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MANAGING STAFF RETENTION AND TURNOVER

One of the topics of major interest today is managing software development—getting projects completed on schedule and within cost estimates. One aspect of this area that has not received a lot of attention recently is the effect of computer staff turnover on software projects. With a not-unusual staff turnover rate of 20-35% a year, it is little wonder that projects are often delayed and more costly than anticipated. Managing staff turnover requires knowing where and why it is occurring. So in this report we shall look at the reasons why people leave jobs, why they stay on jobs, and what data processing management can do to better manage computer staff retention and turnover.

Rainier National Bank, with headquarters in Seattle, Washington, is a bank holding company. It includes the bank, a mortgage company, a credit company, and a leasing company. Based on total assets, Rainier Bank is the fiftieth largest bank in the United States.

In 1975 the bank changed management in the information systems department. The new management initiated an aggressive program for increasing the bank's data processing services and capabilities. This included a heavy emphasis on attracting and retaining employees.

The data processing department now has 400 employees, in systems development, computer operations, proof and transit (the clerical job of encoding checks), and systems services (to outside users). In early 1975, systems development had 25 employees, today it has 62; the entire data processing department has experienced a similar growth rate over the past two years.

In 1976, the information systems department began incrementally implementing a number of related personnel programs. At that time they had no working job descriptions, no structure relating the various departmental jobs, and no coordinated training program. The program that has evolved over the past year and a half includes a career development program, a performance appraisal system, and a coordinated technical training program.

Career development program. Early in 1976, management selected Development Systems International Corporation (DSI) of Los Angeles, California, to create a career development program. From March 1976 until March 1977, three to five people from DSI interviewed randomly selected personnel from each job category and reviewed the few existing job descriptions. From the information gathered they created job descriptions which identified the tasks and skills needed for each job. DSI also identified relationships between the jobs, as well as career paths. And they formulated an administrative procedure for using the career development program.

In March 1977, after the program was completed, the managers and supervisors within the department were given a one-half day workshop that explained how to integrate the program into the existing performance appraisal system. They were also shown how to create new career paths

for individuals.

It was explained that once a year an employee would meet with his manager in order to formulate a one-year career development plan. During this meeting, probable near-future assignments would be discussed, based on both the company's needs and the employee's career aspirations. Skills needed for these projects or promotions would be identified, and needed training would be scheduled. The purpose of the program is to help managers better coordinate, on an individual employee basis, employee resources, technical training, and long-term career planning. It fits in well with the short-term performance appraisal system.

Performance appraisal system. The performance appraisal system was implemented in July 1976. Each quarter an employee and his supervisor meet to do two things: (1) to evaluate the employee's performance toward the yearly goals set in the career development plan, and (2) to revise or add objectives if the needs have changed.

Technical training program. Shortly after selecting DSI to develop the career development program, Rainier Bank signed a contract with Deltak, of Chicago, Illinois, for selected audio/visual cassette training courses. These courses are used in ten individual study carrells within the department. The bank also has a tuition reimbursement program for outside education and training. During 1976 each employee within systems development spent about 8% of his time in training; and this training is now coordinated with the career development program.

Systems development department management has found that personnel programs that treat employees as individuals are preferable to programs that put employees into groups. They have found that these programs give their employees more job satisfaction and reduce turnover. Before their new personnel programs were implemented, the department had a staff turnover rate of over 20% a year. After the new programs began, this rate dropped to 14%, a drop which management felt was promising. They also believe that the low turnover rate, despite the huge growth in the department, was due to their new individualized personnel program. These immediate results of the individualized approach to personnel indicate to them that it is a promising way to manage computer staff retention and turnover.

Pacific Mutual Life Insurance Company

Pacific Mutual Life Insurance Company last year ranked 29th in assets among more than 1,800 life insurance companies in the U.S. With headquarters in Newport Beach, California, Pacific Mutual employs over 1,800 people and has assets of almost $2 billion.

We have discussed Pacific Mutual's data processing activities in a number of previous issues, among them the August 1972 and July 1975 issues. As we discussed in these issues, in the early 1970s Pacific Mutual implemented an extensive career development/technical training program within the data processing and systems department. A number of technical and management career paths were developed, with each path tied to specific training modules. They feel that this program has contributed to lowering their systems staff turnover.

In conjunction with this program, Pacific Mutual has been looking in recent years for an objective, consistent way to assess the technical knowledge of their programmers and system analysts. Such a standard measure would allow them to better place their employees on projects. It would indicate where remedial training is needed. And it would allow them to improve their hiring process, by enabling them to verify the programming knowledge of job applicants rather than having to rely on the applicant's judgment of his own skills.

