter. The strategy behind this is

that when it comes time to score the individual performance factors, a review of incidents relating to the specific factor and quarter will assist in overcoming some of the typical rating errors (recent behaviour, initial behaviour, and central tendency). Previous incidents can be viewed and updated as necessary.

Quarterly Review. At the end of the review period each employee will complete a self-evaluation and print the results to be discussed with his/her supervisor. This is a practice recommended by Swan et al. (1991) and Winsor (1984). After this discussion, the supervisor will proceed with his/her evaluation taking into account:

- the employee's self-evaluation data
- the quarterly evaluation data
- critical incidents recorded over the review period

There are four entries for each performance objective and each factor, to allow the supervisor to assign a score on a quarterly basis. A help screen is available for each performance factor, allowing review of the task analysis and/or examples of an ideal employee, as suggested by Beaulieu (1980). The critical incidents will be previewed before a score is entered for each performance factor.

Summary Comment. After previewing the critical incidents a summary comment, including the development plan for the coming period, is composed by the supervisor and added to the quarterly review.

Level II - Report Generation

The system is designed to print quarterly feedback reports **for the employee**, as well as quarterly updates **from the employee** with any relevant information for the supervisor. Of course, these will only be meaningful if those involved have been entering data on a regular basis. Effective and regular feedback provides employees with stimulation and opportunity to improve substandard performance (Blai, 1983). The system can generate reports at any time, on demand.

Quarterly Reports.

Samples of each quarterly report are shown in Appendix C.

1) Goals for the Review Period: Immediately after adding employee demographics, objectives, and weights, an unscored appraisal form, with the specified objectives, performance factors, and weights, can be generated for reference during the review period.

2) Individual Profile: After all the data entry has been completed for a review period, a four-page individual profile can be generated. This profile consists of:

Page 1) demographic information and chosen objectives, with a score for each, the assigned weight, and the overall score for objectives.

Page 2) performance factors (professional and leadership), with a score for each, the assigned weight, and an overall score for performance factors.

Page 3) a bar graph depicting the scores achieved for each performance factor compared to the goal. To account for weighting, the bars are drawn to show:

- goal = chosen weight x maximum score (5)
- results = chosen weight x actual score

Page 4) a list of performance factors which rated below a score of 3 (i.e. below "met the standard"). This information will be used to:

- prepare the development plan
- identify training needs
- develop the performance objectives

Year-End Reports.

A sample of each year-end report is found in Appendix D.

1) Individual Profile: The employee is given complete performance details throughout the year with quarterly profiles. The year-end profile is intended to summarize the year's performance. The quarterly scores for an individual are averaged into one grand overall score. The year-end comment (including development plans for the year to come) is included. A graph showing the distribution of scores in the employee's region is attached to allow comparison with colleagues. The year-end profile concludes the performance appraisal cycle and is used to roll the performance appraisal into the goal-setting for the new year.

2) Group Profile: The overall scores for all employees in the organization are compiled, and a distribution of

scores printed, for each region. These graphs allow a visual comparison of the distribution of scores across the regions and quickly illustrate skewness (either positive or negative) and whether the distribution is bimodal. Upper management can use these graphs to determine if the raters in different regions are using consistent criteria for evaluation. The group profile will also be used to assist in salary decisions. Included in the group profile is a graph which shows the average score obtained for each performance factor. This graph allows upper management to determine weak areas in a particular region, or across the organization.

3) Training Report: The training report itemizes each performance factor along with a list of employees performing below expectations. This report can be used to plan training programs for the coming year.

4) Payroll Report: The payroll report is generated to assist in salary level, and other administrative decisions. Employees are ranked based on their year-end overall score.

Level III - Queries

A menu-driven system is in place to allow the supervisors and their superiors to query the data at any time. This feature helps move the performance appraisal outside the yearly activity category, and into one of on-going activity, eliminating one of the reasons for performance appraisal failure identified by Schneier et al.

(1986b). The supervisors will have access to their own employee evaluations, and the next level up in the organizational hierarchy will have access to all the evaluations. The data is confidential and will not be accessible to any other employees.

The supervisors may use the performance data to make organizational decisions. They may combine any *subset* of the performance factors to determine "Star Performers" or "Developmental Needs" (see Appendix E). The advantage of this capability is that the focus can be on exactly the mix of skill(s) required for the new task. The results of the query may be used to assist in a decision to promote or demote a manager. Of course, information from other sources would also be used in a decision of this nature. The results could be used to identify a manager to carry out peer training. This section is fairly open-ended, allowing new queries to be added by the designer when identified by the end-users.

Database Design

The databases illustrated over the next few pages were normalized to the third normal form, to reduce any redundancies in the data (Whitten et al., 1989). The key field is shown with an underline (note that some keys are made up of multiple fields).

Employee Demographics: EMP_DMOG

FIELD NAME	FIELD TYPE	WIDTH
<u>EMP_ID</u>	Character	6
LAST_NAME	Character	15
FIRST_NAME	Character	15
DIVISION	Character	10
DATE_START	Date	8
SUPER_ID	Character	6

Employee Performance Factors: EMP_PF

FIELD NAME	FIELD TYPE	WIDTH
<u>EMP_ID</u>	Character	6
<u>PF_NUM</u>	Numeric	2
<u>QUARTER</u>	Numeric	1
<u>YEAR</u>	Numeric	2
SCORE	Numeric	1
WEIGHT	Numeric	1

Descriptions of the Performance Factors: P_FACTOR

FIELD NAME	FIELD TYPE	WIDTH
<u>PF_NUM</u>	Numeric	2
DESCRIP1	Character	30
DESCRIP2	Memo	10

Employee Objectives: EMP OBJE

FIELD NAME	FIELD TYPE	WIDTH
<u>EMP ID</u>	Character	6
<u>OBJ NO</u>	Numeric	2
<u>QUARTER</u>	Numeric	1
<u>YEAR</u>	Numeric	2
OBJECTIVE	Character	72
SCORE	Numeric	1
WEIGHT	Numeric	1

List of Verbs for Objectives: VERB

FIELD NAME	FIELD TYPE	WIDTH
<u>VERBS</u>	Character	11

List of Results for Objectives: RESULT

FIELD NAME	FIELD TYPE	WIDTH
<u>RESULTS</u>	Character	15

List of Deadlines for Objectives: BY WHEN

FIELD NAME	FIELD TYPE	WIDTH
<u>BY WHEN</u>	Character	14

List of Standards for Objectives: STANDARD

FIELD NAME	FIELD TYPE	WIDTH
<u>STANDARD</u>	Character	25

Employee Critical Incidents: INCIDENT

FIELD NAME	FIELD TYPE	WIDTH
<u>EMP_ID</u>	Character	6
<u>PF_NUM</u>	Numeric	2
<u>QUARTER</u>	Numeric	1
<u>YEAR</u>	Numeric	2
COMMENT	Memo	10

To show the relationships among the data entities, an entity relationship diagram is shown in Figure 12. The Chen symbol set has been used in the diagram as described in Whitten et al. (1989). The diagram shows the associations between entities, and the number of occurrences of one entity that can exist for a single occurrence of the related entity and vice versa. There are three general possibilities for the associations:

- One-to-one (1:1) - for one occurrence of the first entity there can exist only one related occurrence of the second entity and vice versa (example: each performance factor is described by one and only one description).
- One-to-many (1:M or M:1) - for one occurrence of one entity there can exist many related occurrences of a second entity; it doesn't matter which is first or second (example: an objective is made up of only one verb, but the same verb may be in several objectives).

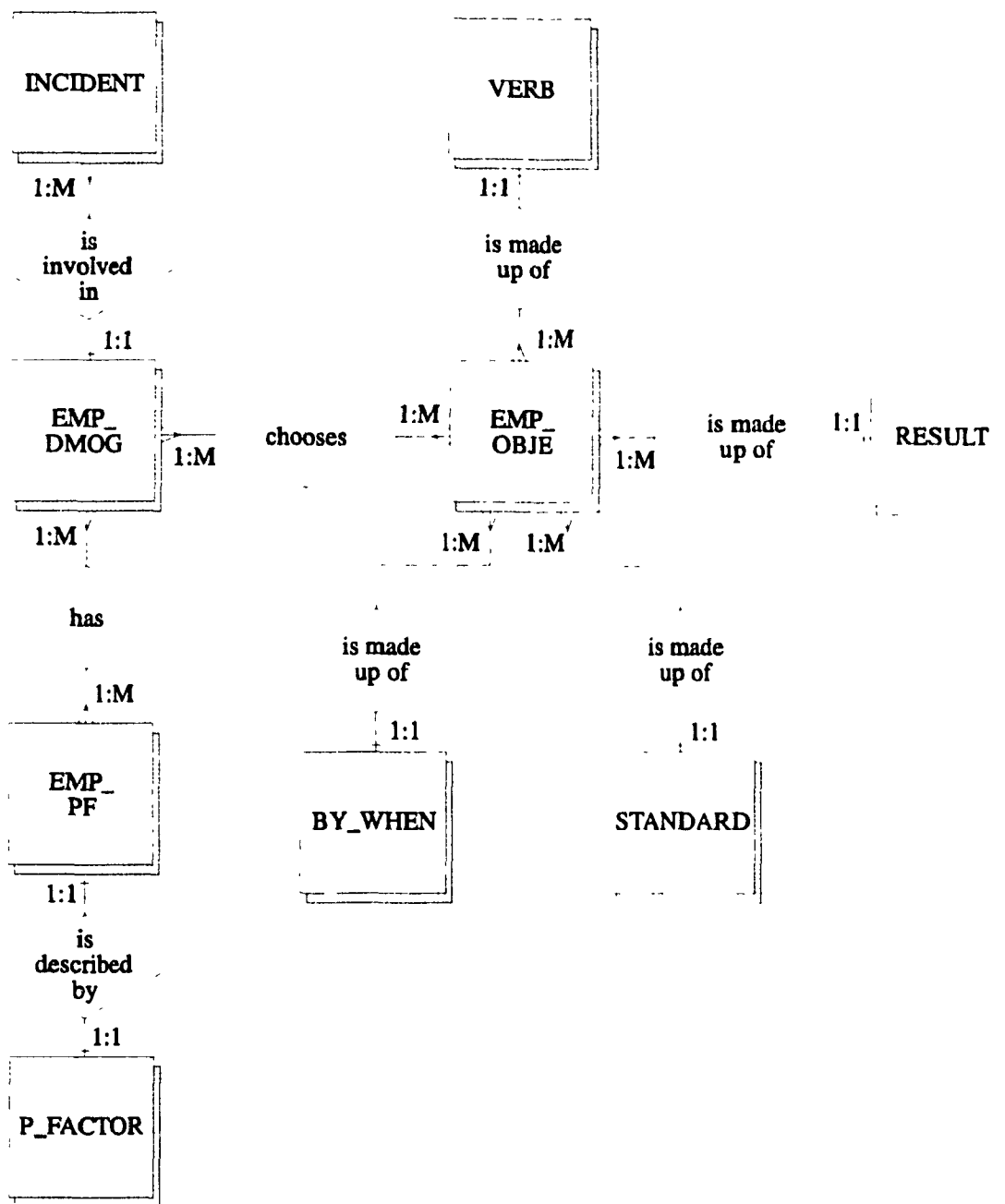


Figure 12. Entity Relationship Diagram

- Many-to-many (M:M) - for one occurrence of the first entity, there can exist many related occurrences of the second, and for one occurrence of the second entity there can exist many occurrences of the first (example: each employee has many performance factors, and one performance factor reoccurs for many employees).

Menu Design

Menus are the primary means of presenting choices to the user. They can simplify learning to use the program, if designed logically. "The best menus are those that seem to melt away, enabling users to forget that a program mediates between mind and matter." (Carr, 1987, p. 281). The menus in the performance appraisal system were designed using most of the design principles in an article by R. Carr (1987):

- use a combination of horizontal and vertical menus to make maximum use of screen space
- place the horizontal menu at the top of the screen (rather than the bottom) to greet the user at eye level
- restrict menus to 4-10 options
- use submenus when a set of options logically belongs under a command in a higher-level menu
- list the more frequently used options at the top of a vertical menu and at the left edge of a horizontal menu
- keep options concise and to the point
- capitalize only the first letter of the option

- mark options that contain submenus with an arrowhead or other appropriate indicator
- allow vertical and lateral movement among options
- use a wraparound from the last option around to the first option in the menu
- use an escape key consistently
- if possible, allow the user to select an option by typing the first letter of the option, as an alternative to physically moving to the option

User's Manual

A user's manual was developed to make the transition to a computerized system as smooth as possible (see Appendix K). The manual is a step-by-step guide organized as follows:

- Overview of the Program
- Level I Data Entry
- Level II Report Generation
- Level III Queries
- Appendices (samples of objectives, reports, and queries)

CHAPTER FOUR

Evaluation of the System

Evaluation is conducted to assess the merit and worth of a product. Formative evaluation is conducted during the developmental phase of a project; summative evaluation is conducted when the project functions well and can be compared to alternatives (McMillan & Schumacher, 1984).

Since the computerized system has not yet been implemented and is still in the developmental phase, the purpose of evaluation was to gather data for possible revisions and improvement of the prototype, and to better define the users' requirements. A modified version of Dick and Carey's formative evaluation model for instructional material (1985) was followed. Since the performance appraisal system is an information system and not an instructional system some changes to the model were necessary. An important difference (considered when designing the evaluation model) was the lack of criterion-referenced tests. There was no learning to measure and therefore no hard data. The evaluation was based mostly on opinions and attitudes, measured through observation and questionnaires (as suggested in Kendall & Kendall, 1988). The stages of one-to-one and small-group evaluation were carried out. To perform a valid field trial the end-users would be required to use the prototype for a period of at

least six months (or possibly one year) before useful data could be gathered, and therefore not feasible.

Golas (1983) discusses special considerations when evaluating computerized materials. She recommends a scaled-down version of the Dick and Carey model, to compensate for the expense of reprogramming computer software. Her revised model uses three phases:

- one-to-one with at least one end-user and handwritten screen frames
- one-to-one with at least one end-user at the computer
- small-group with end-users at the computer (she defines three users as a sufficient sample size)

Hypothesis

The goal of the computerized performance appraisal system is to produce accurate, timely, complete, concise and relevant information with a minimum of negative reactions and apprehension. This information is produced to satisfy the three functions stated in McGregor (1987) and supported by others (Baird et al., 1982; Burke et al., 1969). These are:

- a basis for determining promotions and salary levels
- a framework for long-range personnel planning
- a device for training and coaching subordinates

The goals of the evaluation were threefold;
to evaluate:

- the analysis and design of the system

- effectiveness of the system in meeting the stated goals
- aspects of the computer program, such as:
 - ease of use
 - clarity of instructions and messages
 - consistency of keys used
 - design of menus
 - program speed
 - flexibility in the goal-setting model, and weighting
 - completeness of options in data entry, report generation, and queries

Selection of Evaluation Model

The first stages of evaluation with handwritten frames is similar in nature to the more modern technique of using a prototype (see section entitled *Prototyping* in *Chapter One* for a summary of the advantages of prototyping).

