

Transforming the Engineer into a Manager: Avoiding the Peter Principle

The skills required of a good manager are not necessarily those of a good engineer — firms must recognize the skills required and provide adequate assistance.

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Needing a new car, I recently purchased one from the same dealership that sold me my last car four years ago. Sometime during that period, this dealership had promoted their best mechanic to the position of service manager. I had remembered this individual as being an excellent mechanic. He knew the inside and outside of the cars the dealership sold. He had won several regional and national awards for his mechanical expertise. However, I remember him as mostly non-verbal and unfriendly. A simple question would arouse a condescending look and a slight sneer. He never said anything overtly

nasty, but he was an uncomfortable person to be around.

In its inimitable wisdom, this dealership decided to reward their best mechanic for his many years of loyal service and his expertise with the job of service manager. Pity the poor customer. This man may have been the world's best auto mechanic, but he was undoubtedly the world's worst service manager. His mechanical skills still served him well in diagnosing problems, but his interpersonal skills, or rather the lack of, destined him to failure as a service manager. In his short tenure as a service manager, he had done more to hurt this organization than all the Japanese imports combined.

An Old Story

The fault here does not lie with the mechanic. He was a good mechanic. He did not possess the skills to manage others, but the company, in its well-intentioned way, sought to reward this mechanic for his loyalty. They felt that his mechanical abilities would help the service department diagnose problems more quickly, thus making the department more efficient.

Additionally, they felt that this promotion, eagerly lobbied for by the mechanic, would keep this talented individual with the organization. This type of thing happens every day. People who often demonstrate excellence at one level are promoted to higher level positions that require completely different skills and abilities.

High Tech & the Peter Principle

Often referred to as the "Peter Principle," this phenomenon of promoting an excellent individual contributor to his/her level of incompetence can be seen throughout the business world. These instances are often no less well-intentioned than the example cited above. Nowhere is this principle more evident than in today's high technology companies (and it can also be readily seen in companies whose "basis" is technical expertise of one sort or another). Only now it is not the mechanic: it is the engineer. It is not the engineer's fault.

Studying over 120 engineers who had recently been promoted to management positions over a two-year period has revealed some patterns.¹ Some of these engineers were project managers; some of them were department heads. These individuals represented a total of 20 different high tech companies located in the "technology belt" around Boston that is commonly referred to as Route 128. The interviews were conducted with these individuals, a sampling of their supervisors and the human resources people in charge of the development of these new managers.

As part of the interviews, participants were asked to describe the type of company-sponsored training programs that were targeted at engineers moving into project management positions. Only 25 percent of the companies involved in this survey provided any kind of formalized training. Indeed, very few of these companies had implemented any sort of comprehensive project management training program. In addition, most of these formalized programs addressed only the technical issues of project management and ignored the management issues that related to dealing with individuals and the organization.

These interviews revealed what has been known by insiders for years: that good en-

gineers often can make poor managers. The engineer is not at fault. There are several key factors that not only cause but also promote the evolution of the Peter Principle in high tech, as well as other types of, organizations:

- Poor selection
- Lack of training
- Lack of good role models

Poor Selection. As in the car dealer example, many of these organizations selected the most technically proficient engineer to become the new manager. With the meteoric growth of many high tech companies (until recently) there were many management positions openly begging to be filled. The person of choice for a management position was the "best" engineer. This person would have the technical respect of other engineers, a factor seen as critical for success. This manner of filling positions seemed to make sense.

Unfortunately, the skills necessary for success as an engineer are almost diametrically opposed to those necessary for success as a manager.¹ Technical skills are important, but they become increasingly less important for the engineer following a management track. Engineers are expected to be experts in a specific area. They are trained to be critical of what they see, work with product or project, and ultimately deal with concrete issues like: "it works or it doesn't." Interpersonal skills are not especially valued.

Managers, on the other hand, are expected to be interpersonally and politically astute, and deal with process rather than product in a milieu that is inherently ambiguous and amorphous. The manager attempts to orchestrate and integrate the work of others. The skills necessary to manage are not the same skills as those of the individual contributor. Leadership, negotiation ability and facility at interpersonal communication were among the most important skills that differentiate between effective and ineffective project managers with engineering backgrounds. These skills are not usually taught as part of an engineering curriculum.