In June 1976 Pacific Mutual heard about the On-line Programmer Knowledge Survey developed and marketed by INSCO Systems Corporation of Neptune, New Jersey. This is a multiple choice test based on a knowledge of the IBM OS/VS operating system. It measures the programming skills in eight areas: hardware architecture, OS/VS concepts and facilities, linkage editor, testing and debugging, JCL, COBOL, COBOL optimization and modularization, and assembly language. The complete test has 189 questions and requires about 2½ hours to complete. It is taken on-line at a CRT terminal connected to INSCO's computer center. When the test has been completed the test administrator can immediately receive the test results on the CRT terminal. That same day a printout of the test results and a diagnostic report, noting recommended training actions in specific

areas, is mailed out by INSCO.

In September 1976 the Pacific Mutual systems department gave the INSCO test a 1½ week trial. Five staff members, ranging in programming and system analysis experience from five months to ten years, took the test and evaluated it. These people liked the test, saying that, in general, the questions were sufficiently difficult and relevant for testing the programming skills needed at Pacific Mutual. So in December they agreed to purchase the service for one year, guaranteeing that at least 60 tests would be administered within that time, both to all 68 staff members and to programming job applicants.

One Hazeltine CRT terminal was acquired and provisions for the use of local connection to INSCO via Telenet were arranged. One secretary was given the responsibility for administering the test to the staff—two each day, one in the morning and one in the afternoon. And a carefully worded memo was sent to each staff member describing the test and the reasons why it was being given. The department stressed that the results would *not* be used for performance reviews, but rather for making more objective assessments of technical skills for project staffing and for identifying individual training needs.

Since last December the test has been administered to most of the systems staff, including the section managers. They have found that it is easy to administer, it provides immediate scoring, and it allows comparisons to a standard profile based upon an individual's experience level. When the entire systems department has been tested, INSCO will create a Pacific Mutual systems profile. This will differ from the general profile usually provided by INSCO because Pacific Mutual does not emphasize assembly language, hardware architecture, and OS/VS concepts.

For screening job applicants, a shortened version of the test is used. It stresses JCL, COBOL, and testing and debugging. This test is administered only after a section manager has interviewed a non-entry level applicant and feels that the applicant is a possible hire. The test scores have influenced them to hire or not hire several people who appeared questionable during the interview; it confirmed or negated doubts raised during the interview. Pacific Mutual figured that their use of the test for one year would be cost justified if they avoided only one bad hire. They are pleased with its use in this manner because they feel more confident in the skills knowledge of their new hires. And they believe it will help them reduce their staff turnover that would result from incomplete hiring practices.

Evaluating staff job dissatisfaction

Managing employee retention and turnover really becomes a study in evaluating employee job satisfaction. When employees become dissatisfied, they may become turnover statistics, or may continue to work at the same job, unhappily. In either case, management should be concerned, as well as interested in aligning each person's job satisfaction with company goals.

In the most extreme case, the dissatisfied employee will leave the company. In the computer industry, when the job market looks good, computer professionals appear to leave a job with little hesitancy. Hoberman (Reference 1) says that if programmers are improperly placed or kept on a job too long, they are as just apt to leave as they are to complain to management. This point was reinforced by the people we talked with. When the job market is tight, there is little turnover; but when the job market opens up, programmer turnover is typically over 20%. What this says is that a large number of programmers are dissatisfied with their jobs. This does not seem like a particularly favorable situation from an employer's point of view. But, apparently, most EDP managers live with it. Possibly they have not had experience in solving such personnel problems, or maybe they think that trying to retain people costs too much money.

Whatever the reason, we think that possible solutions to the problem of retaining EDP people will be of interest to management. One place to start is to enumerate the visible signs of employee dissatisfaction. Shore (Reference 2) gives the following list of symptoms of employee dissatisfaction:

SYMPTOMS OF EMPLOYEE DISSATISFACTION

1. Excessive tardiness
2. Excessive time away from work station
3. Low productivity
4. Low quality of work
5. Indifference toward work rules
6. General lack of cooperation
7. Derogatory comments about the company/management
8. High rate of absenteeism

9. Horseplay during working hours
10. Long lunch periods or coffee breaks
11. Subtle or outright sabotage
12. Election to have a union
13. Increasingly active participation in the union
14. Frequent or widespread grievances

Shore states that when several of these symptoms are occurring, management should begin to look for the causes.

Flowers and Hughes (Reference 3) also discuss employee job satisfaction and dissatisfaction. They categorize the types of "inertia" that put pressure upon employees to stay with their jobs. They contend that people will stay with their jobs until some force causes them to leave. Within a company, Flowers and Hughes see factors relating to two types of inertia: job satisfaction and company environment. For people familiar with studies on job motivation, these factors are analogous to Frederick Herzberg's job intrinsic motivators and his job extrinsic (hygiene) factors.

