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Retention Management

Gary J. Salton, Ph.D. and
Robert Soltysik

Abstract

Human Resource groups lack a critical function. This omission is costing larger firms tens of millions of dollars of lost profit, is negatively impacting the quality of the product being offered and can threaten the success of strategic corporate initiatives. This article describes an inexpensive initiative that can quickly offset the vulnerability using advanced but existing technology.

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INTRODUCTION

This article outlines a new professional function that can significantly reduce cost, increase efficiency, enhance product quality and improve employee morale. It is available at very low cost, can be quickly installed and will begin returning profit immediately.

The role of Retention Management is to propose, establish and execute policies, processes and procedures that improve the probability of retaining existing high performance employees. It addresses its goal by applying unique and specialized tools not available in other functions. Mathematics is used to identify specific individuals and groups of individuals at increased risk of leaving the firm. Organizational Engineering is used to effect individual placements within groups as well as to expedite full integration within the working group.

THE CURRENT CONDITION

Human assets are a vital component of all organizations regardless of their purpose and form. Human assets rank with capital as a factor of production. No business can exist without capital. No business can exist without humans. The amount of these resources can vary. But all organizations must have both or they will cease to exist.

Considerable resources and management attention is given to capital management. Accounting departments carefully monitor its distribution, Treasury staffs act to assure that capital is safeguarded and elaborate budgetary systems insure that all people and functions in the organization are involved in its optimal deployment.

Human assets are treated more casually and with far less discipline. Human Resource departments typically have an employment function charged with attracting new employees. Another HR component is charged with record keeping and administration. A training function, sometimes going under the name "Organizational Development", is often available to enhance skill levels. Compared to its capital counterpart, this arrangement leaves a gaping hole through which the vital lifeblood of an organization continuously drains.

The blood being spilled is the loss of experienced and valuable employees at all levels. In contrast to the functions of employment, payroll, benefits and training & development, there is no coordinated function charged with the responsibility of retaining existing employees. That is "everyone's" responsibility—which translates into no "one" is responsible.

COST OF TURNOVER

Estimates of the dollar cost of turn-over vary but all are high in absolute amounts. Conventional wisdom places the cost of losing a managerial employee at about 150% to 200% of annual salary (Rubis, 1998). Therefore, if a firm loses a person earning \$50,000 they can expect to be "out of pocket" by \$75,000 to \$100,000 before the new person is in place and functioning.

Anecdotal evidence on this estimate is contradictory. The Minneapolis Star Tribune reported that the termination of a HR manager cost \$133,803 (Cunniff, 1999). Public accounting firms' human resource directors estimate that turnover costs are between \$50,000 and \$100,000 per exiting employee (Moncada and Sanders, 1999). Other sources quote numbers of less magnitude. The cost of replacing a registered nurse is placed at about \$7,000 (Cohen-Mansfield, 1997) while the cost of replacing a fast food restaurant manager is set at \$21,931 (Cunniff, 1999).

The turnover of hourly workers also generates considerable cost increases. Conventional wisdom places the cost at about 75% of the hourly person's annual salary (Rubis, 1998). This formula would place the cost of replacing a non-exempt worker making \$6.00 per hour at about \$9,400. However, university research studies offer a more conservative estimate of cost. Purdue University estimates the cost of replacing a fast food worker at about \$500 (Purdue University, 1999). The University of Wisconsin places the

cost of replacing an employee earning \$9.50 per hour at \$2,288 (Pinkovitz, Moskal and Green, 1999).

The reason for the variation in estimates is probably due to the difficulty of calculation. Turnover costs are spread out among the various accounts on an income statement. For example, they might be seen in increases in unemployment insurance, advertising, medical examination costs, higher overtime for existing employees and interview expenses. The cost might also include a loss in revenue due to deteriorated service or product quality. Since the costs are not "flagged" on the income statement, they tend to be overlooked. Attention is attracted only when the problem becomes so large as to threaten the business.

But, regardless of how calculated, turnover expenses are significant in terms of absolute dollars. For example, the Supermarket News reports that the cost of turnover is **41% higher than the total profits earned** by the industry (Supermarket News, 1/31/2000).

Fast food provides another example. A restaurant chain employing 10,000 people and incurring a 140% turnover (Maynard, 1997) would expect to hire and train 14,000 new people every year. At a "low ball" estimate of \$500 per person, that firm would be incurring \$7 million in cost that would otherwise fall to the bottom line. A more realistic but still conservative estimate of about \$750 per person would send the annual cost to over \$10 million.

Nursing homes offer a similar scale opportunity. The average size nursing home is 104 beds (Rhoades, 1998). This size facility would be expected to employ about 25 people (AFSCME, 1998). Using turnover and cost data from Nursing Management (Cohen-Mansfield, 1997) a 200 unit chain can expect to incur about \$10.3 million in turnover cost per year.

Hospitals, call centers, convenience store chains, hospitality chains or other firms having relatively large percentages of low wage employees can expect to have a similar level of costs hidden in their income statements. The absolute dollar amounts involved alone should be sufficient to command senior management attention.

The importance is magnified further when the functions enduring the greatest "blood-flow" loss are considered. Typically, these are the people who actually interface with the customer. Quality deterioration resulting from new, inexperienced personnel translates into strategic, long term penalties that can ramify through the firm's financials for years into the future.

SCOPE OF TURNOVER

Employee turnover is serious in terms of magnitude as well as money. The average unemployment rate in the United States is averaging less than 5% and minimizing turnover is rapidly evolving into a point of competitive advantage. The unexpected loss of an employee can mean lengthy periods of "short staffing." This can, in turn, tax the existing staff to a point where the added workload results in even more turnover. A downward spiraling cycle can result in ever increasing consequences for the business.