The following two stages of evaluation were performed:

- One-to-one (N=3)
 - questionnaire on problems with existing systems
 - demonstration and hands-on with the prototype
 - questionnaire on the potential use of the system to solve any/all problems identified
 - recommendations for improvement
- Small-group (N=9)
 - same as one-to-one but without designer intervention
 - questionnaire on the aspects of the computer program

Dick et al. (1985) define the small-group stage as one where a group of potential users assess the system in an approximate real-life setting. In education, this usually means a group of students using the system in a classroom environment, to test the use of the system with the normal flow of activity and noise-level. They also recommend testing of the system with a minimum of intervention from the designer (possibly not even using the designer to perform the evaluation). Progress can not be observed effectively in a small-group setting, so test scores are used to determine the success of the instruction.

The small-group stage is where modifications were appropriate in the evaluation of the performance appraisal system. The "real-life" use of the system would be a task normally carried out by a manager, alone in his/her office. The implications of this in the evaluation is that the small-group does not have to be tested as "a group", all at the same time. The evaluator has the unique advantage of closely observing participants at this stage. The real difference here between small-group and one-to-one evaluation then, is to allow the user to discover problem areas without interventions from the evaluator.

Participants

Three categories of participants were used to evaluate the computerized performance appraisal system. They are defined as:

- Human resource consultants (N=4) - experts in the design of performance appraisal systems. These consultants all had experience designing paper-based performance appraisal systems for large organizations (financial and life-insurance) and were treated as subject matter experts.
- Managers from various levels and departments in their organization (N=7) - the potential end-users/target population. All the managers chosen as subjects were involved in rating subordinates in their organization.
- Systems analyst (N=1) - an expert in the analysis and design of information systems. The systems analyst was a consultant and instructor in Systems Analysis and Design. The consultants and the systems analyst brought a wider range of experience than managers, having been exposed to a variety of performance appraisal systems in their practice.

Instrumentation

Items on the questionnaires were designed to test the effectiveness of the system at meeting the stated objectives. Some of Sashkin's ten heuristic guidelines for successful performance appraisal (1981) were used in constructing these items (only if computerization could potentially make a difference in the particular area). For example, the first heuristic "Are managers rewarded for developing their subordinates?" was an interesting item, but one would assume that a computerized system would not have

an effect either way on *extrinsic* manager rewards. There might be an *intrinsic* reward in the pure pleasure of using a computer, but this was considered an irrelevant issue in the evaluation and was subsequently not included. On the other hand, the tenth heuristic "Is information that is needed for administration actions accessible and effectively used?" was an appropriate item, since computerization could be very effective in this area.

Procedure

Phase I - Preliminary Information for Participants

All participants received a cover letter and an overview of the computerized system one week prior to their evaluation session (see Appendix F). The intention was to allow participants to preview the objectives of the proposed system, and to begin thinking about the ramifications of computerization. It was also felt that this would reduce the consultation time required with the designer.

Phase II - Effectiveness of the Existing System

Each evaluation began with a discussion of existing performance appraisal systems. Participants were asked to complete a questionnaire regarding the objectives of performance appraisal from their perspective and the effectiveness of their existing system (see Appendix G). For the consultants these questionnaires were reworded in such a way as to question the *average effectiveness* of the existing systems they had been exposed to in consulting.

Phase III - Demonstration of the Computerized System

It was felt that a system of this complexity could not be given to a new user without at least a short training session. To deal with this in the evaluation, all sessions included a designer-led demonstration of the computerized system. A colour laptop computer was brought to each of the sessions to allow demonstrations and/or hands-on with the program. Whenever possible, a larger monitor was attached to the laptop for easier viewing.

Data Entry. The demonstrations began with a discussion of the philosophy of the computerized system and the data entry capabilities of the system. The participant used the overview sent in the mail as a reference. The key points of this discussion were:

- the computerized system is a tool to integrate performance appraisal into the performance management cycle
- objectives can be chosen/reselected at any time
- performance objectives and factors can be weighted
- critical incidents can be recorded and are automatically organized by quarter and factor
- employee self-evaluation is encouraged
- the system is used on a quarterly basis for feedback discussions with the employee

Next a demonstration of the data entry options was performed to give each participant an idea of how the menus

and special features worked. Basically the steps necessary to simulate processing a new employee were carried out:

- existing employees in the database were "browsed"
- a new employee was added to the database
- objectives were chosen for the new employee (as many as necessary for the participant to feel comfortable with the objective-choosing component of the system)
- objectives and performance factors were weighted
- several critical incidents were recorded - using a couple of different performance factors in the first quarter (some more than once to allow demonstration of scrolling through previously entered incidents)
- a first quarter review was performed for the new employee
- a summary comment was added to the review

The participant was encouraged to interrupt at any time in the demonstration to ask questions and point out confusing instructions, or extra features that could be added to the system (see *Chapter Five* for a summary of these comments).

Report Generation. A discussion of the reporting capabilities of the system followed. An overview of the reporting procedures for quarterly vs. year-end was explained. Sample printouts of the reports were distributed for discussion (see Appendices C & D). Comments and suggestions were encouraged. A demonstration of the report

generation was performed. Again comments and suggestions were encouraged (see *Chapter Five* for the summary).

Queries. The last stage of the demonstration was a discussion and demonstration of the query capabilities of the system. Sample printouts of a "Star Performers" query and a "Developmental Needs" query were distributed (see Appendix E). *Chapter Five* contains a summary of suggestions regarding the query capabilities.

Phase IV - Effectiveness of the Computerized System

Each participant completed a questionnaire evaluating the potential effectiveness of the computerized system (see Appendix H) and another to describe his/her computer experience (see Appendix I). A discussion of the strengths and weaknesses of the computerized system followed. Procedures in the final half hour varied depending on the time available, and whether it was the one-to-one or small-group session.

One-to-One Evaluation

Participants. One subject from each evaluator category was interviewed (a human resource consultant, a manager, and the systems analyst) using the one-to-one format.

Evaluation Strategy. The purpose of these interviews was to identify the most obvious errors, to obtain initial reactions to the system, and to assess the potential use of the system. Since one-to-one is the stage where the program

was evaluated for the first time, it was anticipated that problems may arise in areas such as:

- unclear instructions
- missing features
- nonfunctioning program modules

The designer prepared a checklist of potential problem areas, so as to pay particular attention to the user at these points in the hands-on trial. At this stage in the systems design life cycle, it was important to identify (and resolve) any confusing areas of the program, as well as any missing features, so that the small-group evaluators could focus on the *effectiveness* (rather than the *functioning*) of the system.

The three participants were taken through Phase I-IV of the evaluation, and then asked to repeat the steps in the demonstration for their hands-on session. They were given instructions to add a second employee to the database, generate several reports, and perform a couple of queries, in order to assess the functioning of the system. The average time needed for a one-to-one session was two hours.

Small-Group Evaluation

Participants. Three human resource consultants and six managers completed the small-group evaluation.

Evaluation Strategy. Feedback received from the one-to-one evaluation was incorporated into the system before the small-group sessions were conducted. The participants were

given the same introductory discussion and questionnaires as the one-to-one participants. Since the demonstration used the revised and enhanced system, a more refined feedback was given, as well, less time was spent answering questions. This part of the evaluation took an hour and a half on average. Several participants could not spend more time, so the hands-on trial was conducted with the available five subjects. They each spent another half hour repeating the steps in the demonstration, with a minimum of designer intervention. To fully gauge their attitudes regarding the aspects of the computer program (details of these aspects are outlined earlier in the statement of the hypothesis), the last task was to complete an attitude questionnaire (see Appendix J).

CHAPTER FIVE

Results

Suggestions from One-to-One Evaluation

The first evaluator in the one-to-one sessions was a human resource consultant. His suggestions and the corresponding revisions are summarized in Table 4. The feedback was most useful in the revision of the program. The revisions indicated in the table were made before the systems analyst evaluated the system. The suggestions from the analyst and the corresponding revisions are summarized in Table 5. The analyst was able to focus on the flow of information through the system and made several useful suggestions about the reporting capabilities of the system. Again the revisions indicated in the table were made before the third evaluator tried the program. The suggestions from the manager and the corresponding revisions are summarized in Table 6. The manager gave very concrete suggestions.

It was particularly useful to have evaluations from three very different perspectives. The changes made to the program after the one-to-one evaluations helped to make the program more complete and consistent, allowing the small-group participants to concentrate on the potential use of the system.

Human Resource Consultant Suggestions/Difficulties/Comments	Developer Revisions/Comments
1. Offer the user a choice of sort orders for browsing through the employees in the database.	1. Now the user can select one of five different sort orders.
2. When choosing objectives, show only results that are appropriate for the verb selected. Ex: the user does not want to "increase theft" or "decrease profit".	2. Has been implemented.
3. Add "Other" to the choices for objectives, so the user can add to the list.	3. Each of the four parts of the objectives now has an option <other>.
4. User must be able to add/modify/delete objectives during the year.	4. Has been implemented with one restriction: objectives for an individual can not be altered once their quarterly review has been done.
5. Let the user choose from a list of possible regions to avoid inconsistencies in the typing of the region names.	5. User now presses an ALT key and a pop-up appears. When they press <ENTER> the region is inserted into the field.
6. Add "By date: mm/dd/yy" as a choice for a deadline in the objectives module.	6. After checking with the small-group participants, decided this was not necessary.
7. Use <F10> to get in and out of the task analysis for performance factors, instead of <F10> to get in and <ESC> to get out.	7. Has been implemented.
8. Highlight the instructions in the section for adding incidents and comments, so they stand out more.	8. Instructions are now on a red background.
Positive comments: Weighted average is good. Recording critical incidents is very useful. Structured approach to choosing objectives is great.	

Table 4. Suggestions from the Human Resource Consultant

Systems Analyst Suggestions/Difficulties/Comments	Developer Revisions/Comments
1. Use the <ESC> key moi. onsistently; sometimes it is used to select an emp.-yee and sometimes it is used to cancel an operation.	1. <ESC> is now used strictly to cancel an operation.
2. Add a bar graph to the group profile to indicate the average score on each performance factor for all employees in the same job family.	2. Graph has been added to the group profile.
3. Need to generate a blank appraisal form at the beginning of the period with the objectives and weighting for reference during the period.	3. Quarterly Goals and Objectives Report has been added.
4. Add a field for YEAR in the database so that appraisals can be compared year by year.	4. Field has been added.
5. Add a report to assist in salary decisions listing all employees ranked by their year-end overall score.	5. Year-End Payroll Report has been added.
6. Add a separate year-end report for the training dept. listing the employees needing development for each performance factor -- useful for planning training programs for the coming year.	6. Year-End Training Report has been added.
Positive comments: Good normalization of databases and ERD diagram. Very detailed DFD diagrams. Nice, logical setup of menus.	

Table 5. Suggestions from the Systems Analyst

<p style="text-align: center;">Manager</p> <p style="text-align: center;">Suggestions/Difficulties/Comments</p>	<p style="text-align: center;">Developer</p> <p style="text-align: center;">Revisions/Comments</p>
<p>1. Need to be able to verify which employees have had objectives chosen, quarterly review done, etc...</p>	<p>1. Now there is a check mark beside the employee's name to indicate those that have been done.</p>
<p>2. The development page in the individual profile only lists the factors needing developing, so the few numbers that appear are confusing. For example:</p> <pre> Performance Description Score Factor ===== 3 Communication 1 </pre> <p>Looks like the performance factor number is some kind of assigned value?</p>	<p>2. The factor number has been removed, leaving just the description and the score in the report. For example:</p> <pre> Description Score ===== Communication 1 </pre>
<p>3. Why are the bars drawn in a different direction for some graphs in the group profile?</p>	<p>3. To quickly distinguish the graph for the average on each factor from the graph for the distribution of scores.</p>
<p>4. Add the description of the performance factor to the graph axis, so that it doesn't have to be looked up.</p>	<p>4. Description has been added.</p>
<p>5. Instead of choosing a single related performance factor when recording critical incidents, enter the critical incident then attach it to all related factors.</p>	<p>5. Not yet implemented. There is a disadvantage this way, in that the previously entered incidents can not be previewed.</p>
<p>6. When choosing an employee in the database, would like to press the first letter of the last name and jump to that record, instead of using the arrow keys.</p>	<p>6. Not sure if this can be done, but can use page down to move through the names more quickly.</p>
<p>Positive comments: Weighted average is good. Recording critical incidents is very useful. Year round integration of appraisal is good.</p>	

Table 6. Suggestions from the Manager

Objectives of Existing Systems

The responses from the first page of the questionnaire given to the small-group participants (sample size of 9) are summarized in Figure 13. Refer to Appendix G for a blank sample form. The total number of participants selecting a response is indicated by the number in bold (followed by a dash) in the left hand margin of the form. Their responses indicate:

- 1) the subjects were all using a manual form of performance appraisal at the time of the survey
- 2) the majority feel that performance appraisal is a vital part of the organization's functioning
- 3) most view appraisal as a tool to give feedback and reward performance, with only one consultant stating that managers dread the process
- 4) like the findings reported in Table 1 (Chapter Two), the perceived focus of appraisal is on *multiple* objectives
- 5) most feel that the existing systems are *somewhat* successful at meeting the stated objectives

Effectiveness of Existing Systems

Question six on the questionnaire was designed to evaluate the effectiveness of existing systems, in five categories, on a scale from 1-5. Corresponding degrees of importance (on a scale from 1-3) are indicated as well.

***Performance Appraisal:
Its Role in the Organization and its Effectiveness***

- 1) Is the existing performance appraisal system in your organization:
- 9 -a) manual
0 -b) computerized
0 -c) a combination
- 2) Which of the statements below best describes your feelings regarding the importance of performance appraisal. Performance appraisal is:
- 7 -a) a vital part of the organization's functioning.
2 -b) an important part of the organization's functioning.
0 -c) somewhat useful.
0 -d) not useful.
0 -e) a complete waste of time.
- 3) Circle as many statements below as you feel describe your attitude toward your role in the current performance appraisal system.
- 4 -a) I look forward to performance appraisal as a way of giving feedback and rewarding outstanding employees.
5 -b) I don't enjoy the task, but I don't dislike it either.
0 -c) I only carry out the task because it's in my job description.
2 -d) I dislike the performance appraisal process.
1 -e) I dread the performance appraisal process.
- 4) What are the objectives of your performance appraisal system?
Circle all that apply.
- 7 -a) To generate information for short and long range administrative actions (salary, promotions, transfers, succession planning).
9 -b) To provide a means for coaching and counselling subordinates in order to develop them to their full potential.
9 -c) To give feedback to subordinates (how well they are doing and what changes in behaviour are required).
2 -d) Other:
- 5) How well does the existing system meet the above objective(s)?
- 0 -a) completely
4 -b) mostly
5 -c) somewhat
0 -d) inadequately
0 -e) not at all

Figure 13. Summary of Responses for the Page One of the Questionnaire

The results from question six are summarized in Table 7. The frequencies for each response have been tabulated, with totals shown for each question on the form (see Appendix G for a sample of an unused form with the item descriptions).