Job satisfaction factors, which they call motivational factors, relate to the job itself: the person's feeling of achievement, the recognition of this achievement by others, his level of responsibility, his perceived growth potential, and such. Company environmental factors, called maintenance factors, relate to the work rules, the company's facilities, the company benefits plan, wages, supervision, and job security.

A third group of factors are external to the company. They are called environmental factors. They include perceived outside job opportunities, community relations, family ties, financial obligations, friendships, etc.

Based upon these three types of factors, Flowers and Hughes define four groups of employees. One group is known as *turn-overs*. These employees dislike their jobs and they have few maintenance or environmental pressures keeping them with their particular jobs. They will leave at the first opportunity. Management may or may not want to try to improve the situation for these dissatisfied employees to induce them to stay.

The second group is the *turn-offs*. These people are highly dissatisfied with their jobs, but they will stay because of the maintenance and environmental factors. They may feel that they are too old to leave, or they may have built up a large amount of company benefits. Or they may feel that they have become technically obsolete. In any event, they feel trapped, or locked in. So they will look for outside help from a third party, such as a labor union or a government agency. They may also change their behavior, by saying, for example, "I will do exactly as told and no more." Employees in this group physically stay on the job, but psychologically they have left already, Flowers and Hughes point out. And they are prime candidates for union efforts. They may also generate employee relations problems, productivity problems, or personal problems, such as alcoholism, chronic illness, divorce, etc.

This group of employees should be of great concern to management If steps are taken to improve their job satisfaction, management can avoid problems as well as improve employee morale.

The third class of employees is the *turn-ons*. These people stay because they have high job satisfaction; but they feel no maintenance or environmental pressures to stay. Company benefits, family obligations, etc. do not reinforce their desire to stay. They stay because they like their jobs. These are desirable, productive employees; however, if managerial actions reduce their job satisfaction, they may join the turn-over group and leave at the first opportunity. By identifying this group and monitoring their job satisfaction, management may be able to prevent needless turnover here.

The fourth group is the *turn-ons-plus*. These employees have high job satisfaction, plus they feel maintenance and environmental pressures to stay. They are desirable, productive employees. If their job satisfaction drops permanently, they will continue to stay because of the maintenance and environmental pressures. But they would become turn-offs, and possibly cause employee-relations and productivity problems.

Flowers and Hughes made a study of employees in private industry to discover why employees stay on the job. In their study, they took the ten most frequently cited reasons for staying on the job given by specific groups—and came up with some interesting findings. The employees with college degrees most frequently cited six motivational (job satisfaction), three maintenance (company environment), and one external environmental reasons for staying on their jobs. People without college degrees gave more

maintenance and environmental reasons. The managerial and professional employee groups gave reasons for staying similar to the college graduates. This indicates that college graduates, managers and professional employees are more likely to be turn-ons and turn-ons-plus, say Flowers and Hughes.

Flowers and Hughes also found that employees with less than five years of service stayed for internal company reasons—their job and the company environment. Employees with more than five years of service placed less emphasis on internal company factors and more relative importance on environmental factors. Dodson and Haskew (Reference 4) point out that this may have negative implications for developing an experienced workforce, unless management pays particular attention to personnel policies for longer-service employees.

Dodson and Haskew report that when the same survey used by Flowers and Hughes was given to 600 public service employees, the reasons for staying were markedly different from those given by the employees in private industry. The public service employees gave mainly maintenance reasons for staying—good supervisor relations, good working conditions, job security, benefits, and so on. Since these are not job related factors, this may indicate that these employees are a labor force of low productivity, Dodson and Haskew say. Their job satisfaction is not directly related to their specific jobs but rather to their surroundings.

As an aside, the work of these two teams—Hughes and Flowers, and Dodson and Haskew—are just two of many studies in recent years that have extended the motivational theories of Frederick Herzberg. We discussed Herzberg's theories in our August and September 1969 issues. Some researchers have indicated that, while Herzberg has pointed them in an interesting direction, his theories are possibly too simplistic and perhaps not applicable to all employee groups. Refinements such as proposed by the above-mentioned teams may be needed.

Flowers and Hughes emphasize that turnover is only one part of the job satisfaction problem. Evaluating job satisfaction among current employees who plan to stay is equally (or more) important. Unless job satisfaction of all employees is considered, wrong conclusions and solutions may be derived. They warn that carelessly conceived methods of maintaining a low turnover rate can be detrimental to the financial health of the company as well as the emotional health of its employees.