In terms of volume, the average rate of turnover for all companies is estimated at

12%. However, national averages understate the turnover problem in certain business sectors. For example, Nursing Management Magazine estimates turnover at 40% to 75% in nursing homes (Cohen-Mansfield, 1997). The average rate for fast-food businesses registers turnover at 140 percent (Maynard, 1997) and the hospitality industry estimates their turnover rate at 200% (Academic Approaches, 2000).

Not only is turnover at a high level in absolute terms, it appears to be increasing. In a survey of 362 HR professionals in June 1999, 56% said that the turnover rate has increased in the last 12 months (HR Professional, 1999). The demographics of the "baby boomers" impending retirements will promise to insure that this condition will not "fix itself." Firms that do not choose to act now need only wait to feel its impact. Aging, along with death and taxes, is inevitable and the consequences of the baby boomer retirements on the workforce are equally certain. The topic is of importance to all firms.

While some firms may be able to overlook the penalty of turnover for a while longer, businesses in the high turnover sectors of the economy do not have that luxury. Here managing turnover is rapidly becoming a central "business critical" objective for the firm in general and the Human Resources function in particular. "Minimizing employee turnover now ranks with finding new employees as one of the toughest challenges in this talent-scarce economy." (Kirsner, 1998). The continued viability of the business rides, to a large degree, on the success or failure of the firm in meeting this challenge.

TRADITIONAL RETENTION METHODS

Traditional retention initiatives typically address entire groups within a firm. For example, the starting wage might be increased 50¢ per hour or life insurance might be provided upon hiring. These types of initiatives can cause an escalation of the wage and benefit structure and are typically very expensive. Thus, they tend to be done infrequently.

Actual experience indicates that typical employee retention initiatives are group focused. For example, a survey of 953 firms in Southern California by Market Research Associates identified the following retention initiatives actually being used by firms in decreasing order of their frequency (Thomas Staffing, 1999).

These large scale initiatives "typically provide a pan-organizational perspective. This valuable broad perspective is not typically within the sight lines of managers coping with increasingly demanding functional or departmental goals" (Snetsinger and Pellett, 1996). In other words, these large-scale initiatives do not provide opportunities for local management and local initiatives. They rely on a "one size fits all model"

Table 1
1997 Employee Turnover by Segment
Median Annual Rates

By Industry

Manufacturing	9.6%
Non-Manufacturing	13.2%
Finance	13.1%
Non-Business	13.2%
Health Care	15.6%

By Number of Employees

1-250	10.8%
250-499	14.4%
500-999	10.8%
1,000-2,499	12.0%
2,500 and More	9.6%

By Region

Northeast	10.8%
South	13.2%
North Central	10.8%
West	12.0%

Source: Anderson and Wahlen, 1999

applied whenever the pain reaches threshold proportions. In the process these firms fail to capture the multitude of small "pickups" that in total can sum up to a major contribution and forestall the inevitable crisis.

RETENTION MANAGEMENT

It is possible to locate a retention management function within an existing group. However, the authors maintain that Retention Management (RM) merits status as a separate entity. This judgment is founded on:

1. The magnitude of the issues being addressed merit focused attention.
2. The technology for successful RM is unique and is not usually available in other parts of an organization.

The first reason has been well documented in the preceding pages. The dollars involved are large, the scope of the problem is wide, there is every indication that it is of an enduring nature and the strategic implications of failing to successfully address it are serious. This is not the kind of issue a firm should delegate as a "side job" to an already established department or function.

The justification for the second reason—unique technology and competency—will be addressed in the remainder of this article. All of the technologies, initiatives and strategies outlined have a common denominator. They are not "one size fits all". All use sophisticated tools to exactly identify the target of intervention. The solutions proposed by the technology are specific to local conditions and circumstances. The technology avoids using sledge-hammers to kill flies. The sledgehammer works, but it can do a lot of damage.

Retention Management (RM) is focused on four points most amenable to intervention.

1. Intake: Identify those people who are most likely to do a good job and stay with it.
2. Place those people in situations where their probability of success is maximized.
3. Continuously monitor the workforce to identify those individuals most likely to exit.
4. Deploy initiatives to successfully intervene on a local basis to forestall the forecasted exits.

The level of precision and specificity being employed warrants classification of this technology under the banner of Organizational Engineering.

Table 2
Actual 1999 Employee
Retention Initiatives in
Rank Order of Use

- More starting benefits
- More training
- Provide orientation
- Higher starting wages
- More nurturing
- Offer bonus
- Increase employee evaluations
- Provide people management skills
- Provide mentors

Source: Thomas Staffing, 15th Annual Employment Survey, <www.thomas-staffing.com/survey00/>

1. HIRING OF NEW PEOPLE

Most large firms and organizations have well established and proven methods of screening out unacceptable individuals from employment. They do not, however, have equal sophistication in selecting the best among those who pass the initial "screen out."

RM uses statistical discriminant analysis to help guide the choice of people to hire. Conceptually, the process is simple.

1. Select a target group to which the process is to be applied.
2. Identify "good" and "unacceptable" people among those currently holding the position. Both performance and tenure can be considered in making these judgments (e.g., high performers who stay with the firm).
3. For each person in the current population, identify all of the attributes that might bear on job performance. These attributes can be anything—numerical values (like age) or descriptive (like appearance).
4. Conduct a stepwise discriminant analysis. This methodology will identify those attributes that can best predict the classification of a person into your "good" or "unacceptable" group.
5. Run a classical linear discriminant analysis to create a formula that discriminates between "good" and "unacceptable" constellations of attributes.
6. Imbed the formula into a simple spreadsheet program (e.g., Microsoft Excel) and distribute the program to all hiring authorities.
7. The hiring authority collects those attributes that have been discovered to be "predictors" on prospective employees, "plugs" them into the worksheet and receives a probability estimate of the likelihood that that person will fall into the "good" or "unacceptable" group.