From the results, it appears that existing systems are particularly weak in the areas of:

Item 6) the system for recording/organizing critical incidents (with more detailed questioning on this item, most agreed it is really non-existent)

Item 7) identifying candidates for promotions/bonuses (7 subjects giving it a score of "adequate" or below)

Item 8) identifying candidates for demotions/dismissals (6 subjects giving it a score below "adequate")

Item 9) identifying weak areas in the organization (7 subjects giving it a score below "adequate")

Item 10) interfacing with other departments (6 subjects giving it a score below "adequate")

Item 13) presenting and summarizing information (6 subjects giving it a score of "adequate" or below)

The areas indicated as most important were:

Item 3) consistency of criteria for the same job family

Item 9) identifying weak areas in the organization

Item 11) providing information for subordinate development

Item 12) providing feedback to subordinates

Frequency of Responses for the
Existing System

ITEM NUMBER	RATING					IMPORTANCE		
	1 - POOR	2 - INADEQUATE	3 - ADEQUATE	4 - GOOD	5 - EXCELLENT	1 - NOT IMPORTANT	2 - IMPORTANT	3 - VERY IMPORTANT
FORM DESIGN								
1	0	2	3	4	0	1	5	3
2	1	2	5	1	0	1	5	3
USE OF FORM								
3	0	2	3	2	2	0	5	4
4	0	3	4	2	0	2	4	3
5	2	0	3	4	0	1	7	1
6	7	2	0	0	0	0	6	3
SHORT & LONG RANGE INFO.								
7	0	4	3	2	0	1	6	2
8	1	5	2	1	0	2	5	2
9	3	4	0	2	0	2	3	4
10	2	4	1	2	0	1	7	1
COACHING & FEEDBACK								
11	0	1	6	2	0	0	4	5
12	0	2	3	4	0	0	3	6
13	0	4	2	3	0	0	6	3

Table 7. Effectiveness of Existing Performance Appraisal Systems

Effectiveness of The Computerized System

It was anticipated that the computerized system would be seen as having the greatest potential for improving the performance appraisal process in the four areas under the Short and Long Range Information category:

- Item 7) identifying candidates for promotions/bonuses
- Item 8) identifying candidates for demotions/dismissals
- Item 9) identifying weak areas in the organization
- Item 10) interfacing with other departments

It was also expected that the lowest rating would be for Item 5) ease of use and time required to complete.

Table 8 depicts the same summarization of responses as Table 7, but for the computerized system. The importance values are indicated again for convenience, but were not actually asked for a second time (one would assume that the computerization of the process would not alter the degree of importance in performance appraisal). Refer to Appendix H for an unused sample of the actual form.

As anticipated, the system was given high ratings in all areas under Short and Long Range Information. The positive response to Item 6) critical incidents, was overwhelming, as well as somewhat unanticipated. In fact, all the responses for the computerized system were very positive. Item 5) ease of use and time required to complete, received only two scores of "adequate" or below.

Frequency of Responses for the Computerized System								
ITEM NUMBER	RATING					IMPORTANCE		
	1 - POOR	2 - INADEQUATE	3 - ADEQUATE	4 - GOOD	5 - EXCELLENT	1 - NOT IMPORTANT	2 - IMPORTANT	3 - VERY IMPORTANT
FORM DESIGN								
1	0	0	3	4	2	1	5	3
2	0	0	3	5	1	1	5	3
USE OF FORM								
3	0	0	0	5	4	0	5	4
4	0	0	0	4	5	2	4	3
5	0	1	1	7	0	1	7	1
6	0	0	0	3	6	0	6	3
SHORT & LONG RANGE INFO.								
7	0	0	1	6	2	1	6	2
8	0	0	2	5	2	2	5	2
9	0	0	1	5	3	2	3	4
10	0	0	2	4	3	1	7	1
COACHING & FEEDBACK								
11	0	0	2	4	3	0	4	5
12	0	0	2	6	1	0	3	6
13	0	0	1	5	3	0	6	3

Table 8. Effectiveness of the Computerized Performance Appraisal System

Comparison of Existing vs. the Computerized System

Table 9 provides a summarization and comparison of the distribution of responses for each system (existing vs. computerized). The total number of subjects was tabulated for each of the values on the scale. These totals give a very quick overall picture of the group attitude toward their existing systems as compared to the group attitude toward the computerized system. The numbers certainly seem to indicate a strong sense of positive attitudes toward the computerized system.

Comparison of the Totals
for Frequency of Responses

	RATING					IMPORTANCE		
	1 - POOR	2 - INADEQUATE	3 - ADEQUATE	4 - GOOD	5 - EXCELLENT	1 - NOT IMPORTANT	2 - IMPORTANT	3 - VERY IMPORTANT
TOTALS FOR THE EXISTING SYSTEM	16	35	35	29	2	11	66	40
TOTALS FOR THE COMPUTERIZED SYSTEM	0	1	18	63	35	11	66	40

Table 9. Comparison of Distribution of Ratings (Existing vs. Computerized)

The bar graph shown in Figure 14 provides a visual comparison of the numbers presented in Table 9. Since the choice of "1 - Poor" was not selected by any of the subjects for the computerized system, that bar does not appear in the graph.

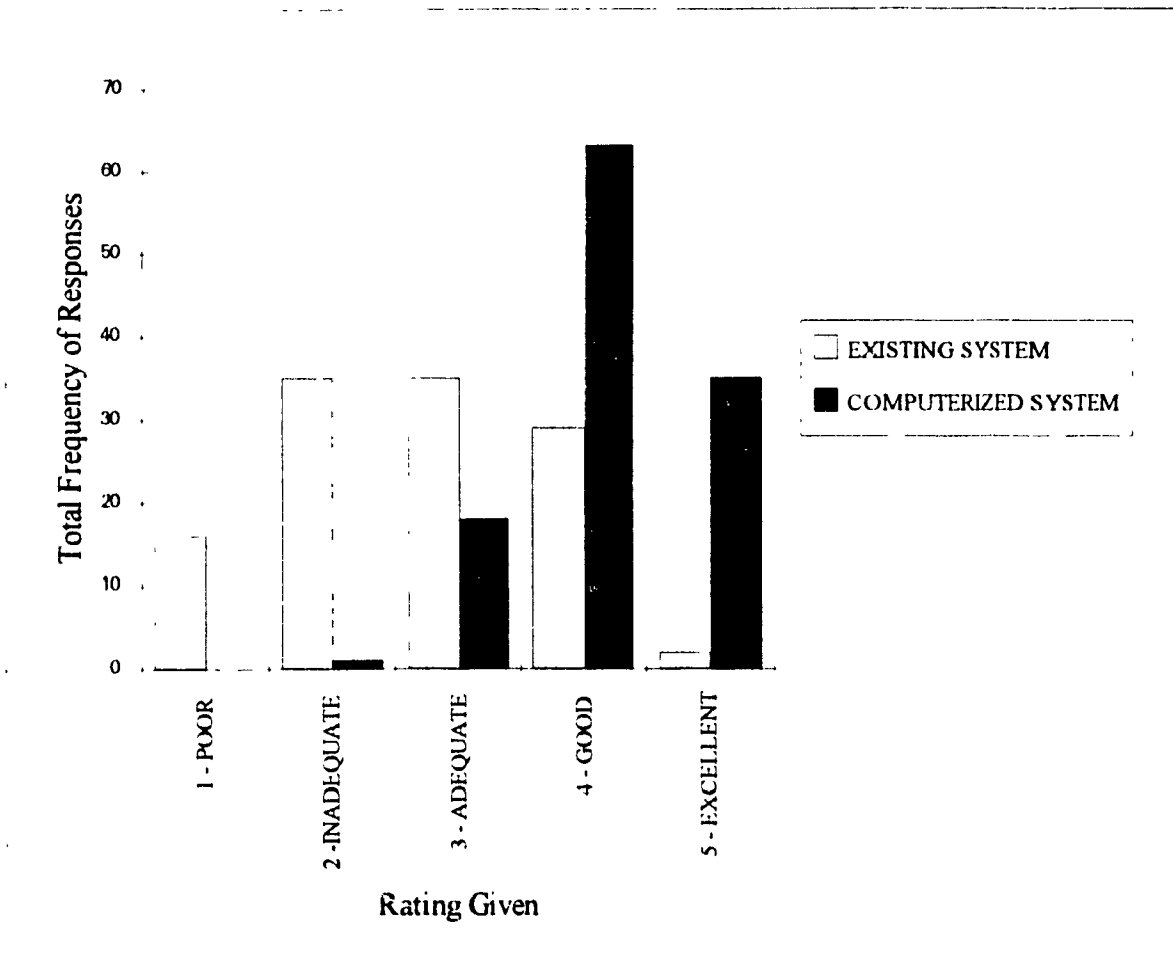


Figure 14. Graph of the Distribution Depicted in Table 9

Table 10 presents the mean rating for each item on the questionnaire for both systems (existing vs. computerized) as well as the assigned importance factor. The importance factor allows the ratings to be weighted for comparison. The extended ratings for each item were calculated by multiplying the mean rating times the mean importance. The difference between the extended rating for the computerized system and the existing system (extended rating computerized system - extended rating existing system) is shown in the last column of the table. This column indicates where computerization has the greatest potential to improve the performance appraisal process (concentrating on areas of greatest perceived importance) as well as the areas of least potential improvement (possibly decreasing effectiveness).

As shown in the table, the computerized system was rated favourably over the existing system for every item on the questionnaire (since all show positive differences). The average for each category indicates that the largest potential gain is in the Use of Form category, including:

- Item 3) consistency of criteria for the same job family
- Item 4) accuracy of final overall score
- Item 5) ease of use and time required to complete
- Item 6) the system for recording critical incidents

This gain is largely due to the high ratings given to Item 6, especially with its high importance.

ITEM NUMBER	IMPORTANCE	RATING FOR EXISTING SYSTEM	EXTENDED RATING EXISTING	RATING FOR COMPUTERIZED SYSTEM	EXTENDED RATING COMPUTER	(EXT SC COMPUTER) - (EXT SC EXIST)
FORM DESIGN						
1	2.22	3.22	7.16	3.89	8.64	1.48
2	2.22	2.67	5.93	3.78	8.40	2.47
Average	2.22		6.54		8.52	1.98
USE OF FORM						
3	2.44	3.44	8.39	4.44	10.83	2.44
4	2.11	2.89	6.10	4.56	9.62	3.52
5	2.00	3.00	6.00	3.67	7.34	1.34
6	2.33	1.22	2.84	4.67	10.88	8.04
Average	2.22		5.83		9.67	3.84
SHORT & LONG RANGE INFO.						
7	2.11	2.78	5.87	4.11	8.67	2.81
8	2.00	2.33	4.66	4.00	8.00	3.34
9	2.22	2.11	4.68	4.22	9.37	4.68
10	2.00	2.33	4.66	4.11	8.22	3.56
Average	2.08		4.97		8.57	3.60
COACHING & FEEDBACK						
11	2.56	3.11	7.96	4.11	10.52	2.56
12	2.67	3.22	8.60	3.89	10.39	1.79
13	2.33	2.89	6.73	4.22	9.83	3.10
Average	2.52		7.76		10.25	2.48
Totals of Extended Scores			79.58		120.71	41.13

smallest gains in a single item

largest gains in a single item

largest gain in a "category"

Table 10. Mean Ratings (Existing vs. Computerized System)

The category of Short and Long Range Information comes a close second in greatest potential for improvement. The smallest potential for improvement on an individual item is indicated in the areas of:

Item 1) flexibility of design

Item 5) ease of use and time required to complete

Chapter Six discusses the possible reasons for these smaller gains. The grand totals at the bottom of the table show a substantial overall increase in potential effectiveness with the computerized system. It is interesting to note that most of the standard deviations are smaller with the ratings for the computerized system as compared to the ratings for the existing systems (see Table 11). This is understandable since the participants use a variety of systems that would naturally vary in their effectiveness. The ratings for existing systems given to Item 5 (one of the areas indicating little improvement with computerization) had a fairly large standard deviation.

General Comments on Existing Systems

Question 7 on the questionnaire to evaluate the effectiveness of existing systems (Appendix G) asked participants to give their opinions on existing systems. Their comments indicate:

- supervisors tend to avoid confrontation with subordinates
- items on the performance appraisal form are often not job relevant, and assess personality rather than behaviour

ITEM NUMBER	IMPORTANCE	RATING FOR EXISTING SYSTEM	EXTENDED RATING EXISTING	RATING FOR COMPUTERIZED SYSTEM	EXTENDED RATING COMPUTER	(EXT SC COMPUTER) - (EXT SC EXIST)
FORM DESIGN						
1	0.63	0.79		0.74		
2	0.63	0.82		0.63		
USE OF FORM						
3	0.50	1.07		0.50		
4	0.74	0.74		0.50		
5	0.47	1.15		0.67		
6	0.47	0.42		0.47		
SHORT & LONG RANGE INFO.						
7	0.57	0.79		0.57		
8	0.67	0.82		0.67		
9	0.79	1.10		0.63		
10	0.47	1.05		0.74		
COACHING & FEEDBACK						
11	0.50	0.57		0.74		
12	0.47	0.79		0.57		
13	0.47	0.87		0.63		

Table 11. Standard Deviation in Ratings (Existing vs. Computerized System)

- most existing systems have no mechanism for identifying weak areas in the organization
- the results are often not accurate and are therefore not useful
- there is a lack of clearly defined standards, which leads to inconsistent ratings
- performance appraisal fails because it is not linked to recruitment, and is not part of the continuous improvement process
- lack of computerization leads to excess paperwork and poor utilization of results

General Comments on the Computerized System

Question nine on the questionnaire to evaluate the effectiveness of the computerized system (Appendix H) asked participants to give their opinions on the computerized system. Their comments indicate:

- recording of critical incidents is a good idea
- the weighted average gives a more accurate overall score
- managers may not have the required computer experience to use the system with confidence
- some types of performance are not suited to averaging over four quarters

Attitudes on Aspects of the Computer Program

Four of the small-group participants filled out an attitude questionnaire on the aspects of the computer program after completing their hands-on session (see

Appendix J). The frequencies for each response are summarized on the sample questionnaire shown in Appendix L. The least positive responses occur repeatedly in the area of: time required to use the program. This weakness was already revealed on the questionnaire to gauge the effectiveness of the computerized system. Chapter Six discusses the possible reasons for this reaction to the program. All the other responses indicate a fairly high level of satisfaction with the computer program.

Computer Experience of the Participants

The final questionnaire for the small-group participants is shown in Appendix I. The responses indicate that about two-thirds of the managers use computers every day and know at least two application programs fairly well, while the remaining one-third use computers less frequently. Most of the participants expressed a concern regarding the lack of computer experience of other managers in their organization.

CHAPTER SIX

Discussion

The results of the evaluation indicate that the computerized system has the potential to overcome some of the difficulties with existing performance appraisal systems, in areas perceived to be important. The areas which show the greatest potential are:

- recording/organizing critical incidents
- identifying weak areas in the organization
- interfacing with other departments
- accuracy of overall, weighted score

The system does generate a mathematically correct weighted score based on the scores for each item, but it remains to be seen if the recording of critical incidents and the greater use of results will encourage managers to give employees the performance ratings they deserve. Perhaps more frequent use of the system as a feedback and coaching tool will reduce the manager's fear of confrontation over low ratings. Training on how to give feedback that the employee accepts and is able to do something about, will also help.

One critical consideration in the effective implementation of the program is whether managers will feel that the benefits of using the system are worth the extra time required. A limitation of the type of evaluation performed, is that no conclusion can be made about long term

use. The enthusiasm shown by the participants may diminish when the novelty of the program wears off. On the other hand, they may find it so easy to use that it becomes a habit to switch on the computer and record a couple of incidents on a regular basis. This issue can be determined more accurately through field testing of the system over a longer period.