Needless to say, if a department is experiencing 20-35% turnover, it would be well to begin by examining who is leaving and why.

Why worry about staff turnover?

As in all fields, the study of personnel retention and turnover has a unique jargon. We shall define our use of some of these specialized terms here.

Turnover is the degree of movement across the membership boundary of an organization, as defined by Price (Reference 5). This includes comings (accessions) and goings (separations). It does not include promotions and transfers; from the point of view of any particular department, however, these two could also represent turnover. The most widely used measure of turnover is called the crude labor turnover rate (or the crude separation index). It is the number of separations (per month, year or whatever) divided by the average number of members of the organization for that period, times 100. We shall discuss the use of this measure later in the report.

There are two types of *separations*, voluntary and involuntary. Involuntary separations include layoff, dismissal, retirement, illness, death, pregnancy, and possibly marriage. In this report we shall be interested only in the other kind of separation—voluntary separation, the people who quit. Most turnover is voluntary, except during periods of high unemployment.

In order to track voluntary turnover, a clear definition of the separations included in the measure must be determined and standardized. That is why the seemingly elementary definition given above becomes important.

In this report we shall concentrate on certain types of computer personnel: programmers, system analysts, and system designers. We shall not discuss managing the turnover of EDP managers, data entry personnel, or computer operations people. Of course, the basic principles discussed can be applied to any group of employees within a company.

We have heard it said that worrying about staff turnover is a thing of the past in the computer industry. In the mid and late 1960s there was a

flurry of interest in the subject. Companies spent a lot of money experimenting with different techniques to cut down on their high EDP staff turnover. When these techniques failed to work as expected, EDP management became disillusioned and concluded that when the labor market is good, high staff turnover is inevitable.

Has anything new occurred in the field since then to justify a renewed interest in managing personnel turnover? From our research we found nothing particularly revolutionary. What we found was that articles on employee retention and turnover within the past five years have one theme: *Techniques for dealing with turnover can work if they are applied on an individual or homogeneous group basis.* These techniques are most certain *not* to work if applied on a company-wide or department-wide basis. We found this point echoed over and over in the literature. We assume this is why many past efforts failed; they were applied to too large or heterogeneous a group.

We also found some interesting studies on EDP staff turnover that shed light on past productive and not-so-productive efforts on dealing with turnover.

Staff turnover embodies two issues of interest to the employer: the costs of the separation and the reasons for the separation. Whether computer staff turnover is a problem depends upon the answers to these two questions: Is it costing too much money? Are employees leaving for the wrong reasons?

Costs of turnover

Cawsey and Richardson (Reference 6) state that employers do not realize the costs of employee turnover until they investigate closely. Hoberman (Reference 1) estimates that it costs from $5,000 to $9,000 to replace a programmer who has quit. Replacing a project leader can be even more expensive, particularly if it requires replacements and promotions within the department.

To get an idea of where these costs come from, we base our discussion on Zimmerer (Reference 7). He defines five types of costs. During the *separation and replacement phase* (from the time the person leaves until the time a replacement is working at full productivity) his projects are adversely affected. Numerically, a project has lost only one member. In actuality, the associated costs may be much greater. Normally two things may happen. Either the productivity of the project drops or the other team members work overtime to make up for the loss of this person. These costs are admittedly hard to estimate. In the most severe case, where the employee was a key person on a project, the project may stop completely until a replacement is found. The loss of a key person on a critical phase of a project may have huge associated costs.

In addition, even if the project is still moving along, one person's leaving will surely affect the unity of the team. The other project members' reactions to their teammate's quitting may adversely affect their own productivity.

The two costs that Zimmerer says occur during this phase are employee overtime costs and the costs of productivity not achieved, such as lost time, delay of project, customer dissatisfaction, etc.

During the *recruitment and selection phase* there are the costs within the EDP department of the time expended by management interviewing applicants. Zimmerer does not include the cost of the personnel department here because that department is already included in overhead. He would include their costs only if they worked overtime on replacing a particular staff member. If an employment agency is used, then this is an additional cost.

During the *induction phase,* once a new person has been hired, there is the cost of processing him into the payroll, orienting him to the company, and training him for his job. If an in-house training group exists, Zimmerer would not include them in this cost analysis because they are already included in overhead. The cost of orienting and training a person often requires the time of an experienced EDP department employee. While he is helping the new employee learn the job, his own productivity on his other work is reduced. This is a cost.

During the *orientation phase* the employee is working for the company, but he is not yet up to full productivity. Until his contribution to profit equals his monthly salary, his employment is a cost to the company. Within data processing, the lack of documentation prolongs this phase. And during this same period, his project team is not working at full productivity either.