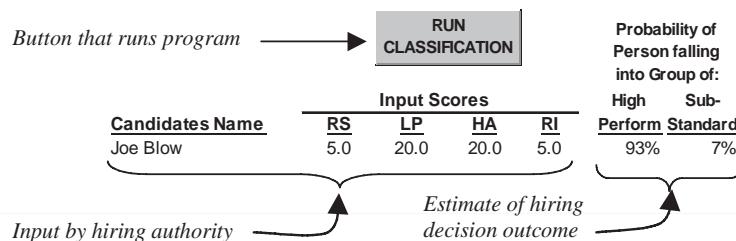
The output is not intended to be taken as a dictate. Rather, it is used as an input to be weighted in with other local factors in making the hiring decision. However, it is valuable, definitive input that can be discussed with clarity and specificity among those involved in the hiring decision.

This technology was recently employed at a large manufacturer of celebratory products (e.g., greeting cards, balloons, giftwrap, etc.). This discriminant analysis used only the strategic styles as input. The manager employing the analysis discovered that success was not a function of one particular style. Rather it was a specific combination that seemed to best predict success. An example of the program developed for their use is shown in Illustration I.

The job was then reviewed in light of the success attributes. It quickly became apparent "why" those items were critical. In effect, the method had not only provided a means of quickly determining suitability, but it had also given insight into mission critical competencies. This knowledge could then be used as a focus of training and development.

Illustration I
Actual Example of Hiring Program

ELECTRONIC MEDIA PROCESSING POSITION CLASSIFICATION ESTIMATOR



The mathematical formulas described above are obtainable from any 2nd or 3rd year textbook in statistics. However, they should be applied by someone who is knowledgeable in the field. There are many kinds of techniques for discriminant analysis (e.g., linear programming models, classification and decision trees, logistical regression, etc.). The nature of the attributes in the initial test base will determine which method is most appropriate.

The choice of the correct mathematical method should not be looked upon as a "technicality." It determines both the accuracy and reliability of the "predictions." For example, an overdetermined model can introduce "noise" that can affect the stability of the answers that the simple spreadsheet program generates. If done wrong, the program may work some of the time but not all of the time. A minor investment in competent mathematical talent, using either in-house or external consultants, will pay high dividends.

As described here, the RM function is charged with developing the technology, not applying it. RM must choose the level at which the discriminations are to be made. For example, if being applied in a supermarket, should the formula be applied to baggers, baggers and stockers or to all hourly help? Exactly, what are the attributes that might be involved in success? Exactly, who are the people who can be classified as "good" or "unacceptable?"

These types of judgement and decisions benefit heavily from local knowledge. They are best made by knowledgeable insiders. Once they are made and the data is collected, the mathematics needed to complete the program is relatively fast and straightforward. RM is needed to setup the problem; any competent statistician can solve it.

One final caution. The formulas must be tested and maintained. Situations change. For example, new technology is constantly introduced that can change the nature of a job. New product mixes can influence the relevance of particular attributes selected in earlier time periods. Part of RM's ongoing responsibility is to test and maintain the formulas already established.

At this level of participation, the RM group has already made a substantial contribution to the success of the firm. By considering the duration of tenure as well as performance, the probabilities of hiring people who are both good and will stay has been dramatically improved. The next step is making sure they are put in the right place.

2. PLACEMENT OF PEOPLE

The correct selection of new hires only insures that the people have the competencies necessary to succeed in the role for which they are selected. It does not insure that these competencies will be allowed expression.

Organizational Engineering teaches that all strategic styles and patterns are "good." It also teaches that certain mixes of these information processing patterns can frustrate all those involved.

For example, consider a manager who prizes certainty of outcome and who approaches matters with detail and precision to realize this goal. Now consider a new hire who values rapid issue resolution and who is willing to take a risk and sacrifice certainty of outcome to achieve it. Both people have their "hearts in the right place." Yet in pursuing their individually meritorious goals, each will frustrate the other's ability to realize their goal. This is a formula for substandard performance as well as the early exit of the new hire.

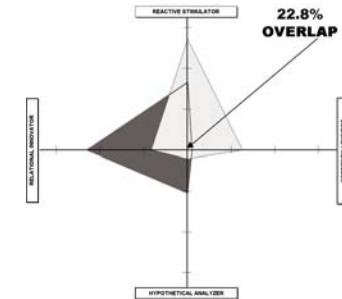
The effects of the suppression of competency are treated in greater detail in an upcoming article on Competency Engineering (Nicoll, Forthcoming). This is available in electronic draft from the Organizational Engineering Institute upon request.

For purposes of this article it is sufficient to note that the percentage overlap between the new individual and the manager will be a key determinant of success. The overlap of the new person with the work group within which they will participate is also a material influence. Both of these factors can be quickly estimated using standard Organizational Engineering methods that are outlined in the books on the subject (Salton, 1996 and 2000).

The percentage overlap is generated by comparing the strategic profiles of parties involved. For example a strategic overlap of the kind represented by Illustration II would represent a challenge for both parties.