Perhaps organizations would be better advised to select the average engineer who pos-

esses the skills mentioned above rather than selecting the "best" engineer. It would make better sense, using the example of the car dealership, to have a personable service manager with average technical skills who has technically expert employees than one whose skills in that area are severely deficient. Thus, greater care in the selection process can go a long way in reducing the effects of the Peter Principle that now exist.

Lack of Training. In the case of the surly service manager, it is possible to wonder, silently of course, what would happen if he were sent to charm school? It might very well not help in his case, but why not try it? In the interviews conducted with new managers, they were asked what kind of training they had received to help them in their first management job. Most of them described their company's approach to training as "sink or swim." In some instances, this type of training has its merits. However, in the high tech industry (as well as in other highly technical businesses), this kind of approach is a risky and potentially costly strategy. Mismanaged projects and technical organizations can be extremely expensive. It is not only costly to the company, it is also costly to the individual. For example, at a seminar for managers, most of whom were engineers by training, these managers agreed that most of their training consisted of the "sink or swim" variety. They remembered how frustrating and stressful this lack of training support was for them as new managers.

However, it does not have to be this way. A pre-appointment training program for engineers about how to become managers would do much to erode the effects of the Peter Principle. Subjects such as leadership, motivation, negotiations, supervision and communication could be addressed before the individual is formally made a manager. Thus, the new engineer-turned-manager would have the necessary tools to help him/her manage. The engineer would never be asked to work without the prerequisite technical tools, but the new engineer-turned-manager is routinely asked to do that. It is surprising to note that all of these firms would not hire an inadequately or improperly trained engineer, but would not think twice about the fact that a manage-

ment position does require some degree of formal training.

Lack of Good Role Models. The lack of good role models in the high tech industry also adds to the prevalence of the Peter Principle. Many of the managers of these new managers came up the same way and may not be the best manager models to imitate. It is not surprising that many of these new managers that are enrolled in training seminars will often say that their boss is the one who should be in the seminar since he/she does not do half of the stuff talked about in the course.

The Dual Career Ladder

The dual career ladder myth of many high tech organizations compounds the problem of selecting appropriate managers. Many high tech organizations tout the fact that they offer dual career ladders: a technical track and a management track. Both tracks have equal career potential and rewards. It is a rare company, however, where the rewards are actually equal on both sides. Many engineers interviewed in the study said that they felt forced into the management ladder if they wanted to move up within their organization. They often described the technical ladder as narrower and with fewer rungs. They had seen too many of their colleagues become obsolete on the technical ladder.

Thus, the reward system of many high tech firms actually encourages the Peter Principle. It forces engineers who would be happier and more productive as engineers to become managers. In addition, many companies are afraid that they will lose their best engineers if they do not reward them with the plum of becoming managers.

Costs of the Peter Principle

Organizational Cost. There are both direct and indirect costs associated with the Peter Principle. Direct costs include cost overruns, lowered profit margins, inefficient use of resources and missed deadlines due to mismanagement. Indirect costs are more insidious because they are often harder to detect and quantify. They include lowered morale, higher employee turnover, increased time spent resolving conflicts within and across depart-

ments, inefficiencies due to problems in communication, *etc.* In the short run, these costs are extremely expensive and, in the long run, they can be disastrous.

Poor managers who are the result of the Peter Principle often survive in management positions for amazingly long periods of time. Spotting these dysfunctional managers can be difficult because of the complexity of the project, its team nature and the time needed to accurately assess the success of a project. Organizational cultures often help these individuals survive by making it extremely difficult, if not impossible, to demote or deselect (the new personnel word for "fire") them.

Additionally, the person's past loyalty and technical reputation are frequently stated as the reasons for not dealing with the manager's incompetence. Also, the dysfunctional manager's supervisor (and on up the management chain) is most probably a product of the same system that tends toward perpetuating the Peter Principle and this supervisor might not be inclined to "rock the boat." Finally, some organizations do not take action because they realize that they are guilty of not providing the manager with the necessary support or training.

Cost to the Individual. Some exception might be taken to the use of the words "poor" and "incompetent." Incompetence is a term frequently shied away from because it has such a negative connotation. Incompetence is often considered to be part of the individual as though it were some inherent character trait. That implication is far from its intent in usage here. Incompetence is part of the definition of the Peter Principle — a result of promotion to a level of incompetence wherein the individual cannot perform the tasks required of him/her in a satisfactory manner. The main responsibility for this incompetence lies with the organization, not the individual. It is most often the result of either poor candidate selection and placement practices, or the lack of training or both.