Besides these various personnel costs associated

with turnover, there are also *capital equipment costs.* These relate to the idleness of the equipment caused by the employee's absence. This is the proportional idleness of machinery, technical equipment, and office equipment that is not being fully utilized because of staff turnover.

The costs of a single staff departure may not end here. If his replacement does not fit in well with his new co-workers, there may still be decreased productivity costs on the part of these other team members. And these employees may lose some measure of confidence in management because of the poor selection policies. Or the replacement may become dissatisfied and leave, and another whole round of costs must be added.

Cawsey and Richardson (Reference 6) recommend beginning a study of turnover by making a cost/benefit analysis. This will help determine the magnitude of costs that turnover represents within a company. Only by attempting to estimate the above costs can one have any idea whether it is cost justified to investigate and implement programs to reduce EDP staff turnover.

Reasons for leaving

Chandor (Reference 8) discusses ten reasons that computing staff give for leaving their job. If these reasons are out of management's control, then he considers them acceptable. If, however, management could influence or cause them, then he feels they are unacceptable, from management's point of view.

Chandor states, and a number of other authors agree, that *dissatisfaction with pay* is the reason most often given during an exit interview. Chandor says that this is probably not the real reason, if the company's pay scale is in line with the market area. Cross (Reference 9) states that a person may leave for more money if he feels that his salary is not commensurate with the workload or if he feels that he is getting poor benefits. Chandor would say these factors are controllable by management, thus this turnover could be prevented.

Sometimes a person really does *need* more money, because he has either over-estimated his buying power or because he has become overcommitted financially (due to hospitalization of a family member, or such). Chandor considers these two real reasons acceptable for a person leaving for more money.

Boredom, dissatisfaction with the working conditions, or *lack of confidence in management* are other reasons given for leaving. Chandor states that these reasons result from a lack of management direction and control. They may indicate poor turnaround time, inadequate resource scheduling involving frequent changes of staff, bad departmental relationships, or poor project control. Since they are within management control, they are unacceptable reasons for leaving.

The end of a project, a blocked career path, the need for stimulation of technical interests, or the feeling that one's talents are unappreciated are also reasons given for leaving. Chandor sees these as being under management control. He recommends instituting a coordinated career path/training program and a regular appraisal system if these reasons are often given. He sees these as being acceptable reasons for leaving only if the employee has an unrealistic assessment of his abilities and promotability or if there are few higher positions available within the company, and it appears that the encumbents will stay in these jobs for a while. These circumstances may be out of management's control.

A desire for a change of location or *an unwillingness to move to a new company location* may be initial reasons for leaving. Chandor considers these acceptable reasons if they are not masking other reasons.

Headhunting (job offers via outside search firms) is an acceptable reason for leaving if it is truly unexpected. But Chandor suspects that most headhunting offers result from an initial approach by the employee, because he is dissatisfied with his current job.

In a Diebold study on EDP turnover (Reference 10), they found that companies which listed employee dissatisfaction with salary or lack of opportunity for advancement as the primary reason for their turnover had an above-average amount of turnover. In contrast, companies where employees listed dissatisfaction with work assignment or pirating as the main reasons had lower-than-average turnover.

Chandor, and people we talked with, pointed out that all voluntary turnover should be foreseen by data processing management. Chandor maintains that any unexpected resignation (that not discussed for about six months) should be taken as a danger signal by department management. It may signal that others will soon leave, because

lower level management has been too busy with detailed technical supervision or is lacking in management skills.

Chandor and others are not arguing for zero staff turnover. They are interested more in management identifying who is leaving and why, in order to determine whether personnel policies and management procedures should be changed.

Benefits of turnover

Actually, Chandor is very much in favor of turnover, if it is for acceptable reasons and is at a desirable level. He considers 10-15% turnover a year a desirable level, with the 10% figure applying to smaller departments. If the level is less than this, it may indicate that the employees are afraid to leave. They may have become technically obsolete, because they have not been exposed to new ideas from new people.

Willoughby (Reference 11) points out that perhaps as much as 20% turnover is to be expected, because the employees in general who turn over the most often are also the employees who make up most data processing staffs. They are men who are under 30 years of age, who have few years of service, and who work in a managerial status (and/or exempt from overtime pay requirements) in large companies.

Goetz and Zimmerer (Reference 12) state that new employees represent a gold mine of ideas that employers can use to improve established policies and procedures, increase productivity, and cut costs. But few companies use this resource, they say. Instead, employers concentrate on "fitting" new hires into the organization, rather than finding out what the new employee can do for the company. For example, Goetz and Zimmerer point out that new employees can objectively evaluate a firm's policies and procedures based upon their past experiences. By soliciting and evaluating new employee's suggestions and criticisms, management could improve operations.