RM's responsibility in these situations would be to help insure that these types of relationships were not accidentally established with the placement of new hires. If this type of placement is necessary due to the circumstances involved, RM could advise both parties of the potential difficulties and offer methods by which the tensions involved could be mitigated. This can be accomplished by manually calculating a two-person analysis or by accessing commercially available

Illustration II
Actual Comparative Profiles of a Prospective Supervisor-Subordinate Relation



computer systems. This knowledge alone is sufficient to improve productivity and reduce the probability of an early exit by the new employee even in structurally difficult situations.

While the relationship of the new hire with his or her immediate supervisor is most important, the workgroup to which the individual is to be assigned is also a material determinant of success in both performance and retention.

Consider yourself being placed in a workgroup whose members have a strategic posture opposite that of yours. If you value "doing a job right the first time", imagine yourself placed in a group who values speed of response and is willing to take "good enough" as an acceptable outcome. Or, if you value speed of response, imagine being placed among people who seek perfection and find little merit in hurrying to achieve a substandard result.

It does not take much imagination to see that improper placement in a group whose information processing preferences differ can result in persistent tension and thus increase the probability of early exit. This will occur even in situations where the relationship between the new hire and the supervisor is acceptable. One of RM's tasks is to see that placements within workgroups remains within the tolerable limits of all involved. An example of the kind of report that might aid RM is the Cross-Compatibility report for 12 people provided in Illustration III.

This portion of RM's responsibility can be discharged without taxing the human asset component of the group. The calculations necessary to form a basis of judgment can be done mechanically. The technology allows data collection to be done remotely and there is no need for face-to-face interactions or resource draining meetings.

Illustration III
Cross-Compatibility Matrix Matrix of an Actual Work Group
(Highlighted Relationships will be Difficult)

	1 Bill	2 Todd	3 Jean	4 Karen	5 Kim	6 Kelly	7 Michelle	8 Carolyn	9 Tina	10 Willis	11 Tim	12 Michael
Bill	44.0%											
Todd		33.7%	56.5%									
Jean			46.0%	69.2%	77.8%							
Karen				20.0%	50.0%	44.5%						
Kim					32.1%	50.0%						
Kelly						35.4%	23.6%	30.8%	8.4%			
Michelle							55.7%	56.1%	45.9%	60.7%	26.9%	
Carolyn								52.3%	77.8%	63.8%	80.6%	36.3%
Tina									55.7%	68.5%	46.7%	59.0%
Willis										45.5%	80.6%	56.9%
Tim											37.7%	24.6%
Michael												37.1%
Average Compatibility	43.3%	55.0%	51.0%	59.6%	34.0%	32.0%	49.7%	59.6%	51.5%	55.3%	31.3%	53.8%
Median Compatibility	45.8%	56.5%	50.0%	60.7%	36.3%	30.8%	51.2%	63.8%	55.7%	56.9%	32.7%	57.0%

Rather, it is only necessary for the principals to devote 5 minutes to complete a brief form that can be reused for future analysis. Within minutes an English language report can be on their screen that tells everyone involved what to expect out of relationships involved in the prospective placement. RM's responsibility in this arena is to make sure that the machines run properly, to handle any "outlier" cases that might arise and advise on addressing unique local challenges.

The capacity for aiding the placement of new hires complements the contribution RM

can make in the hiring of people who have a high probability of success in performance and tenure. The next step in the process is to make sure that the favorable organizational relationships that have been established are maintained on an ongoing basis.

3. FORECASTING TURNOVER BY INDIVIDUAL

Traditional methods of improving performance and retention have focused on large-scale "one size fits all" methods. Consultants in the area have advised firms to increase benefits, raise salaries or improve job amenities. They have stressed the need to "keep employees happy"—a position that implies that all employees are at the same risk and all will value the same improvements in job circumstances.

RM takes a individual approach to its responsibilities. The "one size fits all" model must be replaced by judgments about Sally Smith working in the Chattanooga store on the second shift. It must do this in a way that can handle a 50,000-person employment base spread across the 50 States of the Union. The only way this objective can be accomplished is through the use of mathematics.

Fortunately, a special adaptation of the Simplex method of linear programming is well suited to just this kind of problem. The adaptation involves minimizing the sum of the absolute deviations of the predicted retention from actual retention (i.e., $\Sigma |P-A|$). The computerized version of this methodology has been named for RM purposes as "ESP" for Employee Specific Programming.

The methods used by ESP are similar to the techniques the "rocket scientists" on Wall Street use to arbitrage currencies. It is well tested and is used to trade billions of dollars in national currencies every business day. This section describes the methodology in plain English. A technical description for those wishing to develop their own version and who are inclined toward mathematics is provided in Appendix I.

Applying the mathematics used in ESP will require graduate school education in statistics. In undergraduate courses students are taught to forecast future events using statistics. Typically, they are asked to develop a "theory" of why something occurs. For example, the student may be asked to predict future income. He or she may develop a "theory" that this is due to educational level, grades, age and experience. The student then assembles historical cases containing income levels and the other variables in the "theory". The historical cases are then processed using some form of the venerable Least Squares method. The result is a single equation that expresses the relation between the variables in the "theory" and income levels. Using this the student is able to "plug in" the values for any person and "predict" the probable income level that will be realized.

The "ESP" methodology is different from the undergraduate experience. The first distinction is that there is no need for a "theory". The technology will take any information that it is given and attempt to fashion the best "theory" it can using the data at hand. The more data it has, the greater the likelihood that the "theory" it constructs will be accurate. However, the methodology will work using even minimal data.