Recommendations for Improvement

Before any field testing of the system, the improvements outlined below are recommended.

Data Entry System

- Expand the model for choosing objectives so that other forms of measurement can be used. For example, the results might be measured by: a specified percentage, a specified number of units, or a specified dollar amount. Freedom to add an objective without a measurement might be desired. For example, an objective might be: To increase knowledge about product XYZ by attending a product information workshop, by quarter end, without cutting service.
- Change the critical incidents module so that an incident can be attached to as many performance factors as apply. Since this approach would not lend itself to viewing critical incidents previously recorded, add an option to view all critical incidents attached to a particular performance factor.

Report Generation System

- Modify the year-end individual profile so that the manager is presented with the employee's overall score and is then given a 10% margin of discretion to alter the score. In this way the manager can override complete averaging of the four quarters, if necessary.
- Adapt generating individual profiles so that a number of employees can be selected at one time, and their profiles printed, without needing to preview and accept then one by one on the screen.

Queries System

- Add a feature so that when generating "Star Performers" or "Developmental Needs", a cut-off point can be specified. For example, the manager may only wish to generate: the top/bottom X employees, or the top/bottom X% of employees, or all employees scoring above/below a score of X.

Field Testing the System

To effectively field test the system, participants need to use the system for a one year period, or if time constraints do not allow for this, a six month period is recommended, with simulation of the year-end after two quarterly reviews have been conducted. Two phases of field testing should be conducted. The first phase should be after the participants have had a chance to use the system, and problems are still fresh in their mind -- after the

first quarterly review would be appropriate. The second phase should be after they have become familiar with the system -- usually recommended after six months with a new system, but a one year period would allow the participants to more effectively assess the year-end reporting capabilities of the system.

Use of a control group in the field test would allow more rigorous data to be collected. The best opportunity for a control group might be if two sites can be chosen with similar employee performance and similar manager skills. One group can continue conducting performance appraisal as usual, while the other group can use the new system.

Questions to look at in the field testing as outlined in Whitten et al. (1989) are listed below:

- Does the system fulfill the stated objectives?
- Does the system support the decision-making requirements of the organization?
- Are the projected benefits being realized?
- How do the end-users feel about the system? (Include the employees, the managers, and upper management)
- Should enhancements be added to the system?
- Are the system controls adequate?
- What are the costs relative to its effectiveness?
- What is the time spent relative to its effectiveness?

Actual Implementation of the New System

If the field testing indicates the cost/benefit of conversion is merited, then the system may be implemented. The goal in implementing the new system is to achieve a smooth transition from the old system to the new.

Training

The first step (prior to converting to the new system) is to train the end-users. They need to learn how to use the equipment (if unfamiliar with computers) and to follow the new procedures for appraisal. This training for the new system should come after any training that may have been lacking in conducting performance appraisal in general. Beaulieu (1980) recommends an initial 40 hours training to bring about the self-confidence managers need in order to perform useful performance appraisals, followed by reinforcement training, constant monitoring, and internal consultation with individual managers to ensure success.

The training for the new system could be accomplished by distribution of the users manual, and then a two-hour demonstration session with question period. The demonstration should be followed by at least one hour of hands-on with the system and quarterly follow-up.

Potential Conversion Techniques

The four possible methods of converting to the new system described in Whitten et al. (1989) are:

Abrupt Changeover. On a specific date the old system is stopped and the new system takes over. This method is best used if some delays in processing can be tolerated while the final kinks in the system are worked out. The end-users may resent being forced into using an unfamiliar system with no other recourse. This problem can be reduced with sufficient training before the change-over.

Parallel Conversion. Both systems operate until major problems have been solved. There is a higher cost involved as both systems are still running, and the end-users are required to do twice as much work as before.

Location Conversion. One site is picked to try the new system. Problems are worked out at this site before other sites implement the new system. The end-users of the trial site can be used to train the other sites. Problems unique to a new site may still appear later in the implementation.

Staged Conversion. Each successive version of the system is converted as it is developed.

Recommended Conversion Technique

Since all of the organizations used to evaluate the prototype are currently using a manual system (usually only on an annual basis), it is believed that an abrupt change-over would not be risky, and could successfully be used to convert. Most likely, more time would be involved than previously required of the managers, but the pay-off is greater. Even if the system failed at some point during the

year, they would be no worse off than in a once-a-year appraisal system. Of course attitudes toward the system would be more negative if a lot of time was spent entering data and no results were produced. End-user training would be necessary before conversion.

Location conversion might be an alternative for those organizations unsure of the value of converting to the new system, or those wanting to prevent mishaps from fostering negative attitudes. In this way the cost/benefit of the system can be assessed before committing to the new system.

Gaining acceptance

Sashkin (1986) states that most people will try a new practice if it:

- has been shown to work better than the alternatives
- is cost and effort-effective
- is not too hard to learn
- is easy to drop if desired
- does not conflict too much with preferences and predispositions

The goal in implementing the new system is to meet the three stated objectives (see Chapter Four) without creating fear and apprehension.

Overall Conclusion

The computerized performance system has the potential to produce accurate, timely, complete, concise and relevant information with a minimum of negative reactions and

apprehension. It provides a framework for:

- determining promotions and salary levels
- long-range personnel planning
- training and coaching subordinates

Successful implementation depends on gaining acceptance by all involved, as well as commitment to frequent use and accurate scoring. This can be achieved through adequate training and an appropriate conversion technique.

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Appendix A
The Manual Performance Appraisal Form

**MANAGERS
PERFORMANCE PLANNING, EVALUATION AND DEVELOPMENT**

NAME	EMPLOYEE NUMBER
DIVISION/REGION	PERFORMANCE PERIOD FROM _____ TO _____
DATE IN POSITION	DATE PREPARED

PART I **PERFORMANCE PLANNING AND EVALUATION**

PART A: OBJECTIVES FOR THE YEAR <i>(complete at beginning of year)</i>	PART B: RESULTS ACHIEVED-TOTAL YEAR <i>(complete at end of year)</i>
<p>SALES FORCE GROWTH <i>Includes number of career profiles, recruits, and net gain of agents</i></p> <p>BUSINESS IN FORCE <i>Includes percentage improvements in asset and risk products; commissions, and decreases in terminations.</i></p> <p>SALES RESULTS <i>Includes percentage improvements in asset and risk products; premiums and counts.</i></p> <p>MANAGER/SPECIALIST RETENTION AND DEVELOPMENT <i>Includes number of trainees and specialists and net gain, leadership development and growth of management team.</i></p> <p>EXPENSE MANAGEMENT <i>Includes adhering to expenses as a percentage of targeted commissions, and office vacancy rate targets.</i></p> <p>PROFESSIONAL DEVELOPMENT <i>Includes product knowledge, marketing and leadership training, special projects or initiatives, specifically designed "broadening" activities and attending industry meetings.</i></p> <p>OTHER</p>	

PART 2B

SKILLS ASSESSMENT (LEADERSHIP)
(complete at end of year)

Not Applicable	Unsatisfactory	Needs Improvement	Meets Requirements			Exceeds Requirements	Exceptional
NA	1	2	3	4	5	6	7

COMMUNICATION SKILLS

Includes ability to communicate in a crisp and focused manner, orally and in writing, to influence and negotiate with your RAVP, your management team, specialists, agents and staff in your agency, and others in the organization. Ability to share relevant information about decisions, plans and events that affect work.

Comments:

NA	1	2	3	4	5	6	7
----	---	---	---	---	---	---	---

Comments:

TEAM WORK

Includes ability to work cooperatively with your management team, specialists, agents and staff in determining solutions to achieve agency objectives. Ability to support initiatives, respond to issues raised by others, and facilitate the resolution of conflict.

NA	1	2	3	4	5	6	7
----	---	---	---	---	---	---	---

Comments:

CREDIBILITY

Includes establishing and maintaining highest level of internal trust, integrity and confidence within the agency, your peers, all levels of head office, the industry and the community.

NA	1	2	3	4	5	6	7
----	---	---	---	---	---	---	---

Comments:

PLANNING AND ORGANIZING

Includes focusing on key priorities, managing your own time, meeting deadlines, determining and balancing personal priorities and organizational goals.

NA	1	2	3	4	5	6	7
----	---	---	---	---	---	---	---

Comments:

SUPPORT

Includes ability to listen sensitively to concerns, express trust, be patient, provide feedback, coaching and encouragement to management team, specialists and staff.

NA	1	2	3	4	5	6	7
----	---	---	---	---	---	---	---

Comments:

NETWORKING

Includes actively pursuing contacts in the community and industry in order to enhance the company's image, and gather information that will help the agency achieve its objectives.

NA	1	2	3	4	5	6	7
----	---	---	---	---	---	---	---

Comments:

PROBLEM SOLVING

Includes identifying and analyzing problems/needs, determining the best solution(s) and acting decisively.

NA	1	2	3	4	5	6	7
----	---	---	---	---	---	---	---

Comments:

PERSONAL STYLE

Includes personal deportment (dress, language), interpersonal skills and attitude (support for company philosophy, goals, products, decisions).

PART 3		DEVELOPMENT				
OVERALL PERFORMANCE RATING						
Unsatisfactory	Needs Improvement	Meets Position Requirements			Exceeds Position Requirements	Exceptional
<input type="text" value="1"/>	<input type="text" value="2"/>	<input type="text" value="3"/>	<input type="text" value="4"/>	<input type="text" value="5"/>	<input type="text" value="6"/>	<input type="text" value="7"/>
Reviewer's Comments: (including developmental needs and developmental action plans)						
Signature: _____			Date: _____			
Manager's Comments:						
This report has been reviewed with me.						
Signature: _____			Date: _____			

Appendix B
Sample Lists for Objectives

List of sample action verbs:

To increase

To decrease

To maintain

To improve

<OTHER>

Lists of sample results:

theft	contact list
-------	--------------

fixed costs	sales
-------------	-------

travel costs	productivity
--------------	--------------

budget	client base
--------	-------------

<OTHER>	<OTHER>
---------	---------

List of sample deadlines:

by year end

by quarter end

by month end

<OTHER>

List of sample standards:

without going over budget

without cutting service

without cutting quality

<OTHER>

Appendix C
Quarterly Reports

*Quarterly
Goals &
Objectives*

Quarterly Goals and Objectives
Objectives

Quarter 1
Printed: 01/01/94

Name: Jane Sample
ID: 444444

Division: Western

Objective Description

Quarterly Score Assigned Weight
=====

To incr. contact list by 10% by year end, without going over budget.	7
To decr. theft by 25% by quarter end, without cutting service.	4
To incr. client base by 20% by month end, without cutting quality.	5
To decr. travel costs by 40% by year end, without cutting service.	7
To decr. budget by 15% by quarter end, without cutting quality.	5

Overall Score for Objectives:

Quarterly Goals and Objectives
Performance Factors

Quarter 1
Printed: 01/01/94

Name: Jane Sample
ID: 444444

Division: Western

Performance Factor	Description	Quarterly Score	Assigned Weight
1	Developing Agency Vision		7
2	Attracting Quality People		5
3	Communication Skills		6
4	Networking		7

Overall Score for Performance Factors:

*Quarterly
Individual
Profile*

Quarterly Individual Profile
Objectives

Quarter 1
Printed: 01/01/94

Name: Jane Sample
ID: 444444

Division: Western

Objective Description	Quarterly Score	Assigned Weight
To incr. contact list by 10% by year end, without going over budget.	5	7
To decr. theft by 25% by quarter end, without cutting service.	3	4
To incr. client base by 20% by month end, without cutting quality.	4	5
To decr. travel costs by 40% by year end, without cutting service.	2	7
To decr. budget by 15% by quarter end, without cutting quality.	5	5

Overall Score for Objectives: 4

Quarterly Individual Profile
Performance Factors

Quarter 1
Printed: 01/01/94

Name: Jane Sample
ID: 444444

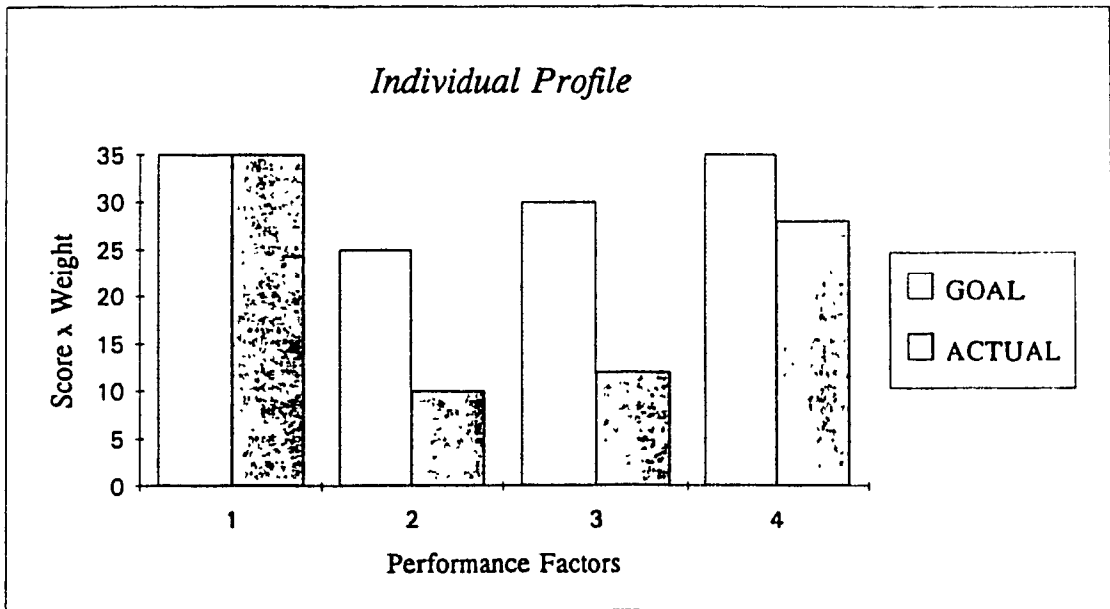
Division: Western

Performance Factor	Description	Quarterly Score	Assigned Weight
1	Developing Agency Vision	5	7
2	Attracting Quality People	2	5
3	Communication Skills	2	6
4	Networking	4	7

Overall Score for Performance Factors: 3

Individual Profile
Performance Factors for Jane Sample - Western Region

Performance Factor	Quarterly Score	Assigned Weight
1. Developing Agency Vision	5	7
2. Attracting Quality People	2	5
3. Communication Skills	2	6
4. Networking	4	7