The potential costs to an individual promoted to his/her level of incompetence are high. Often, the incompetent individuals are the first to know that they are in over their heads. It is highly unlikely that they will

"share" their feelings of incompetence with their supervisors, who probably chose them for the promotion. Consequently, they live with it, turning the situation into an extremely wearing experience, both physically and emotionally. Burnout may result. The individuals may become defensive, thus isolating themselves from the people and support that they most need. They may leave the job, suffer stress-related illnesses, lower the morale of their people and, most important, lose their sense of self-worth. The costs to both the organization and the individual can be prevented.

Dealing With the Peter Principle

The best way to handle the Peter Principle is not to allow it to happen at all. This task is not an impossible one. With a certain amount of discipline and the proper application of human resource management techniques, the Peter Principle need not arise.

Better Candidate Selection. The "best" engineer need not be the one chosen to manage. Not everyone is cut out to manage, and this issue must be met head-on. Companies need to actively discourage some individuals from pursuing a management career because they do not possess the skills necessary to manage and lead others. To accomplish this sort of "triage," an organization must know what the necessary skills are that the firm requires of its management personnel, and it must have ways of assessing these skills in its pool of potential managers. One organization included in this study had recently started using an assessment center to identify those engineers with the most management potential. Initial data from this organization suggests this type of approach to be fruitful.

Pre-Appointment Training. The tools necessary for performing a job should be given to the individual before the person steps into the position and not afterwards. Unfortunately, this procedure is not common practice among many firms. The engineer is promoted to a management position, and then, six months to a year later, if lucky, the person is sent to a management training program. One of the human resource managers of a company included in the survey stated that her firm does not believe in sending their new managers to

training until they have been in the job for a year so that the training will have more meaning. Would this person feel so secure if teenagers, for example, were given licenses and required to drive for a year before receiving driver's education training? Or having physicians practice a year before going to medical school? This attitude toward training does not make good sense. This type of "on the job" training might be viewed by conventional wisdom as the best way to understand a job. However, understanding a job does not necessarily translate into the ability to do the job.

One of the companies that were interviewed has planned a pre-appointment program for the firm's newly selected managers before they actually become managers. Pre-appointment training appears to be a relatively low-cost, low-risk, high-payback strategy for an organization to pursue. In addition, it gives the company one final look at a candidate's abilities before the person is officially promoted.

A successful pre-appointment training program would stress instruction in the following areas:

- Written and oral communication skills
- Influencing skills
- Negotiating skills
- Conflict resolution skills
- Group decision-making skills
- Project planning and project tracking skills
- Skills in organizational politics

Of these skills, training in the intricacies of organizational politics is particularly important. Most engineers are isolated from company politics. They are usually unprepared for dealing with the political side of their organizations. But engineers must have some sort of political understanding to successfully negotiate the cross-departmental functions of their job.

Mentoring. Newly appointed managers or pre-appointment candidates should be placed with successful and effective managers who can serve as mentors. Preferably, the mentor would not be the new manager's direct supervisor. Valuable coaching, counseling, and prob-

lem-solving could take place in such a supportive, non-evaluative environment.

Related to mentoring would be realistic job preview programs. These programs can take on different forms such as:

- Shadowing a successful project manager
- Serving as a project manager apprentice or as an assistant project manager
- Project manager simulation training

Career Counseling. Career development programs need to be designed and implemented specifically for engineers. The decision to remain an engineer or to become a manager is a difficult one. They are very different careers. The choice needs to be thoroughly analyzed and weighed. The more help given in this decision process, the better. The organization can help by giving the engineer realistic information concerning the pros and cons of each career path as well as totally honest information regarding the engineer's skills and potential to be a manager.

Relatively few of the organizations in the study had an engineer-targeted career development program. One company that has developed such a program has found that some engineers who thought that they wanted to be managers self-selected out after they found out what functions managers really perform. A pre-appointment mentoring program could also result in some self-selection out of the management career path.

Summary

There are many good managers in the high tech industry. Many of these managers have come from the engineering ranks and have made it despite all of the unnecessary roadblocks that have been placed in front of them. There are still a great many technically trained managers out there who are still reaffirming the existence of the Peter Principle. To reiterate: it is not their fault. The number of individuals who fall prey to this costly phenomenon could easily be reduced through better selection, pre-appointment training, mentoring and career counseling. These types of programs would benefit both the engineer-manager and their organizations.



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