For example, the authors have performed successful forecasts for a large convenience store chain using only data readily available from the firm's HR database including:

Name	Age	Gender
Marital Status	Ethnic Origin	
Hire Date	Store location	
Termination Date	(for people who had left)	

Of course, the more information that is made available, the more accurate the resultant forecasts will be.

Another difference is in the way the technology approaches the estimating formula. The "ESP" technique forecasts tenure of a single person by constructing a "population" based on that person's attributes. For example, if an employee has been employed for 62 days, a population will be constructed of other employees who have the same employment profile. An equation is then calculated for the individual in question based only on this subpopulation.

The net result of applying the "ESP" is a listing of people currently employed, each with a probability that the person will exit the firm in various time periods (e.g., 30 days, 60 days, 90 days and etc.). The higher the probability estimate, the more likely it is that the particular individual will, in fact, leave within that timeframe. This estimate tells the RM function which individual people should be focused on in the immediate future. A one-page sample of a 140-page report with the last names of the individuals obscured is provided in Illustration IV.

The quality of the data provided has been found to vary between individual businesses. Therefore, the success realized in one firm may differ from that experienced in another. To allow the RM group to gauge the operational accuracy of their data, it is necessary to create a testing protocol.

The statistical procedure described is "data hungry" and requires multiple years of information. This provides an opportunity to estimate accuracy.

For example, if data is available from 1995 through 2000, it would be reasonable to "cut off" the data in 1997 and "forecast" 1998 as if the projection were being done at that time. Since the data for 1998 is actually available, the simulated forecast can be compared to what actually happened and the accuracy can be unequivocally established. The same can be done for 1999.

The net effect of the simulation strategy is a conservative estimate of what might be reasonably expected as the technology is applied to the future. Since the statistical tech-

Illustration IV
Sample Page of Actual
"ESP" Report

FORECASTED TURNOVER BY INDIVIDUAL									
As of January 21, 2000									
ID	Employee Name	Location Name	Days Tenure	Probability of leaving within (Days)					
				0	30	60	90	120	180
120129	Marcus E	Garden City	86	100%	100%	100%	100%	100%	100%
119773	Byron E	Wichita	70	70%	80%	85%	90%	95%	100%
120129	Michael W	McPherson	20	51%	60%	70%	80%	90%	100%
120129	John W	Wichita	12	50%	60%	70%	80%	90%	100%
120174	Mac C	San Antonio	21	77%	88%	92%	94%	96%	100%
120053	Ruthann L	Minneapolis	34	79%	89%	93%	94%	95%	100%
120207	Mark D	Johnson City	36	70%	80%	85%	90%	95%	100%
120223	Marlene B	Fulton	32	69%	75%	80%	86%	91%	100%
120223	Robert M	Pittsburgh	19	51%	60%	70%	80%	90%	100%
120265	Randy D	Lindstrom	22	50%	60%	70%	80%	90%	100%
120347	Gina A	Gibson	17	61%	77%	84%	88%	92%	100%
120347	David C	Orlando	18	50%	60%	70%	80%	90%	100%
120696	Keri G	San Antonio	21	67%	79%	86%	91%	96%	100%
120615	Adrienne L	Chase City	26	58%	75%	82%	86%	91%	100%
120615	Carolyn C	Casper, WY	73	62%	76%	83%	87%	91%	100%
121249	Tanisha L	Plant City	8	86%	93%	95%	97%	99%	100%
120636	Galindez R	Holiday	21	51%	60%	70%	80%	90%	100%
120636	Matthew R	Midtown	21	50%	60%	70%	80%	90%	100%
121014	Michael W	Greensburg	5	71%	84%	89%	92%	95%	100%
121215	Tyron A	Salem	5	58%	75%	83%	87%	92%	100%
121171	Michelle M	Chattanooga	9	50%	60%	70%	80%	90%	100%
121113	Tessa L	Park City	7	54%	72%	80%	85%	90%	100%
121134	Cooley D	Corpus Christ	8	80%	89%	93%	95%	97%	100%
121458	James G	South Padre	9	50%	60%	70%	80%	90%	100%
119981	Nathan T	Formaldehyde	73	62%	76%	83%	87%	91%	100%
120696	Quincie L	Leavenworth	74	58%	74%	81%	85%	90%	100%
120640	Shirley B	St. Louis	55	50%	60%	70%	80%	90%	100%
120331	Melissa A	Kingman	55	55%	72%	79%	84%	89%	100%
120331	Veronica V	Vallejo	54	50%	60%	70%	80%	90%	100%
120274	Jerry W	Victoria	55	60%	75%	82%	86%	90%	100%
120445	Amyber L	Junction City	49	84%	91%	94%	96%	97%	100%
120445	Dale D	Fort Dodge	50	50%	60%	70%	80%	90%	100%
120328	Laura S	Jacksonville	60	50%	75%	81%	86%	90%	100%
120328	Michelle P	Papillion	46	50%	60%	70%	80%	90%	100%
120414	Bobbie M	Harrison	47	50%	60%	70%	80%	90%	100%
120508	Darlene M	Hudson	46	52%	69%	74%	82%	87%	100%
120508	Stephanie H	Bloomington	41	50%	60%	70%	80%	90%	100%
119712	Saul J	Hedge	87	50%	74%	81%	86%	90%	100%
119862	Stacey M	Port Richey	63	50%	75%	81%	86%	90%	100%

nique improves with more data, cutting it off early effectively reduces its forecasting power. Under these conditions it is reasonable to expect that actual forecasts made with full data will be better than the simulations. If the results of the simulations are satisfactory, the actual results should be even more favorable since later forecasts will have access to more data.