Quarterly Individual Profile
Development Report

Quarter 1
Printed: 01/01/94

Name: Jane Sample
ID: 444444

Division: Western

Criteria for selection: any score less than 3

Description of performance
factor requiring development

Quarterly
Score

=====
Attracting Quality People

2

=====
Communication Skills

2

Appendix D
Year-End Reports

*Year-End
Individual
Profile*

Year End
Individual Profile

Printed: 01/02/94

Name: Jane Sample

Division: Western

ID: 444444

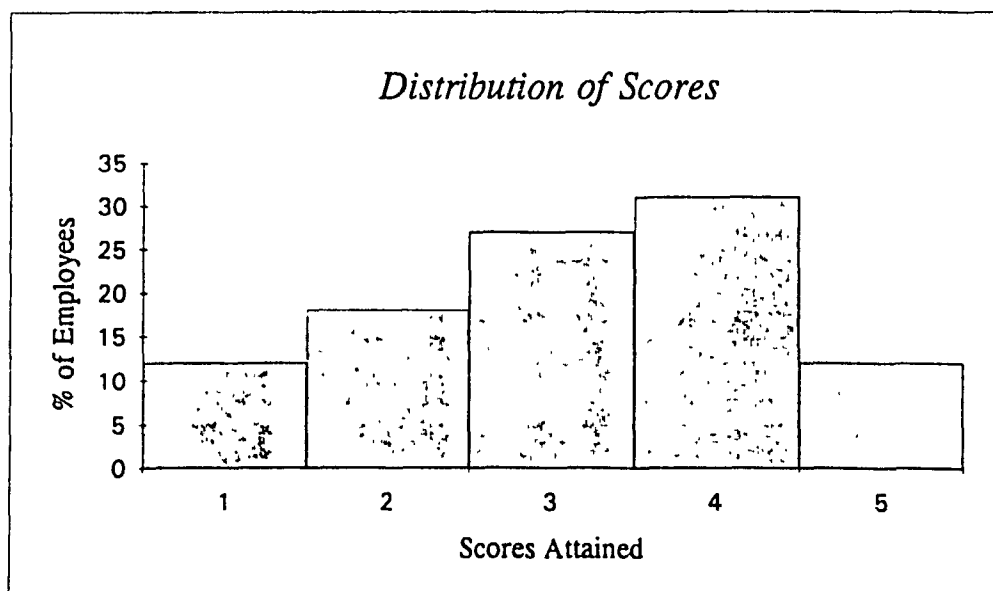
Date Started: 01/01/80

Year-end overall score: 3.4

Group Profile

Distribution of Scores for Western Region

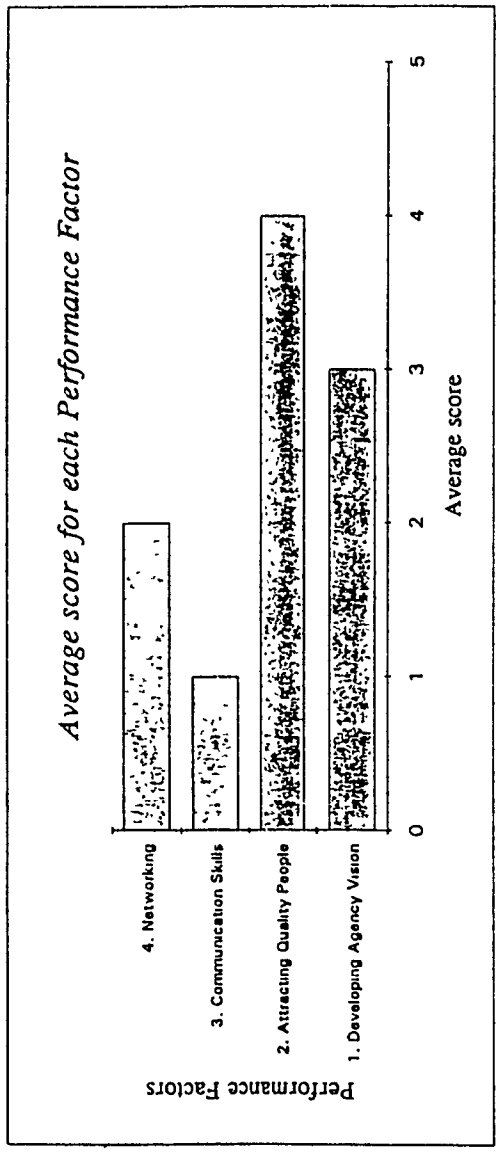
<i>% of Employees</i>	<i>Attaining Overall Score</i>
12	1
18	2
27	3
31	4
12	5



Group Profile

Group Profile
Average Score for each Performance Factor

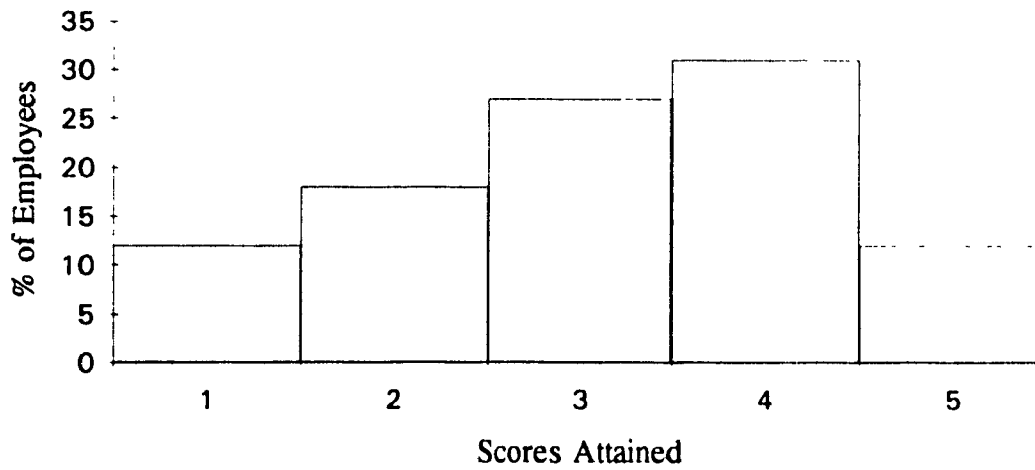
Performance Factor	Average Score
1. Developing Agency Vision	3
2. Attracting Quality People	4
3. Communication Skills	1
4. Networking	2



Group Profile
Distribution of Scores for Western Region

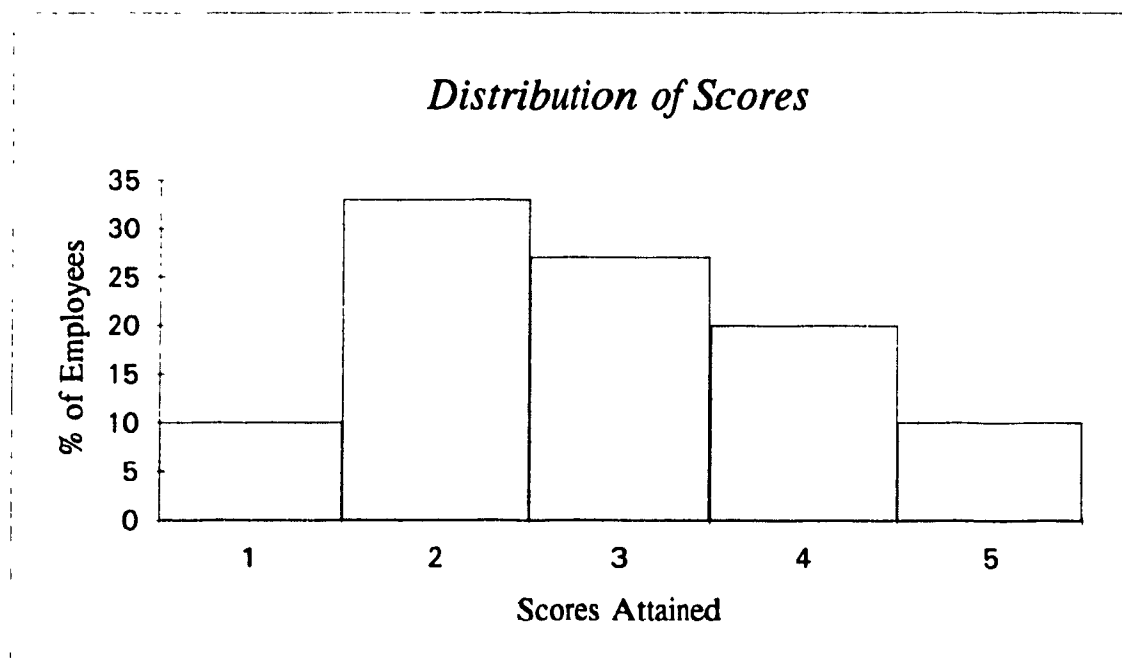
% of Employees	Attaining Overall Score
12	1
18	2
27	3
31	4
12	5

Distribution of Scores



Group Profile
Distribution of Scores for Atlantic Region

% of Employees	Attaining Overall Score
10	1
33	2
27	3
20	4
10	5



Training Report

Year End
Training Report

Criteria for selection: any score less than 3

Printed: 01/01/94

Performance Factor: 1. Developing Agency Vision

Employee ID	Name	Division	Score
123456	Chris Hutcheson	Atlantic	1.6
151515	Jim Patterson	Atlantic	2.0
222222	Joanne Smithers	Western	2.0
333333	Bonnie Adams	Western	2.0

Performance Factor: 2. Attracting Quality People

Employee ID	Name	Division	Score
123456	Chris Hutcheson	Atlantic	2.2
151515	Jim Patterson	Atlantic	2.9
222222	Joanne Smithers	Western	1.5
333333	Bonnie Adams	Western	2.5

Year End
Training Report

Criteria for selection: any score less than 3

Printed: 01/01/94

Performance Factor: 3. Communication Skills

Employee ID	Name	Division	Score
123456	Chris Hutcheson	Atlantic	2.8

Performance Factor: 4. Networking

Employee ID	Name	Division	Score
151515	Jim Patterson	Atlantic	2.5
333333	Bonnie Adams	Western	2.0

Payroll Report

Year End
Payroll Report

Printed: 01/02/94

Ranked Employees

ID	Name	Division/ Region	Date Start	Overall Score
676767	Sam Snyder	Atlantic	12/31/90	3.5
333333	Bonnie Adams	Western	01/01/89	3.4
222222	Joanne Smithers	Western	01/01/90	3.4
666666	Joyce Arnold	Central	01/01/76	3.4
444444	Jane Sample	Western	01/01/80	3.4
151515	Jim Patterson	Atlantic	12/31/93	3.2
123123	George Baker	Western	01/01/89	3.2
123456	Chris Hutcheson	Atlantic	12/16/93	2.9

Appendix E
Queries

*Star
Performers*

Star Performers in:
 Communication Skills
 Networking

Page No. 1
 01/01/94

Ranked Employees

ID	Name	Division/ Region	Date Start	Combined Score
676767	Sam Snyder	Atlantic	12/31/90	5.0
333333	Bonnie Adams	Western	01/01/89	4.5
222222	Joanne Smithers	Western	01/01/90	4.0
666666	Joyce Arnold	Central	01/01/76	3.5
151515	Jim Patterson	Atlantic	12/31/93	3.3
123456	Chris Hutcheson	Atlantic	12/16/93	3.0
444444	Jane Sample	Western	01/01/80	3.0
123123	George Baker	Western	01/01/89	2.5

Developmental Needs

Training Needs for:
Developing Agency Vision
Attracting Quality People

Page No. 1
01/01/94

Ranked Employees

ID	Name	Division/ Region	Date Start	Combined Score
123456	Chris Hutcheson	Atlantic	12/16/93	2.5
666666	Joyce Arnold	Central	01/01/76	3.0
222222	Joanne Smithers	Western	01/01/90	3.5
444444	Jane Sample	Western	01/01/80	3.5
123123	George Baker	Western	01/01/89	4.0
333333	Bonnie Adams	Western	01/01/89	4.5
151515	Jim Patterson	Atlantic	12/31/93	5.0
676767	Sam Snyder	Atlantic	12/31/90	5.0

Appendix F
Cover Letter and Overview of the System

241 Redpath Ave
Suite 301
Toronto, Ontario
M4P 2K8

December 6, 1993

Company XYZ
201 Anywhere Street
Whoville, Ontario
N6A 1J1

Attention: Ms. Jill Sample (Director of Employee Development)

Dear Ms. Sample,

I would like to thank you for generating some interest in my performance appraisal program. As we discussed on the phone, I am faxing you an overview of the computer program (I sent a copy by mail as well). The existing form mentioned on the first page of the overview is one currently being used to evaluate Managers.

I developed this system as part of the requirements for a Masters degree at Concordia University. One component of the development is evaluation. What I would like to do with your group is to give a demonstration of the program, and then let each participant sit down and try it.

I have designed some questionnaires to gather information on the usefulness of the program and its effectiveness. This information will be used to improve the system. I estimate that the demonstration and discussion will take approximately one hour, with another half hour for hands-on. I will bring a laptop computer with me. If we have access to a colour monitor, then all the participants can watch the demonstration, otherwise I will need to see them individually.

I look forward to seeing you on the 14th. If the other participants read the overview before I come in, it may speed up the process. Thank-you for your help Jill, I really appreciate it.

Sincerely,



Jennifer Parker
(416) 322-0298

encl.

An Overview of

"The Performance Analyzer"

A Computerized Performance Appraisal System

by: Jennifer Parker

"The Performance Analyzer", is a computer program designed to make the process of Performance Appraisal easier, as well as more useful, by generating information that is accurate, timely, complete, concise, and relevant. In order to allow you to see and feel how the system could work for your organization, I have taken an existing Performance Appraisal form and inserted the items on a computerized form. I will change these items to suit the evaluation criteria for the particular job family being appraised. The performance appraisal form uses a 5-point scale:

- significantly below expectations
- did not meet expectations
- met expectations
- exceeded expectations
- greatly exceeded expectations

** note this will change to match the scale preferred by your organization.

The categories of items on the form are as follows:

- Performance Objectives, and
- Performance Factors
 - Professional Skills
 - Leadership Skills

"The Performance Analyzer" is a three-level system consisting of:

- data entry
- report generation
- queries

Level I - Data Entry**Part I - Demographic Information**

Demographic data is entered for each new employee under your supervision (see Table 1).

Name:	Employee Number:
Region:	Division:
Date started in Position:	Supervisor Number:

Table 1. Demographic information

Part II - Performance Objectives

At the beginning of each year the supervisor and the employee choose objectives from a menu of typical objectives and define the desired criteria for each. The supervisor assigns a weight to each objective to indicate its relative importance in the position. This step is skipped if equal weights are desired for all items. There are up to four entries for each performance objective to allow the supervisor to assign a score on a quarterly basis, if desired. It is recommended that the employee use a second copy of the computerized form for self-evaluation.

Part III - Performance Factors

Evaluation of the desired knowledge, skills, and abilities identified in the job profile make up the third part of the form. Once these factors are established for a particular job family, they remain fairly stable over time. The supervisor can score the employee on each item every quarter, if desired. A help screen is available for each performance factor, giving several examples of an ideal employee. Here also, each factor is assigned a weighting, if desired. A computerized notepad is attached to each performance factor to record critical incidents (both positive and negative). The supervisor is encouraged to use this notepad whenever critical incidents occur and the employee is encouraged to use his/her copy in the same way, recording his/her version of events over the year. The critical incidents are automatically organized by performance factor and quarter. The previous entries can be viewed and updated.

Level II - Report Generation

The system generates reports any time, on demand. It will print quarterly feedback reports **for the employee**, as well as quarterly updates **from the employee** with any relevant information for the supervisor. This will only be fully effective if those involved enter data on a regular basis. Effective feedback provides employees with stimulation and opportunity to improve substandard performance.

At the end of the year each employee will complete a self-evaluation and print the results to be discussed with his/her supervisor. After this discussion, the supervisor will proceed with the summative evaluation, taking into account:

- the employee's self-evaluation
- the quarterly evaluation data
- the critical incidents recorded

The data collected in Parts II and III of the evaluation is used to create both an individual profile and a regional profile. These profiles will assist in administrative decisions. The overall scores for all employees in the organization are compiled and a distribution curve printed for each region. These graphs allow a visual comparison of distributed scores across the regions.