Cross (Reference 9) points out other possible benefits of turnover. Bringing in new personnel can allow a company the opportunity to realign job functions to take better advantage of the staff's capabilities. Also, delegation of authority and responsibilities can be changed. And people who currently are "bottlenecks" can be moved to make better use of their talents.

Thus, staff turnover is not all bad; in fact, a reasonable amount is healthy. Management may wish to maintain a certain level by purposely moving interested programmers or system analysts out of data processing into user departments. This would be very beneficial for future computer applications development for these departments. So the concern is whether there is too much turnover and whether people are leaving for reasons that really should be better controlled by management.

Tracking turnover

In our study we found that there are numerous ways of calculating turnover. Pettman (Reference 5) presents a number of methods. Some measures are based on tracking employee length of service; other measures emphasize employee age, education, salary level, etc. The purpose of these various methods is to give management better information on exactly which groups of employees are leaving the company. The following may clarify why the need for an appropriate measure for tracking turnover is important.

Van der Merwe and Miller (Reference 5) discuss measuring and tracking turnover. They argue against using only the crude labor turnover rate, because it leaves out the length-of-service factor and the stability of the staff size. If the staff size is growing, this would not be reflected in the crude labor turnover rate. Also a turnover rate of 100% could mean that the entire staff has turned over once, or that half of the staff has turned over twice, or that one-fourth of the staff has turned over four times and so on. Of these three circumstances, the first is the most serious, because there is no major part of the staff which is stable; there are no long term employees on this staff.

Van der Merwe and Miller recommend combining the crude turnover rate with the median length-of-service measure. By tracking how long the leavers have been with the company, the employer can discover whether losses are long or short term employees. A high turnover rate among long term employees would require a different attack on the problem than a high turnover rate among recent hires. As we mentioned, this is just one possible approach to tracking turnover.

Techniques for managing retention and turnover

As we noted earlier, in current personnel literature authors strongly emphasize dealing with employee job satisfaction on an individual or on a homogeneous group basis. Just discovering which individual employees are "turn-overs" or "turn-offs," to use the Flowers and Hughes terminology, may lead to solutions. But what if a large portion of specific groups are turn-overs or turn-offs, such as new programming trainees, or system analysts who have been with the company about five years, or programmers who do not have college degrees? In these cases, management could look for causes within the company. Is it specific supervisors? Is it certain company policies? Is it the particular job? A review of recent personnel studies might also help. We shall mention some findings of a few such studies in the following sections.

But rather than taking solely a firefighting approach to staff retention and turnover, Caswey and Richardson (Reference 6) recommend that a company formulate an integrated plan. This includes having:

- A recruitment policy
- A short term retention strategy
- A long term retention strategy

Recruitment policy

In formulating departmental or company recruitment, hiring and selection policies, Cawsey and Richardson (Reference 6) suggest that management ask: Whom are we hiring? Whom are we managing to keep? What is a desirable employee profile? Do our current selection activities lead toward this profile? And do our retention activities encourage desirable employees to stay?

Hiring the type of person who will stay and be happy has many dimensions. These include finding people whose goals fit in with the company goals. For instance, if a company does not pay particularly high salaries to programmers, but it does offer continual programming challenges, then managers should not hire programmers who left their last jobs for more money. Such people are very likely to leave these jobs for the same reason. This may seem obvious; yet, unless such unofficial policies are known and used, poor hires can result. In this respect, most authors suggest giving an applicant a realistic rather than an inflated picture of the company during a recruitment interview. Over-selling the company or the job will undoubtedly produce future disappointment and hence more turnover.

The Diebold study on EDP turnover (Reference 10) reported that problems in recruitment and selection policies in data processing have been caused by: (1) using inappropriate selection criteria, such as restricting programming hires only to college graduates without having good reasons for doing so; (2) doing inadequate screening of applicants; (3) misrepresenting and overselling jobs; and (4) failing to realize that the data processing market is a national market. The Diebold researchers found that data processing professionals were as willing to change residences as they were to change jobs. They also found EDP salary levels to be fairly consistent across the United States, regardless of industry.

Harold (Reference 11) points out that over-recruiting is probably a greater danger in data processing than under-recruiting. Choosing the best of the entrants is easy, yet it results in higher salary levels than necessary and an above-average rate of turnover.

Besides the interview, at which realistic information should be both given and received by the interviewer, there is the problem of judging the applicant's skill level. Since many data processing professionals are adept at writing resumes and interviewing for jobs, this evaluation of skills should not be left up to an inexperienced interviewer or the personnel department. Willoughby (Reference 11) points out that aptitude tests may be fine for judging the skill potential of programming trainees, but they do not indicate much if the applicant has already taken them several times. A more realistic assessment can come from giving a skills test.