Those using ESP techniques outlined in this article should conduct prior period simulations if sufficient data is available. The results of these simulations can then be used to inform the character of the specific local interventions that might be undertaken. The higher the accuracy of these "let's pretend" simulations, the greater the confidence that can be placed on future estimates.

SAMPLE INTERVENTIONS

The availability of individually specific forecasts of turnover open options to the firm. The important characteristic of these options is that they are local. They can be applied to a single person, in a particular situation at a specific location. Any such action will be minor from the point of view of the larger corporation. From the perspective of the at-risk individual that same action may determine whether they stay or leave.

The actions taken need not be expensive and can even be costless. For example having a manager say, "thank you" or "I appreciate the work you are doing" to an at-risk employee may be sufficient to cause an employee to stay for a while longer. The same thing said to everyone would probably be interpreted as insincere and would have little if any effect.

Local actions that can make a major difference in an employee's life without costing the firm anything are only limited by the RM group's imagination. For example, these could include items such as listed on Table 3.

The key to strategies such as those described in Table 3 require that local management be aware of the specific person(s) at risk. Attempting these strategies without this guidance would probably be doomed. There are simply too many people and too many other things to do to engage this level of detail with everyone employed.

The demands on RM are manageable. For example, a mechanically generated fax or email could advise local management of those individuals at risk. An example of this type of advisory is provided in Illustration V.

Table 3
Listing of Possible
Local Initiatives

- **Changes in job assignment.** E.g., working in one area versus working in another.
- **Schedule changes.** E.g., arriving at 6:30 rather than 6 thus making public transportation viable.
- **Reassigning workmates.** E.g., aligning the person with someone more compatible.
- **Allow alternative ways to do a job.** E.g., allow a task to be done at a different time or in a another way.
- **Accelerate a scheduled pay increase or promotion.** E.g., a difference of a week will not be of consequence to the firm but is distinct personal recognition.
- **Relax or increase supervision.** E.g., giving more autonomy may reduce tension for some employees. Providing more supervision may be interpreted as support by others.
- **Increase self-worth.** E.g., expressions of appreciation, concern or even attention can improve individual self-image and tie that reward to the workplace.
- **Rotation.** E.g., rotation of a desirable or undesirable job may serve to positively affect multiple people.
- **Resolve unique circumstances.** E.g., allowing a mother a half-hour to pick up a child from preschool and drop them off at a babysitter could allow that mother to continue to work.

Ground level access can also provide senior management with an "ear" to the operating level trends among the low wage staff. Their activity is likely to be widely distributed and over time they can be expected to "pick up" recurring issues. These recurring issues can then become a signal that one of the more traditional large-scale programs might be advantageously applied. Under present methods, a search for "reasons" is undertaken only after pain reaches a threshold level. With RM the issue can be identified and addressed before the pain (and accompanying damage) is even felt at a corporate level.

4. DEPLOY INITIATIVES

The RM design is structured to be applied to an entire organization regardless of its size. However, attempting to suddenly introduce the function across a large organization is probably ill-advised. The volume of phone calls and the possibilities of uncoordinated action could impede the successful introduction.

A more targeted course can result in a quicker return on investment as well as a higher level of overall success. This strategy involves targeting those locations and functions experiencing relatively high levels of employee turnover. The fewer number of targets and the higher potential return per target make early success more probable.

As with all things in RM, the approach to identifying a target should be specific. Experience has taught that global generalizations are usually wrong. For example, prior to analysis some clients have speculated that store location was a prime determinant of turnover. Others have thought that store size was a driving factor. Still others have claimed that inexperienced management was the principal culprit. All were, at least to a significant degree, wrong.

An approach that has been found to be useful is to conduct an analysis at a store or operating facility level. This approach maximizes the possibility of a cumulative effect. Regardless of the type of intervention elected, to one degree or other all of the people within the facility will be affected. The possibility of a self-reinforcing effect can thus be optimized.

Experience has also taught that there are many definitions of "turnover." For example, sometimes part-time staff is excluded from the measure. Other times only people with at least 60 days of tenure are included. These modifications to the concept generally tend to cause the measure to be more favorable and can introduce unarticulated biases in analysis.

A useful strategy is to adopt a very simple, easily understood definition. The number of terminations for a time period (say a year) divided by the exit manpower for that same year can be understood by all without making mental adjustments.

Applying a store level unit of measure and a simple measure of turnover produces a listing that can be used as a basis of allocating RM's initial focus. The graphic on

Illustration V Sample Email Advising of Turnover Risk

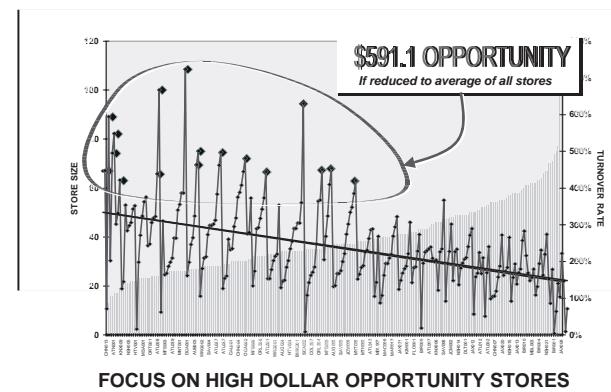
COMPUTER GENERATED EMAIL/FAX
Store: Store Manager
cc: Corinne, GA ; District Manager - ATLANTA I
re: EMPLOYEE TURNOVER EXPOSURES

You might be able to reduce your turnover by focusing some of your attention on the following people who are at some risk of leaving our employment.