A report is generated to itemize all performance objectives and performance factors rated below a score of 3. This information is used to:

- prepare the development plan
- identify training needs
- develop performance objectives for the coming year

Level III - Queries

A menu-driven system is in place to allow the supervisors and their superiors to query the data at any time. This feature helps moves the performance appraisal outside the yearly activity category, and into one of on-going activity, eliminating one of the reasons for performance appraisal failure. The supervisors have access to their own employee evaluations, and the next level up in the organizational hierarchy has access to all the evaluations. The data is confidential and is not accessible to any other employees.

The supervisors may use the queries feature to provide information for organizational decisions. They may combine any subset of the performance factors to determine "Star Performers" or those in need of development. The data may be used to assist/support a decision to promote or demote an employee. Of course, information from other sources is used in a decision of this nature. The data could also be used to identify a qualified employee for peer training. This section is fairly open-ended and new queries can be added to the system when identified.

Appendix G

Questionnaire: Evaluation of the Existing System

*Performance Appraisal:
Its Role in the Organization and its Effectiveness*

Name:	_____
Job Title:	_____
Industry:	_____
Company:	_____

*** Individuals and companies will not be named in my report of the findings.*

The Performance Analyzer program was developed to fulfill the requirements for a Master of Arts Degree at Concordia University in Montreal. The information on the following questionnaires is being collected for the sole purpose of evaluating and improving the program. Your responses are strictly confidential.

Performance Appraisal: Its Role in the Organization and its Effectiveness

Please circle the response that best answers the questions below.

1. Is the existing performance appraisal system in your organization?
 - a) manual
 - b) computerized
 - c) a combination

2. Which of the statements below best describes your feelings regarding the importance of performance appraisal. Performance appraisal is:
 - a) a vital part of the organization's functioning.
 - b) an important part of the organization's functioning.
 - c) somewhat useful.
 - d) not useful
 - e) a complete waste of time.

3. Circle as many statements below as you feel describe your attitude toward your role in the current performance appraisal system.
 - a) I look forward to performance appraisal as a way of giving feedback and rewarding outstanding employees.
 - b) I don't enjoy the task, but I don't dislike it either.
 - c) I only carry out the task because it's in my job description.
 - d) I dislike the performance appraisal process.
 - e) I dread the performance appraisal process.

4. What are the objectives of your performance appraisal system? Circle all that apply.
 - a) To generate information for short and long range administrative actions (salary, promotions, transfers, succession planning).
 - b) To provide a means for coaching and counselling subordinates in order to develop them to their full potential.
 - c) To give feedback to subordinates (how well they are doing and what changes in behaviour are required).
 - d) Other: _____

5. How well does the existing system meet the above objective(s)?
 - a) completely
 - b) mostly
 - c) somewhat
 - d) inadequately
 - e) not at all

6. Rate the effectiveness of your **current performance appraisal system** for each of the items listed below on a scale from 1-5. Also assign a number from 1-3, for the importance of this item to the functioning of the system.

		RATING					IMPORTANCE		
		POOR	INADEQUATE	ADEQUATE	GOOD	EXCELLENT	NOT IMPORTANT	IMPORTANT	VERY IMPORTANT
FORM DESIGN									
1	Flexibility of design (i.e. can the items on the form easily be changed).	1	2	3	4	5	1	2	3
2	Physical design of form (i.e. clarity of items to score, presentation/layout of items on the form)	1	2	3	4	5	1	2	3

USE OF FORM									
3	Consistency of criteria for employees in the same job family (i.e. based on job profile)	1	2	3	4	5	1	2	3
4	Accuracy of final score (i.e. is it a "ball park" figure, or derived from the individual item scores)	1	2	3	4	5	1	2	3
5	Ease of use and time required to complete	1	2	3	4	5	1	2	3
6	System in place to record critical incidents as they occur (if there is no system, check 'Poor')	1	2	3	4	5	1	2	3

SHORT & LONG RANGE INFORMATION									
<i>How effective is the system in.</i>									
7	Identifying candidates for promotions/bonuses	1	2	3	4	5	1	2	3
8	Identifying candidates for demotions/dismissals	1	2	3	4	5	1	2	3
9	Identifying weak areas in the organization (i.e. weak performance factors organization-wide)	1	2	3	4	5	1	2	3
10	Interfacing with depts needing the results (i.e. candidates for promotion, potential facilitators)	1	2	3	4	5	1	2	3

COACHING & FEEDBACK									
<i>How effective is the system in:</i>									
11	Providing information to assist in subordinate development	1	2	3	4	5	1	2	3
12	Providing feedback to subordinates.	1	2	3	4	5	1	2	3
13	Presenting and summarizing appraisal information.	1	2	3	4	5	1	2	3

7. Summarize **why** you feel the system doesn't meet objectives in certain areas.

Appendix H

Questionnaire: Evaluation of the Computerized System

8. Rate the effectiveness of the computerized performance appraisal system for each of the items listed below on a scale from 1-5.

		RATING				
		POOR	INADEQUATE	ADEQUATE	GOOD	EXCELLENT
FORM DESIGN						
1	Flexibility of design (i.e. can the items on the form easily be changed)	1	2	3	4	5
2	Physical design of form (i.e. clarity of items to score, presentation/layout of items on the form)	1	2	3	4	5

USE OF FORM						
3	Consistency of criteria for employees in the same job family (i.e. based on job profile)	1	2	3	4	5
4	Accuracy of final score (i.e. is it a "ball park" figure, or derived from the individual item scores)	1	2	3	4	5
5	Ease of use and time required to complete	1	2	3	4	5
6	System in place to record critical incidents as they occur (if there is no system check 'Poor')	1	2	3	4	5

SHORT & LONG RANGE INFORMATION

How effective is the system in:

7	Identifying candidates for promotions/bonuses.	1	2	3	4	5
8	Identifying candidates for demotions/dismissals.	1	2	3	4	5
9	Identifying weak areas in the organization (i.e. weak performance factors organization-wide)	1	2	3	4	5
10	Interfacing with depts needing the results (i.e. candidates for promotion potential facilitators).	1	2	3	4	5

COACHING **FEEDBACK**

How effective is the system in:

11	Providing information to assist in subordinate development	1	2	3	4	5
12	Providing feedback to subordinates.	1	2	3	4	5
13	Presenting and summarizing appraisal information	1	2	3	4	5

9. Summarize why you feel the computerized system doesn't meet objectives in certain areas.

Thank you for taking the time to complete this questionnaire!! I appreciate your input.

Would you like to receive a report of my findings?

Yes No

If yes, please supply your name and fax number in the space below, and I will fax the results to you.

Name: _____

Phone Number: _____

Fax Number: _____

Appendix I
Questionnaire: Computer Experience

Computer Experience

Please circle the response that best answers the questions below.

1. How frequently do you use a computer?

a) rarely b) often c) every day

2. Do you have a computer on your desk? Yes No

If yes, circle items in each list below to classify your computer system.

Make

Model

Monitor

IBM

early model

colour

MAC

relatively recent

monochrome

Other

state of the art

3. Do you use a mouse? Yes No

4. Circle all the applications in the list below that you are at least moderately familiar with.

a) Windows

b) Word Processing

c) Spreadsheet

d) Database

e) E-mail

Appendix J

Questionnaire: Aspects of Computer Program

8. The system for recording critical incidents was:

Time consuming	_____	_____	_____	_____	_____	Quick to use
Valuable	_____	_____	_____	_____	_____	Worthless
Flexible	_____	_____	_____	_____	_____	Inflexible
Confusing	_____	_____	_____	_____	_____	Clear

9. The system for performing the quarterly review was:

Time consuming	_____	_____	_____	_____	_____	Quick to use
Valuable	_____	_____	_____	_____	_____	Worthless
Flexible	_____	_____	_____	_____	_____	Inflexible
Confusing	_____	_____	_____	_____	_____	Clear

Reports

10. The report generation was:

Time consuming	_____	_____	_____	_____	_____	Quick to use
Valuable	_____	_____	_____	_____	_____	Worthless
Flexible	_____	_____	_____	_____	_____	Inflexible
Confusing	_____	_____	_____	_____	_____	Clear

Queries

11. The queries were:

Time consuming	_____	_____	_____	_____	_____	Quick to use
Valuable	_____	_____	_____	_____	_____	Worthless
Flexible	_____	_____	_____	_____	_____	Inflexible
Confusing	_____	_____	_____	_____	_____	Clear

12. Overall, the computerized performance appraisal system was:

Time consuming	_____	_____	_____	_____	_____	Quick to use
Valuable	_____	_____	_____	_____	_____	Worthless
Flexible	_____	_____	_____	_____	_____	Inflexible
Confusing	_____	_____	_____	_____	_____	Clear

Appendix K
User's Manual

"The Performance Analyzer"
User's Manual

A Computerized
Performance Appraisal System

by: Jennifer Parker

Overview of the Program

"The Performance Analyzer", is a computer program designed to make the process of performance appraisal easier, as well as more useful, by generating information that is accurate, timely, complete, concise, and relevant. In order to allow you to see and feel how the system could work for your organization, I have taken an existing performance appraisal form and inserted the items on a computerized form. I will change these items to suit the evaluation criteria for the particular job family being appraised. The performance appraisal form uses a 5-point scale:

- 1 - significantly below expectations
- 2 - did not meet expectations
- 3 - met expectations
- 4 - exceeded expectations
- 5 - greatly exceeded expectations

** note this will change to match the scale preferred by your organization.

The categories of items on the form are as follows:

- Performance Objectives, and
- Performance Factors
 - Professional Skills
 - Leadership Skills

"The Performance Analyzer" is a three-level system consisting of:

- I - Data Entry
- II - Report Generation
- III - Queries

Special Keys Used in the Program

- <ENTER>** To select menu options and to choose records in the database
Note: you may also type the highlighted letter in a menu to choose the desired option
- <ESC>** To 'escape', or back out, of an operation
- <F1>** To bring up the introductory screen of the program
- <F7>** To save critical incidents and summary comments
Note: only available when appropriate
- <F10>** To preview detailed description of performance factors
Note: only available when appropriate
- <ALT + down arrow>** To bring up a list of available choices
Note: only available when appropriate

Level I
Data Entry

Demographic Information

Enter demographic data for each new employee under your supervision. This information can be modified or deleted as necessary.

Add an Employee

1. Select **Data Entry**.
2. Select **Employee Demographics**.
3. Select **Add an Employee**.
4. Fill in the fields as shown in Table 1 below.

Employee ID:	<i>Enter a 6-digit employee id number</i>
Last Name:	<i>Enter a last name (use the form: Uuuuuuuu)</i>
First Name:	<i>Enter a first name (use the form: Fffffff)</i>
Division/Region:	<i>Press ALT + down arrow to see choices</i>
Date started in Position:	<i>Enter a date in the form: 'DD/MM/YY'</i>

Table 1. Demographic information

5. Check all entries.
6. Press **<ENTER>** on **Okay to Save** to save the new employee information.
Note: You may press **<ENTER>** on **Do not Save** (or press **<ESC>**) if you do not wish to save the new employee information.
7. You will be prompted to add new employees, until you press **<ESC>**.

Modify/Browse an Employee

1. Select **Data Entry**.
2. Select **Employee Demographics**.
3. Select **Modify/Browse Existing Employees**.
4. Select one of the available sort options.
5. Use the arrow keys to move through the database.
Note: If you are just browsing, press **<ESC>** when finished.
6. To modify employee information, press **<ENTER>** on the desired record.
7. Check all entries (use arrow keys to move from one field to another).
8. Change fields as desired.
9. Press **<ENTER>** on **Okay to Modify** to save the new information.
Note: You may press **<ENTER>** on **Do not Modify** (or press **<ESC>**) if you do not wish to save the new information.

Delete an Employee

1. Select **Data Entry**.
2. Select **Employee Demographics**.
3. Select **Delete an Employee**.
4. Select one of the available sort options.
5. Use the arrow keys to move through the database.
6. To delete an employee, press **<ENTER>** on the desired record.
7. Press **<ENTER>** on **Okay to Delete** to proceed with the delete.
Note: You may press **<ENTER>** on **Do not Delete** (or press **<ESC>**) if you do not wish to delete this employee.

Performance Objectives

At the beginning of each review period define objectives by combining phrases from four lists (an action verb, a result with a measurement, a deadline, and a standard).

Samples of the items in these four lists are shown in Appendix A.

Add an Objective

1. Select **Data Entry**.
2. Select **Objectives**.
3. Select **Add an Objective**.
4. Select one of the available sort options.
5. Select the desired employee.
Note: tick mark indicates objectives have already been chosen for employee.
6. Enter a number (**1-4**) for the desired quarter.
7. Select an action verb from the list.
Note: You may select **<OTHER>** to add a new action verb to the list.
8. Select the desired result.
Note: You may select **<OTHER>** to add a new result to the list.
9. Type in the desired measurement.
10. Select a deadline for the objective.
Note: You may select **<OTHER>** to add a new deadline to the list.
11. Select a standard which the objective must satisfy.
Note: You may select **<OTHER>** to add a new standard to the list.
12. Press **<ENTER>** on **Accept** to save the objective.
Note: You may press **<ENTER>** on **Do not Accept** (or press **<ESC>**) if you do not wish to keep this objective.
13. If you wish to continue adding objectives for this employee press **<ENTER>** on **Continue adding**, otherwise press **<ENTER>** on **Exit** (or press **<ESC>**).

Modify/Browse Objectives

Objectives may be modified for a selected employee, provided that you have not already completed his/her quarterly review.

1. Select **Data Entry**.
2. Select **Objectives**.
3. Select **Modify/Browse Objectives**.
4. Select one of the available sort options.
5. Select the desired employee.

Note: tick mark indicates objectives have been chosen for employee.

6. Enter a number (1-4) for the desired quarter.
7. Use the arrow keys to move through the database.
Note: if you are just browsing, press **<ESC>** when finished.
8. Select an objective to modify.
9. Press **<ENTER>** on **Proceed to Modify** if you want to proceed.
10. Re-select the four parts of the objective following steps 7-11 in the section entitled: Add Objective (page 7 of the User's Manual).
11. Press **<ENTER>** on **Accept** to save the modified objective.

Note: You may press **<ENTER>** on **Do not Accept**, or press **<ESC>**, if you do not wish to modify this objective.

Delete an Objective

You may delete objectives (and also select new ones) for a selected employee, provided that you have not already completed his/her quarterly review.

1. Select **Data Entry**.
2. Select **Objectives**.
3. Select **Delete an Objective**.
4. Select one of the available sort options.
5. Select the desired employee.

Note: tick mark indicates objectives have been chosen for employee.

6. Enter a number (**1-4**) for the desired quarter.
7. Select an objective to delete.
8. Press **<ENTER>** on **Okay to Delete** if you want to proceed to delete the objective selected.

Note: you may press **<ENTER>** on **Do not Delete** (or press **<ESC>**) if you do not wish to delete this objective.

Weights

Weights can be chosen for the objectives and the performance factors if desired. These weights allow the employee to focus on priority tasks and ensure that the overall score calculated for each employee reflects these priorities.

Weights for Objectives

1. Select **Data Entry**.
2. Select **Weights**.
3. Select **Objectives**.
4. Select one of the available sort options.
5. Select the desired employee.
6. Enter a number (1-4) for the desired quarter.
7. Enter a number (1-7) for the desired weight of each objective.