An Auerbach study (Reference 13) discusses two skills tests and also lists the suppliers of many others. The people at INSCO, who market the programmer knowledge survey discussed earlier, recommend that before using skills tests for hiring purposes, current employees should be tested to discover their skill levels. Once a department profile of skill levels has been compiled, then the skill level of an applicant can be more accurately judged. So combining this type of test with the services of an experienced interviewer, who knows the company's work environment, is one

way to achieve more effective hiring practices. Willoughby (Reference 11) states that high turnover in the early years is a result of errors in the selection process, and management should reevaluate their recruitment policies.

Short term retention strategy

Short term retention strategy refers to properly integrating a new employee (and his family) into the company and the community. It means spreading the orientation period over more than the first two days of employment, say Cawsey and Richardson (Reference 6). They recommend that the employer become involved in helping the new employee settle down as smoothly as possible. This includes settling into his new community, if necessary, as well as into his new job.

Hill (Reference 5) calls this orientation time the "induction crisis." It is the time when the employee-company relationship is most brittle, and when leavings are the most likely to occur. Hill states that a new employee's attitude is based upon the assumption that he will leave the new job if things do not work out. But, at some point in time, this attitude changes to one based upon the assumption that he will stay with the company. In a study that Hill performed in a steel company, this attitude change was reflected by a peak in the number of absences by the new employees. During the second half of the first year of employment, the new employees in this particular company had the most absences. It was during this time that these people were going through the most stress in their company-employee relationship. They were deciding whether to stay or not. Hill states that an employer who tolerates an increased rate of absence during this time, when the employee is settling into a new job, is doing a lot to help keep that employee.

Another short term strategy that Hill recommends is having one individual to whom a new employee is consistently responsible during the early months on the job. The supervisor who hires the new employee should be this person. This policy puts the turnover problem on the supervisor's shoulders. We have heard it said that people work for a boss, not for a company. The behavior of the immediate supervisor can make the difference in turnover. But, unless the supervisor is given explicit responsibility for turnover among his subordinates, Hill says, turnover will be like the weather—everyone grumbles about it but no one is responsible for modifying it.

Willoughby (Reference 11) notes that many writers believe that the way a person is introduced into an organization can affect turnover. Careful introductions, attention to maintenance factors, and early introduction to productive work may help increase retention in the early periods of employment.

Long term retention strategy

Long term retention strategy refers to company policies in the areas of company benefits, training programs/career development, and the work environment. Such policies not only need to encourage employee goals that are consistent with company goals but they also need to be flexible enough to change as an employee's length of service or needs change.

Company benefits. Since the main reason given by data processing employees for leaving their job is money, it may be that management feels that the only way to reduce turnover is to increase employee compensation. This may be true in individual cases, but it is not true in general. Dodson and Haskew (Reference 4) point out that pay may or may not be viewed as a motivator, depending upon how it is given. If it is viewed as a reward for achievement, then it may act as a motivational factor, and thus contribute to greater job satisfaction. If it is viewed as a condition of the job function, then it is a maintenance factor. In this case, Dodson and Haskew state, there is controversy whether pay contributes to job satisfaction or whether it simply alleviates dissatisfaction. Thus, they say, giving department-wide salary increases may reduce turnover, but it will probably not substantially increase job satisfaction.

In the Diebold study (Reference 10), they found that salary policies alone were not the answer to turnover. Salary increases were effective for employees concerned with money. But they found many other groups of data processing employees for whom company loyalty and non-monetary factors were of more relative importance.

Chapman and Ottemann (Reference 14) report that companies which individualize their compensation and benefits system as much as possible are in a better position to attract and hold an effective work force, because various rewards are

differentially desired by different employees. They reported on a survey which measured the preferences of eight compensation options, all of which would cost a company approximately the same dollar amount. The options were: (1) a 5-day work week (7 hours and 35 minutes per day), (2) a 4-day work week (9 hours and 30 minutes per day), (3) ten Fridays off per year, (4) earlier retirement (ten days per year worked), (5) two weeks paid vacation, (6) a 5% increase in pay, (7) a pension increase of $75 per month, and (8) a family dental plan. In this survey the options preferred by the largest number of employees were the two weeks paid vacation, the 5% pay increase, and the pension increase. But younger employees were significantly more in favor of the dental plan, and the four day work week. Older employees were not in favor of early retirement. Chapman and Otteman state that most company compensation programs fail to emphasize individual differences, and this affects employee job satisfaction.