	Probability of Leaving in 12 Months	Probability of Leaving in 6 Months	Probability of Leaving in 3 Months
Jeff K	64.4%	71.0%	73.7%
Darlene A	63.6%	72.3%	77.7%
Richard L	61.9%	70.9%	77.1%
Georgette C	44.2%	58.6%	61.8%

You might want to:
 Find a reason for thinking one of these people personally
 Tell another that you think he or she has promise
 Ask one if they are feeling good about our firm and if not, try to fix it
 Suggest to one that you appreciate their promptness
 Notice when one is working hard and tell them you appreciate it
 You can add your own items to the list. If we can get people to stay a little longer we can improve our customer service, build up our quality and strengthen our loyalty.
 If you would like to talk about this, give the Retention Manager a call at XXX-XXXX.

Illustration VI is drawn from an actual presentation made for a small, regional fast food chain. In this case, RM would initially target the high opportunity stores. The ratio seen in the graphic is typical. About one-third of the locations are usually responsible for 70%+ of the turnover expense. This concentration gives RM an initial focus and helps insure that there will be an early return on the investment in the new function.



The small

number of high return sites to be addressed also means that RM can launch its efforts on a personal, one-to-one basis. RM can test its turnover reduction strategies "up close" on subjects with an immediate and real need. The knowledge acquired in this effort can later be deployed on a wider scale with less intense targets with a level of certainty that the strategies being used will work with less supervision in actual field settings.

This deployment strategy will (1) help insure an early return on the firm's investment in the RM group and (2) maximize the probability of long-term, high level success. Calculations on firms analyzed to date indicate that a payback period of under 1-year can reasonably be expected. The exact amount depends on the turnover level and cost of a particular firm. The exact figure can be easily calculated in conjunction with the evaluation of the RM opportunity.

PROBABILITIES OF SUCCESS

In business ventures success is defined as a financial return over cost. The RM function is a business venture whose purpose is to provide a positive return to its parent organization while concurrently strengthening the capacity of that parent to address its core business.

The cost element of the equation makes the probability of success readily achievable. For medium sized businesses the estimated cost of the function is well under \$500,000

annually. The firms on which this cost estimate is based have an annual turnover of over 10,000 heads each. At a cost of \$500 to \$2000 per head, even the smallest improvement in this experience is more than sufficient to completely offset the expected cost of RM. On a cost versus potential return basis, the odds are heavily weighted in favor of RM success.

However, there is an even more compelling foundation to expect success. That reason is that RM is structured in a way that it would have difficulty failing.

The effects of establishing an ongoing function alone is sufficient to signal that this is not simply another management fad. Rather, it will be considered a matter that will have to be faced on a continuing basis. With the advent of RM, line management will "own" the retention issue. People take care of things that they "own."

A second imperative arguing for success is that RM establishes an information flow that will continuously remind all involved of the status of the current condition of the firm along this dimension. Escaping the consequences of poor performance is diminished when such a system is in place. It is in the best personal interest of those in decision making roles to attend to the matter so that they are seen favorably in its light.

RM also provides the motivated line management with specific tools with which goals can be realized. The intake programs advise on probable success of a candidate. The allocation programs provide information on the likely "fit" of a candidate and the hurdles that may have to be overcome to enjoy the benefits of an association. The "ESP" system continuously reminds managers of future exposures while traditional retention reporting tells them of past performance. Finally, RM continuously provides information on successful strategies of other locations, proposes initiatives generated by their ongoing focus and acts as an advisor on difficult local issues that may arise. Operating management is given the tools to solve the problem as well as being given the problem itself.

Not only is line management motivated, but the RM group is itself motivated to see that line management is successful. RM people become internal champions who have a personal interest in "making it work." Since RM is not "buried" in another group as a adjunct function, its achievements (or failures) are visible. The commitment generated can be expected to find expression in initiatives whose success is motivated by the self-interest of those charged with the functional RM responsibility.

The RM group cannot escape. It makes contributions on intake, allocation and maintenance. The often-heard comment that the person who exited is "one we wanted to lose" simply points to a failure on intake. A comment that a person "did not fit" merely means that the allocation mechanism had suffered a breach. A high level of "unexpected" exits means that RM's monitoring function requires attention. The structure of RM clearly locates responsibility for the previously unattended function of retention.

Perhaps the most compelling argument for the inevitable success of RM is that it brings retention and performance to the forefront of everyone's attention and keeps it there. Simply paying attention to the issue on a continuing basis is bound to have a positive effect that will translate itself effortlessly into improved bottom line effects.

Transient programs like incentive schemes, awareness sessions, and nurturing arrangements will have an effect. However, it is unlikely to be enduring. RM builds the function into the fabric of the organization and the benefits are captured permanently.

SUMMARY

In the interest of full disclosure, the co-authors of this paper advise the reader that they offer the mathematical components of an ESP program and Organizational Engineering technology as a commercial product. However, this paper provides full references and Appendix I discloses the mathematical methodology employed. The interested reader is put in a position to cross check the data and to use the information in the paper as well as the mathematical appendix to develop an in-house version of the technology if he or she so desires.

The authors believe that the technology described in this paper represents a major, technically grounded advance in organizational management. It thus merits inclusion under the standard of Organizational Engineering. Like the other aspects of the new field it damages none and holds promise for benefiting all involved.

Retention Management Success Factors

- The investment is small and easily offset with savings.
- Management's continuing commitment to retention and performance is clearly signaled.
- Line management performance becomes visible and "ownership" of the issue motivates them to deliver positive results.
- Line management is provided with effective tools to deliver the results desired.
- Retention Management (RM) is motivated to see that the tools, techniques and systems they are supplying actually work in the field.
- RM is positioned so that it cannot evade responsibility for outcomes.
- Simple awareness of the issue on an ongoing basis almost insures that the modest investment in RM will produce results more than offsetting the costs involved.