Note: 1 is for lowest priority, 7 is for highest priority.

Weights for Performance Factors

The desired knowledge, skills, and abilities identified in the job profile make up the performance factors on the appraisal form. You cannot alter these items, but may wish to prioritize them.

1. Select **Data Entry**.
2. Select **Weights**.
3. Select **Performance Factors**.
4. Select one of the available sort options.
5. Select the desired employee.
6. Enter a number (1-4) for the desired quarter.
7. Enter a number (1-7) for the desired weight of each performance factor.

Note: You may press <F10> to read a detailed description for any performance factor. Use <F10> when finished previewing, to continue weighting.

Critical Incidents

A computerized notepad is attached to each performance factor to record critical incidents (both positive and negative). Use this notepad whenever critical incidents occur and encourage the employee to use his/her copy in the same way, recording his/her version of events over the year. The critical incidents are automatically organized by performance factor and quarter. The strategy behind this is that when it comes time to score the individual performance factors, a review of incidents relating to the specific factor and quarter will assist in overcoming some of the typical rating errors (recent behaviour, initial behaviour, and central tendency). Previous incidents can be viewed and updated as necessary.

1. Select **Data Entry**.
2. Select **Critical Incidents**.
3. Select one of the available sort options.
4. Select the desired employee.
5. Select the desired performance factor.
6. Enter a number (1-4) for the desired quarter.
7. Use the arrow keys to read any previously entered incidents and then arrow down to the last available line to add the new incident.
8. Type in the new incident (on the line below today's date).
9. Press **<F7>** to save the incident.

Note: You may press **<ESC>** if you decide not to save the new incident.

Quarterly Review

At the end of the review period ask the employee to complete a self-evaluation and print the results to discuss with you. After this discussion, proceed with your evaluation taking into account:

- the employee's self-evaluation data
- the quarterly evaluation data
- critical incidents recorded over the review period

Scores are entered on a quarterly basis. A help screen is available for each performance factor, allowing review of the task analysis. The critical incidents are viewed before a score is entered for each performance factor.

1. Select **Data Entry**.
2. Select **Quarterly Review**.
3. Select one of the available sort options.
4. Select the desired employee.
5. Enter a number (1-4) for the desired quarter.

Objectives:

6. Enter a number (1-5) for the score achieved on each objective.

Note: **1** for significantly below the standard,
5 for greatly exceeded the standard.

Performance Factors:

7. Press <ESC> when finished reading critical incident for a performance factor.
Enter a number (1-5) for the score achieved on each performance factor.

Note 1: **1** for significantly below the standard,
5 for greatly exceeded the standard.

Note 2: You may press <F10> to read a detailed description for any performance factor. Use <F10> when finished previewing, to continue scoring.

Summary Comment

After previewing the critical incidents compose a summary comment, including the development plan for the coming period, and add it to the quarterly review. This comment can be modified at a later date if you wish to do so.

1. Select **Data Entry**.
2. Select **Summary Comment**.
3. Select one of the available sort options.
4. Select the desired employee and press **<ENTER>** on **Okay**.

Note: you may press **<ENTER>** on **Cancel Selection** (or press **<ESC>**) if you have selected the incorrect employee (or option).

5. Enter a number (1-4) for the desired quarter, or 5 for a year-end summary.
6. Read the incidents recorded for the selected quarter (for year-end, read incidents in all four quarters).
7. Press **<ESC>** when ready to move on to the next incident.
8. Enter the summary comment in the space provided.
9. Press **<F7>** to save the comment.

Note: you may press **<ESC>** if you decide not to save the comment.

Level II
Report Generation

The system is designed to print quarterly feedback reports **for the employee**, as well as quarterly updates **from the employee** with any relevant information for the supervisor. It will however, generate reports any time, on demand.

All options within the Reports option use the same design principles as follows:

1. The reports are printed one page at a time on the screen.
2. Special keys are shown on the bottom of the screen. They are used as follows:
 - 'L' to scroll the screen to read the next line
 - 'P' to pan left and right (only necessary for wide reports)
 - 'R' to restart back at the top of the report
 - 'Q' to quit viewing the current page of the report
3. When the screen clears you will have the option of printing a hard copy of the page just viewed.
4. To print, press <ENTER> on **Okay to Print**, otherwise press <ENTER> on **Do not Print** (or press <ESC>).

Quarterly Goals and Objectives

Immediately after adding employee demographics and objectives, print an unscored appraisal form, with the specified objectives and weights for reference during the review period (see Appendix B).

1. Select **Reports**.
2. Select **Quarterly Reports**.
3. Select **Goals and Objectives**.
4. Select one of the available sort options.
5. Select the desired employee.
6. Enter a number (1-4) for the desired quarter.
7. The report will be generated on the screen, print pages as desired.

Quarterly Individual Profile

After all the data entry has been completed for a review period, generate an individual profile (see Appendix C). The four pages of the individual profile are:

Page 1) demographic information and chosen objectives, with a score for each, the weight, and the overall score for objectives.

Page 2) performance factors (professional and leadership), with a score for each, the weight, and an overall score for performance factors.

Page 3) a bar graph depicting the scores achieved for each performance factor compared to the goal. To account for weighting, the bars are drawn to show:

- goal = chosen weight x maximum score (5)
- results = chosen weight x actual score

Page 4) a list of performance factors which rated below a score of 3 (i.e. below "met the standard"). This information will be used to:

- prepare the development plan
- identify training needs
- develop the performance objectives

1. **Select Reports.**
2. **Select Quarterly Reports.**
3. **Select Individual Profile.**
4. Select one of the available sort options.
5. Select the desired employee.
6. Enter a number (1-4) for the desired quarter.
7. The report will be generated on the screen, print pages as desired.

Year-End Individual Profile

The year-end individual profile summarizes the quarterly reviews. The quarterly scores for an individual are averaged into one grand overall score. The year-end summary comment (including development plans for the year to come) is attached. A graph showing the distribution of scores in the employee's region is included to allow comparison with colleagues. The year-end profile concludes the performance appraisal cycle and is used to roll the performance appraisal into the goal-setting for the new year.

1. **Select Reports.**
2. **Select Year-end Reports.**
3. **Select Individual Profile.**
4. Select one of the available sort options.
5. Select the desired employee.
6. Enter a number (1-4) for the desired quarter.
7. The report will be generated on the screen, print pages as desired.

Year-End Group Profile

The group profile compiles the overall scores for all employees in the organization and generates a distribution curve for each region (see Appendix D). These graphs allow a visual comparison of the distribution of scores across the regions and quickly illustrate skewness (either positive or negative) and whether the distribution is bimodal. Use these graphs to determine if the raters in different regions are using consistent criteria for evaluation. The group profile is also used to assist in salary decisions. Included in the group profile is a graph which shows the average score obtained for each performance factor. This graph allows you to determine weak areas in a particular region, or across the organization.

Year-End Group Profile cont'd

1. **Select Reports.**
2. **Select Year-end Reports.**
3. **Select Group Profile.**
4. The report will be generated on the screen, print pages as desired.

Year-End Training Report

The group profile compiles the overall scores for all employees in the organization

1. **Select Reports.**
2. **Select Year-end Reports.**
3. **Select Training Report.**
4. The report will be generated on the screen, print pages as desired.

Year-End Payroll Report

The group profile compiles the overall scores for all employees in the organization

1. **Select Reports.**
2. **Select Year-end Reports.**
3. **Select Payroll Report.**
4. The report will be generated on the screen, print pages as desired.

Level III
Queries

Star Performers/Developmental Needs

A menu-driven system is in place to allow supervisors and their superiors to query the data at any time. You have access to your own employee evaluations, and the next level up in the organizational hierarchy has access to all the evaluations. The data is confidential and is not accessible to any other employees. Combine any subset of the performance factors to determine "Star Performers" (see Appendix H) or "Developmental Needs" (see Appendix I).

1. Select **Queries**.
2. Select either **Training Needs** or **Star Performers** as desired.
3. Press <ENTER> to select as many factors as you wish to combine.
4. Press <ESC> when finished selecting factors.
5. Press <ENTER> on **Okay to Generate** to proceed to generate the query.
Note: you may press <ENTER> on **Do not Generate** (or press <ESC>) if you decide not to proceed with the query.
6. All of the employees will be listed, sorted by their average score on the selected factors (all quarters previously scored will be used).
Note: the employees will appear in descending order for **Star Performers**, and in ascending order for **Training Needs**.
7. Press <ENTER> on **Print** to print the query, or select **Done** to move on to another menu selection.

Possible uses for Queries:

- 1) Use the queries option to assist in decisions to promote or demote an employee. Of course, information from other sources would also be used in decisions of this nature.
- 2) The queries could be used to identify an employee to carry out peer training, or to identify employees requiring development on a certain performance factor.

Appendix A
Sample lists for objectives

List of sample action verbs:

To increase

To decrease

To maintain

To improve

<OTHER>

Lists of sample results:

theft

contact list

fixed costs

sales

travel costs

productivity

budget

client base

<OTHER>

<OTHER>

List of sample deadlines:

by year end

by quarter end

by month end

<OTHER>

List of sample standards:

without going over budget

without cutting service

without cutting quality

<OTHER>

Appendix B
Quarterly Goals and Objectives

Quarterly Goals and Objectives
Objectives

Quarter 1
Printed: 01/04/94

Name: Jane Sample
ID: 444444

Division: Western

Objective Description

Quarterly Score Assigned Weight

To incr. contact list by 10% by year end, without going over budget.	7
To decr. theft by 25% by quarter end, without cutting service.	4
To incr. client base by 20% by month end, without cutting quality.	5
To decr. travel costs by 40% by year end, without cutting service.	7
To decr. budget by 15% by quarter end, without cutting quality.	5

Overall Score for Objectives:

Quarterly Goals and Objectives
Performance Factors

Quarter 1
Printed: 01/04/94

Name: Jane Sample
ID: 444444

Division: Western

Performance Factor	Description	Quarterly Score	Assigned Weight
1	Developing Agency Vision		7
2	Attracting Quality People		5
3	Communication Skills		6
4	Networking		7

Overall Score for Performance Factors:

Appendix C
Quarterly Individual Profile

Quarterly Individual Profile
Objectives

Quarter 1
Printed: 01/04/94

Name: Jane Sample
ID: 444444

Division: Western

Objective Description

	Quarterly Score	Assigned Weight
To incr. contact list by 10% by year end, without going over budget.	5	7
To decr. theft by 25% by quarter end, without cutting service.	3	4
To incr. client base by 20% by month end, without cutting quality.	4	5
To decr. travel costs by 40% by year end, without cutting service.	2	7
To decr. budget by 15% by quarter end, without cutting quality.	5	5

Overall Score for Objectives: 4

Quarterly Individual Profile
Performance Factors

Quarter 1
Printed: 01/04/94

Name: Jane Sample
ID: 444444

Division: Western

Performance Description
Factor

Quarterly Score Assigned
Weight

1	Developing Agency Vision	5	7
2	Attracting Quality People	2	5
3	Communication Skills	2	6
4	Networking	4	7

Overall Score for Performance Factors: 3

Quarterly Individual Profile
Development Report

Quarter 1
Printed: 01/04/94

Division: Western

Name: Jane Sample
ID: 444444

Criteria for selection: any score less than 3

Description of performance
factor requiring development

Quarterly
Score

=====
Attracting Quality People

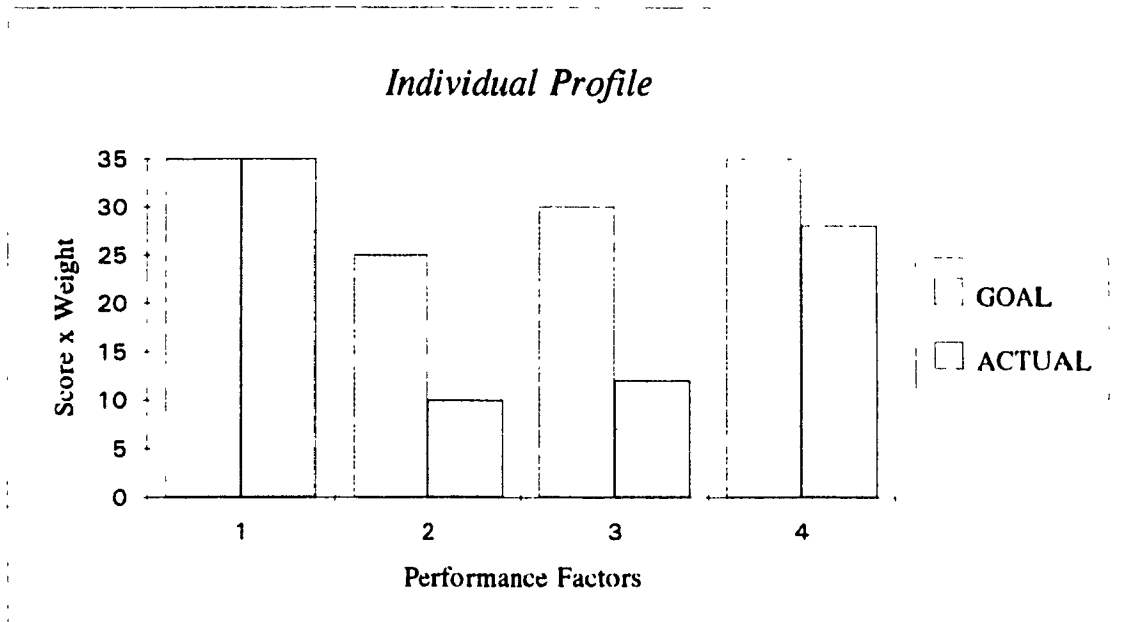
2

Communication Skills

2
=====

Individual Profile
Performance Factors for Jane Sample - Western Region

Performance Factor	Quarterly Score	Assigned Weight
1. Developing Agency Vision	5	7
2. Attracting Quality People	2	5
3. Communication Skills	2	6
4. Networking	4	7