Training programs/career development. Couger (Reference 15) states that training programs and career development go hand in hand. If you have a training program but not career development, employees will take their new found knowledge elsewhere. Carter (Reference 11) notes that training people more than three months ahead of when they will use the skills is worthless because of the decrease in retention of learning. He suggests aiming for training one to three months before the skill is needed.

Career development is a long term policy for giving employees the opportunity to advance. As Willoughby (Reference 11) notes, people with a high need for advancement will leave a company unless this need is filled. And he found that emphasis on advancement increased the job satisfaction of programmers and system analysts, regardless of whether they had a high need for it or not. The Diebold study (Reference 10) found that many programmers and analysts will tolerate low salaries and uninteresting work for short periods of time if they see opportunities for improving their position in the future. But, as Diebold also found, they are likely to leave if they see their current position as a professional dead end.

Carter also points out that, to be cost effective, these programs must be coordinated to make them responsive to both company and department plans and requirements as well as to individual needs and skills. Obviously, this takes a well thought-out program. We have discussed these aspects in several past issues; specifically, in August 1970 and 1972 we discussed system analyst training and in February 1976 we discussed staff training on the multi-national scene.

Work environment. A number of authors point out that creating a work environment that reinforces an employee's perceived needs is one way of improving job satisfaction and, thus, reducing staff turnover. Willoughby (Reference 11), in studying the relationship between an employee's needs and the reinforcers in the work environment, noted some interesting findings. He was able to identify which company policies increased staff job satisfaction for programmers and system analysts. He concluded that job satisfaction for the data processing staff would increase if the work environment provides these employees with: (1) opportunities to use their abilities, (2) a feeling of accomplishment from their jobs, (3) a chance to try out their own ideas and make decisions on their own, and (4) a boss who trains his people well. Willoughby found that these "reinforcers" increased job satisfaction regardless of whether the employees felt them to be important or not.

On the other hand, such actions as increasing the compensation of a programmer or a system analyst, providing the opportunity to do things for other people, insuring variety in the work, or improving working conditions would not necessarily increase job satisfaction. These reinforcers would increase job satisfaction only if the person felt them to be very important. They would not increase the job satisfaction of an employee who thought they were moderately important. As an example, Willoughby suggested that if a programmer was paid $1,000 a month and his salary was raised to $1,100, he might quit if he thought it should have been raised to $1,200.

Willoughby reported that other studies have found that increasing the authority of programmers did not increase their job satisfaction; however, giving them autonomy did increase it. The Diebold study (Reference 10) found that the most important factor in the work environment for EDP personnel was recognition of their efforts by others.

Willoughby also found that organizations with strong moral values or job security emphasis should not hire people with low needs in these areas, because their satisfaction with these areas decreased as the reinforcement increased.

Willoughby also found that EDP organizations that do *not* emphasize: (a) keeping their staff busy, (b) opportunities for advancement, (c) independence of employees, (d) recognition of employees' efforts, and (e) management that will train their people well should either begin to emphasize these policies or question bringing in people with high needs in these areas. He found that programmers with high needs in these areas would have low job satisfaction unless these needs were reinforced in the work environment.

So recognizing a departmental work environment and changing it as necessary, to reinforce the needs of the data processing staff, is another long term retention strategy. It is one where we were unable to find much experience, but one that we think will be gaining recognition in the future.

Conclusion

Is staff turnover more of a problem in data processing than in other professions? In the Diebold study (Reference 10), they reported: yes, it is more of a problem, for two reasons. For one thing, age does not have so pronounced a dampening effect on turnover as it does in other professions. The freedom of choice seems to last longer. Secondly, there is little stigma attached to job changing in the data processing profession. People who change jobs often are viewed as career-wise, rather than suspect. It appears to be up to companies to initiate policies to reduce turnover. The data processing profession itself does not appear to be exerting pressure for its people to stay put.

From our research we can see that maintaining a relatively stable and productive data processing workforce requires specific company policies—policies that emphasize employee job satisfaction. Such policies should include recruitment, short term, and long term strategies. With personnel being the largest portion of the data processing budget, we think that the management of staff retention and turnover should be of prime interest to data processing managers.

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"Where are your CPU cycles most likely to come from in the next five years—from in-house computer centers, from distributed mini-computers, or from outside remote computing service?" That is the question we asked the data processing executives in a number of organizations. What we were after was the likely role of remote computing services in the next five years or so. What we found was that, while in-house centers and mini-computers will be taking over a number of applications currently on remote computing services, still the use of these outside services will continue to grow—and faster than the computer field as a whole, at that. We will discuss this apparent paradox next month.

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