AUTHORS

Gary J. Salton, Ph.D. is Chief: Research and Development and CEO of Professional Communications Inc., a research and development firm specializing in Organizational Engineering. Dr. Salton can be reached at garysalton@aol.com.

Robert Soltysek is a consultant in mathematics and statistics specializing in advanced decision making algorithms. Mr. Soltysek can be reached at RSoltysek@email.msn.com

APPENDIX I: THE MATHEMATICS OF "ESP"

The mathematics on which "ESP" is based is fully described in the seminal work on the subject (Barondale and Roberts, 1973) and the reader is referred to that source of detailed solution algorithms. This appendix will focus on the overall structure of the equations as applied to the issue of retention.

The historical data provided by the firm developing the "ESP" equations consists of fields, such as age, gender, marital status, hire date, termination date (if applicable), current employment status and any other data that they deem relevant.

The task of the mathematician is to find a rule based on n predictors in the data provided that will predict the length of stay of an individual, starting from an arbitrary date—for example, beginning on the date that the data was extracted from the firm's files.

The projected additional tenure of each individual is obtained by solving for x_j in the following overdetermined system of equations in the L_1 norm:

$$\sum a_{ij} x_j + x_{n+1} = b_i \text{ for } i = 1, \dots, m$$

where a_{ij} is the value of the j^{th} predictor
for employee i
 b_i is the observed tenure for
employee i in excess of t'
 m is the number of employees in
the training set
 n is the number of predictors
provided by the firm

For each employee, his current tenure t_i at the time of prediction is observed, a training set of data is built which contains the predictors of all individuals m with tenure greater than t_i .

The value x_j^* obtained in the L_1 solution is used along with the values of the predictors to obtain an estimate of excess tenure $b' = -a'_j x_j^*$.

The b' are then adjusted by a factor q , which obtains the desired tradeoff between accuracy and overprediction.

In testing, q may be obtained by holding constant the percentage of employees predicted to leave for each test period.

$b' + q$ is the final estimate of the additional tenure of the individual. This process is repeated for every individual's tenure that is to be estimated.

BIBLIOGRAPHY

AFSCME, American Federation of State, County and Municipal Employees, AFL-CIO, Nursing Home Facts, Summer, 1998.

<http://www.afscme.org/una/action/una981_d.htm>

Anderson, Mollie and Whalen, Tom, "Workforce Planning in the Public Sector," National Association of State Personnel Executives, 22nd Annual Meeting, August 15, 1999.

Barondale, I. and F.D.K. Roberts, "Solution of an overdetermined system of equations in the L_1 norm", Communications of the ACM, vol. 17, no. 6, p.319, 1973.

Club Managers Association of America, "Academic Approaches," 2000.

<www.cmaa.org>

Cohen-Mansfield, Jiska, "Turnover among nursing home staff: a Review," Nursing Management, 05-01-1997, Vol. 28.

Cunniff, John, "Turnover can cost more than you think // Losing a worker is disruptive to both production, profits," Minneapolis Star Tribune, 04-12-1999

Kirsner, Scott, "Hire Today, Gone Tomorrow?" Fast Company, 08-01-1998

Maynard, Roberta. "How to motivate low-wage workers," Nation's Business, 05-01-1997.

Moncada, Susan M. and Sanders, Joseph C., "Perceptions in the Recruiting Process", CPA Journal, January 1999.

National Restaurant Association, Restaurant Industry Pocket Factbook: 2000,

<<http://www.restaurant.org/links/linknews.htm>>

Nicoll, David. "Competency Engineering," Journal of Organizational Engineering, Forthcoming, December 2000.

Purdue University, "Benefits for Fast-Food Workers Improve Bottom Line", Purdue University News Service, 27 Aug 99

<<http://www.newswise.com//articles/1999/8/TURNOVER.PUR.html>>

Pinkovitz William H., Joseph Moskal, and Gary Green, "How Much Does Your Employee Turnover Cost?", University of Wisconsin-Cooperative Extension, Center for Community Economic Development

<<http://www.uwex.edu/ces/cced/publicat/turn.html>>

"Report on a study conducted for Coca-Cola Retailing Research Council," Supermarket News, 1/31/2000,

"Readership Survey," HR Professional, Human Resources Professional Association of Ontario, June 17, 1999.

<http://www.hrprofessional.org/current_issue/results.asp>

Rhoades, Jeffrey, D.E.B. Potter, and Nancy Krauss, "Nursing Homes--Structure and Selected Characteristics, 1996," Agency for Health Care Policy and Research, 1998.

Rubis, Leon. Brookings Institute study reported in "HR Update", HR Magazine, 05-01-1998, Society for Human Resource Management 1998.

Salton, Gary J. Organizational Engineering: A new method of creating high performance human structures. Ann Arbor, Professional Communications, Inc. 1996.

Salton, Gary J. Managers Guide to Organizational Engineering. Amherst, HRD Press, Inc. 2000.

Snetsinger, Doug and Greg Pellett, "Making employee research pay off," CMA Magazine; 07-17-1996

Thomas Staffing Survey, 14th Annual Survey, Thomas Staffing, 1999.
< www.thomas-staffing.com >,

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Organizational Engineering Institute
101 Nickels Arcade
Ann Arbor, MI 48104

Phone: 734-662-0052
Fax: 734-662-0838
E-Mail: OEInstitute@aol.com

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