Appendix D
Year-End Individual Profile

Year End
Individual Profile

Printed: 01/04/94

Division: Western

Date Started: 01/01/80

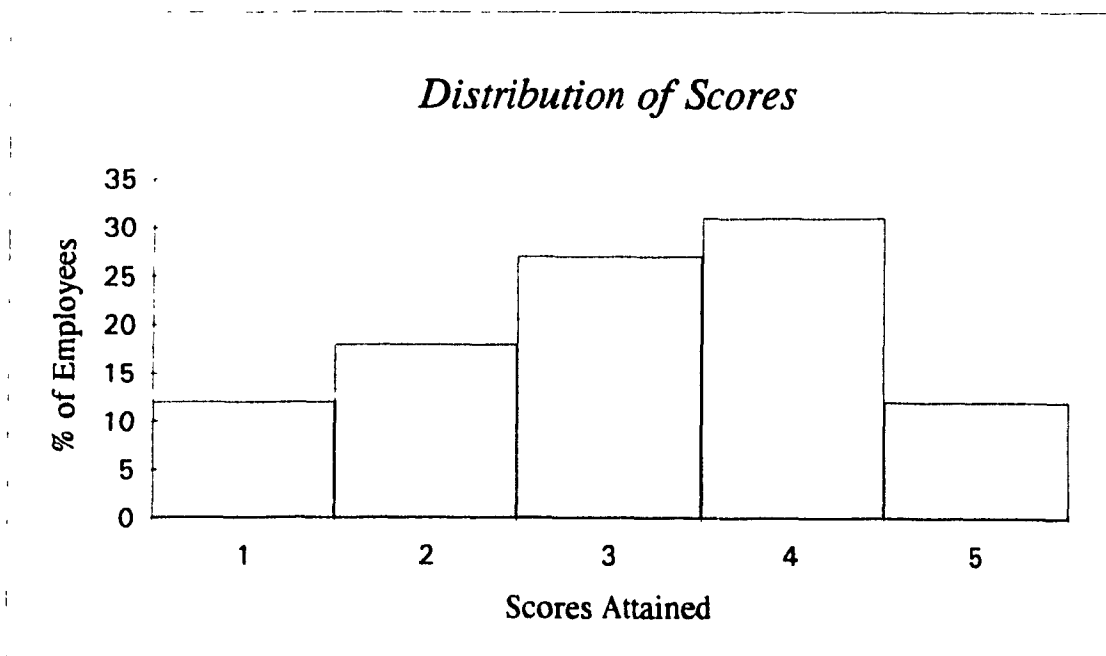
Name: Jane Sample

ID: 444444

Year-end overall score: 3.5

Group Profile
Distribution of Scores for Western Region

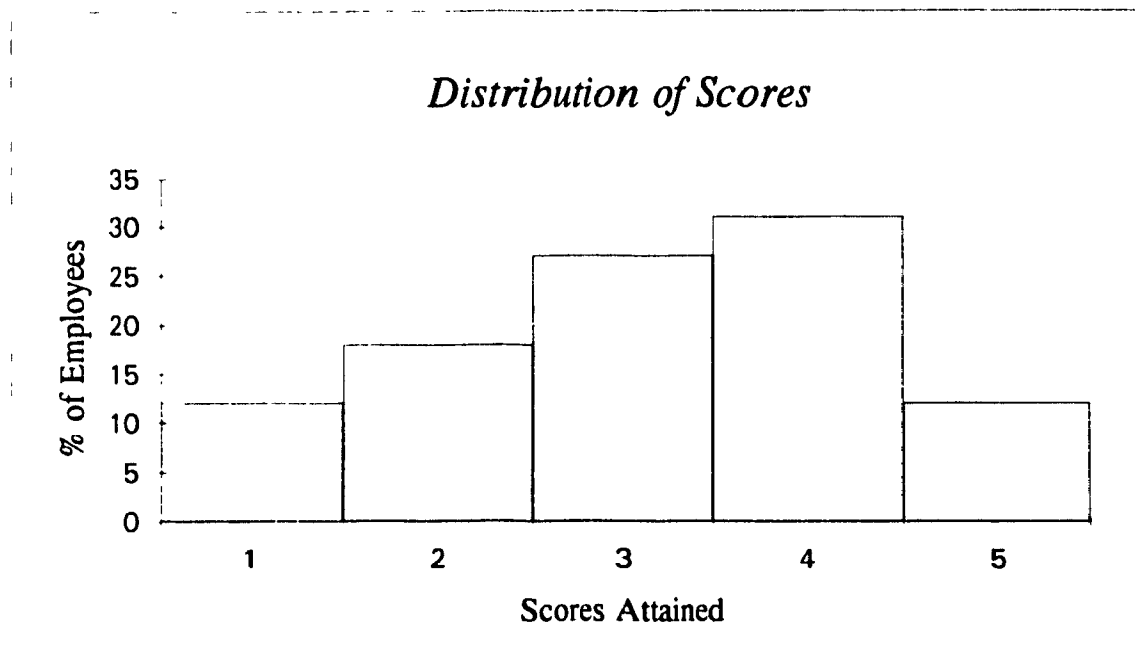
% of Employees	Attaining Overall Score
12	1
18	2
27	3
31	4
12	5



Appendix E
Year-End Group Profile

Group Profile
Distribution of Scores for Western Region

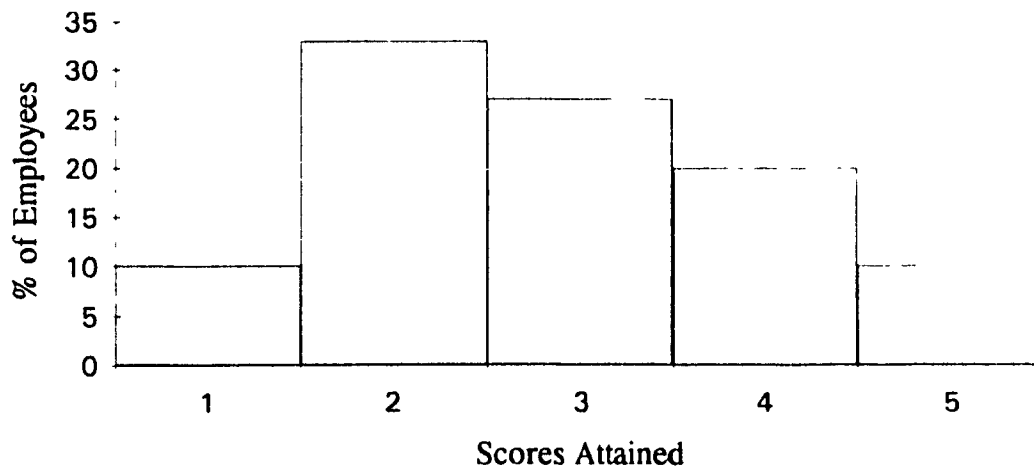
% of Employees	Attaining Overall Score
12	1
18	2
27	3
31	4
12	5



Group Profile
Distribution of Scores for Atlantic Region

% of Employees	Attaining Overall Score
10	1
33	2
27	3
20	4
10	5

Distribution of Scores

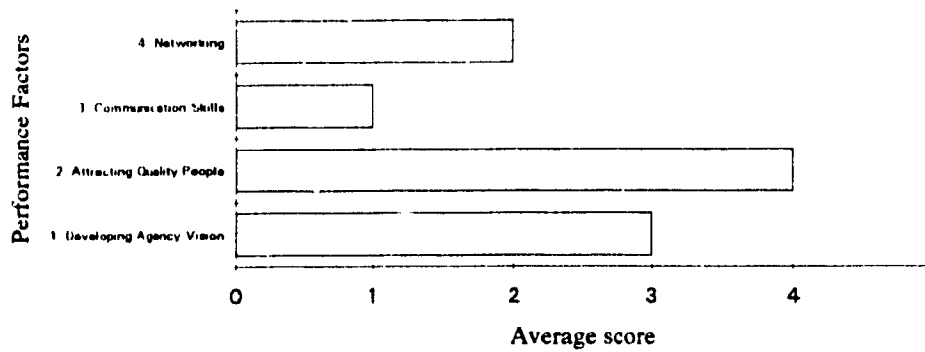


Group Profile

Average Score for each Performance Factor

Performance Factor	Average Score
1 Developing Agency Vision	3
2 Attracting Quality People	4
3 Communication Skills	1
4 Networking	2

Average score for each Performance Factor



Appendix F
Year-End Training Report

Year End
Training Report

Criteria for selection: any score less than 3

Printed: 01/04/94

Performance Factor: 1. Developing Agency Vision

Employee ID	Name	Division	Score
123456	Chris Hutcheson	Atlantic	1.8

Performance Factor: 2. Attracting Quality People

Employee ID	Name	Division	Score
333333	Bonnie Adams	Western	2.0
444444	Jane Sample	Western	2.0
888888	Jimmy Jones	Eastern	2.0

Performance Factor: 3. Communication Skills

Employee ID	Name	Division	Score
444444	Jane Sample	Western	2.0
666666	Joyce Arnold	Central	2.0

Year End
Training Report

Criteria for selection: any score less than 3

Printed: 01/04/94

Performance Factor: 4. Networking

Employee ID	Name	Division	Score
888888	Jimmy Jones	Eastern	1.0

Appendix G
Year-End Payroll Profile

Year End
Payroll Report

Printed: 01/04/94

Ranked Employees

ID	Name	Division/ Region	Date Start	Overall Score
123123	George Baker	Western	01/01/89	4.0
676767	Sam Snyder	Atlantic	12/31/90	3.6
333333	Bonnie Adams	Western	01/01/89	3.6
222222	Joanne Smithers	Western	01/01/90	3.6
666666	Joyce Arnold	Central	01/01/76	3.5
151515	Jim Patterson	Atlantic	12/31/93	3.5
444444	Jane Sample	Western	01/01/80	3.5
123456	Chris Hutcheson	Atlantic	12/16/93	3.3

Appendix H
"Star Performers" Query

Star Performers in:
 Communication Skills
 Networking

Page No. 1
 01/04/94

Ranked Employees

ID	Name	Division/ Region	Date Start	Combined Score
676767	Sam Snyder	Atlantic	12/31/90	5.0
333333	Bonnie Adams	Western	01/01/89	4.5
222222	Joanne Smithers	Western	01/01/90	4.0
666666	Joyce Arnold	Central	01/01/76	3.5
151515	Jim Patterson	Atlantic	12/31/93	3.3
123456	Chris Hutcheson	Atlantic	12/16/93	3.0
444444	Jane Sample	Western	01/01/80	3.0
123123	George Baker	Western	01/01/89	2.5

Appendix I
"Developmental Needs" Query

Training Needs for:
 Developing Agency Vision
 Attracting Quality People

Page No. 1
 01/04/94

Ranked Employees

ID	Name	Division/ Region	Date Start	Combined Score
123456	Chris Hutcheson	Atlantic	12/16/93	2.5
666666	Joyce Arnold	Central	01/01/76	3.0
222222	Joanne Smithers	Western	01/01/90	3.5
444444	Jane Sample	Western	01/01/80	3.5
123123	George Baker	Western	01/01/89	4.0
333333	Bonnie Adams	Western	01/01/89	4.5
151515	Jim Patterson	Atlantic	12/31/93	5.0
676767	Sam Snyder	Atlantic	12/31/90	5.0

Appendix L

Frequency of Responses: Aspects of Computer Program

Aspects of Computer Program

1. The options presented in the menus were:

Clear	<u>2</u>	<u>2</u>	—	—	—	Confusing
Difficult to browse	—	—	—	<u>3</u>	<u>1</u>	Easy to browse
Incomplete	—	—	—	<u>3</u>	<u>1</u>	Complete
Grouped Logically	<u>2</u>	<u>2</u>	—	—	—	Grouped Illogically

2. The screens presented were:

Clear	<u>2</u>	<u>2</u>	—	—	—	Confusing
Interesting	<u>1</u>	<u>3</u>	—	—	—	Dull
Appropriate	<u>2</u>	<u>2</u>	—	—	—	Inappropriate

3. The special keys (<F1>, <ESC>, <F7>, <F10>, and <ENTER>) were:

Consistent	<u>2</u>	<u>2</u>	—	—	—	Inconsistent
Easy to recall	<u>2</u>	<u>2</u>	—	—	—	Difficult to recall

4. The message lines at the bottom were:

Helpful	<u>3</u>	<u>1</u>	—	—	—	Not helpful
Concise	<u>1</u>	<u>3</u>	—	—	—	Rambling
Appropriate	<u>2</u>	<u>2</u>	—	—	—	Inappropriate

Data Entry

5. Adding, modifying and deleting manager demographics was:

Time consuming	<u> </u>	<u> 2 </u>	<u> 1 </u>	<u> </u>	<u> 1 </u>	Quick to use
Valuable	<u> 2 </u>	<u> 2 </u>	<u> </u>	<u> </u>	<u> </u>	Worthless
Flexible	<u> 1 </u>	<u> 3 </u>	<u> </u>	<u> </u>	<u> </u>	Inflexible
Confusing	<u> </u>	<u> </u>	<u> </u>	<u> 3 </u>	<u> 1 </u>	Clear

6. The system for choosing objectives was:

Time consuming	<u> </u>	<u> </u>	<u> 1 </u>	<u> 2 </u>	<u> 1 </u>	Quick to use
Valuable	<u> 1 </u>	<u> 3 </u>	<u> </u>	<u> </u>	<u> </u>	Worthless
Flexible	<u> </u>	<u> 4 </u>	<u> </u>	<u> </u>	<u> </u>	Inflexible
Confusing	<u> </u>	<u> </u>	<u> </u>	<u> 3 </u>	<u> 1 </u>	Clear

7. Weighting the objectives and performance factors was:

Time consuming	<u> </u>	<u> </u>	<u> 1 </u>	<u> 1 </u>	<u> 2 </u>	Quick to use
Valuable	<u> 1 </u>	<u> 2 </u>	<u> 1 </u>	<u> </u>	<u> </u>	Worthless
Flexible	<u> 2 </u>	<u> 1 </u>	<u> 1 </u>	<u> </u>	<u> </u>	Inflexible
Confusing	<u> </u>	<u> </u>	<u> </u>	<u> 2 </u>	<u> 2 </u>	Clear

8. The system for recording critical incidents was:

Time consuming	<u> </u>	<u> </u>	<u> 1 </u>	<u> 2 </u>	<u> 1 </u>	Quick to use
Valuable	<u> 1 </u>	<u> 2 </u>	<u> 1 </u>	<u> </u>	<u> </u>	Worthless
Flexible	<u> 1 </u>	<u> 3 </u>	<u> </u>	<u> </u>	<u> </u>	Inflexible
Confusing	<u> </u>	<u> </u>	<u> </u>	<u> 2 </u>	<u> 2 </u>	Clear

9. The system for performing the quarterly review was:

Time consuming	<u> </u>	<u> </u>	<u> </u>	<u> 2 </u>	<u> 2 </u>	Quick to use
Valuable	<u> 1 </u>	<u> 3 </u>	<u> </u>	<u> </u>	<u> </u>	Worthless
Flexible	<u> 1 </u>	<u> 3 </u>	<u> </u>	<u> </u>	<u> </u>	Inflexible
Confusing	<u> </u>	<u> </u>	<u> </u>	<u> 2 </u>	<u> 2 </u>	Clear

Reports

10. The report generation was:

Time consuming	<u> </u>	<u> </u>	<u> 1 </u>	<u> 2 </u>	<u> 1 </u>	Quick to use
Valuable	<u> 1 </u>	<u> 2 </u>	<u> 1 </u>	<u> </u>	<u> </u>	Worthless
Flexible	<u> 1 </u>	<u> 1 </u>	<u> 2 </u>	<u> </u>	<u> </u>	Inflexible
Confusing	<u> </u>	<u> </u>	<u> </u>	<u> 3 </u>	<u> 1 </u>	Clear

Queries

11 The queries were:

Time consuming	___	___	___	<u>3</u>	<u>1</u>	Quick to use
Valuable	<u>1</u>	<u>2</u>	<u>1</u>	___	___	Worthless
Flexible	<u>1</u>	<u>3</u>	___	___	___	Inflexible
Confusing	___	___	___	<u>2</u>	<u>2</u>	Clear

12 Overall, the computerized performance appraisal system was:

Time consuming	___	___	<u>1</u>	<u>2</u>	<u>1</u>	Quick to use
Valuable	<u>2</u>	<u>2</u>	___	___	___	Worthless
Flexible	<u>1</u>	<u>3</u>	___	___	___	Inflexible
Confusing	___	___	___	<u>3</u>	<u>1</u>	Clear