Industrial Engineering

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Why Projects Fail: The Effects Of Ignoring The Obvious

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The landscape of project management is littered with projects that overran their budgets, slipped their schedules or just plain failed to accomplish their goals. Why is this?

For each successful project in an organization, there have been just as many disasters. Many times the success or failure of a project depends on whom you talk to. Very seldom is a comprehensive inquiry done into the reasons a project succeeded or failed.

For many years, project management was considered a black art, whose practitioners had only Gantt charts available to them. In the late 1950s, a tremendous increase in research in project management saw the introduction of many project management techniques, which have been continuously updated and improved. These techniques included critical path method (CPM), project evaluation and routing technique (PERT) and graphical evaluation and routing technique (GERT). However, despite these tools, or perhaps because of them, projects continue to fail just as often as before their introduction.

So why, with all these great tools, don't projects *automatically* succeed? Could it be that automation alone doesn't solve all of the project's problems?

Reasons for failure

The majority of failures occurred not because of a failure in a complex area (such as a poor project management

Figure 1: Staffing Profile of Project Showing Improper Focus Project Goal
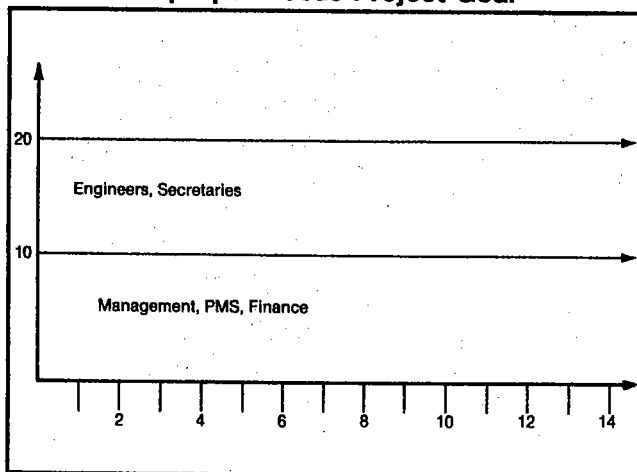
Figure 2: Iteration Chart To Improve Accuracy of Schedule Estimates
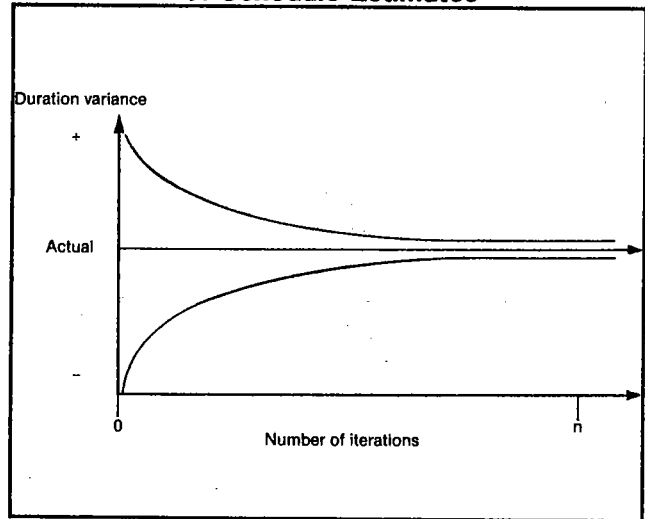
system), but because basic obvious principles of management were ignored.

Following are a few basic principles of management, which when forgotten, became the major contributing causes of the majority of project failures which I have observed.

1. Improper focus of the project management system.

The project manager needs to focus on the goal of the project. Project management systems are an attempt to model the real world environment to help the manager reach the project goals. When this is forgotten, the project manager becomes a network manager.

What often happens is that the schedule, as expressed in a network, becomes the project. Instead of the network helping to manage the project, the network becomes the project. I have observed projects where more money and effort went into running the project than into the actual work of the project.

Figure 1 shows a staffing profile of an actual project in which the management forgot what their real job was. The project has 10 individuals who "helped" manage the work of 10 engineers and secretaries. Remember, project managers manage projects, not project management systems.

2. Fixation on first estimates.

When preliminary schedules are first developed, many engineers are forced to make SWAGs (scientific wildly

aspirating guesses) of their work-breakdown structures and duration due to fuzzy requirements or lack of experience in similar work.

As the requirements of the project are clarified and understood, the project manager must set up a workable process to correct the schedules. Each honest iteration of a schedule will produce a more accurate estimate (see Figure 2).

The project manager has to establish an environment in which the staff is not afraid of correcting or updating the schedule. It is this process of updating the schedule that gives the manager insight into the project's status.

The response to problems which arise will determine how successful the rest of the project will be. The project manager must establish an environment in which people are willing to share all problems before they become unmanageable. A manager can never sit back and relax thinking that just because there is a design methodology or a project management system, everything is going to be okay.

3. Wrong level of detail.

There are two extremes which should be avoided in developing schedules. One extreme is having too much detail. This results in hour by hour or even minute by minute scheduling. Many projects get drowned in a sea of detail. The other extreme is too little detail. The result is scheduling in durations of quarters or even years.

Figure 3 shows a work accomplishment curve which

Figure 3: Work Accomplishment Curve Vs. Amounts Of Management

Figure 4: Learning Curve For Project Management Success

Effectiveness

100

0

0   Experience   n
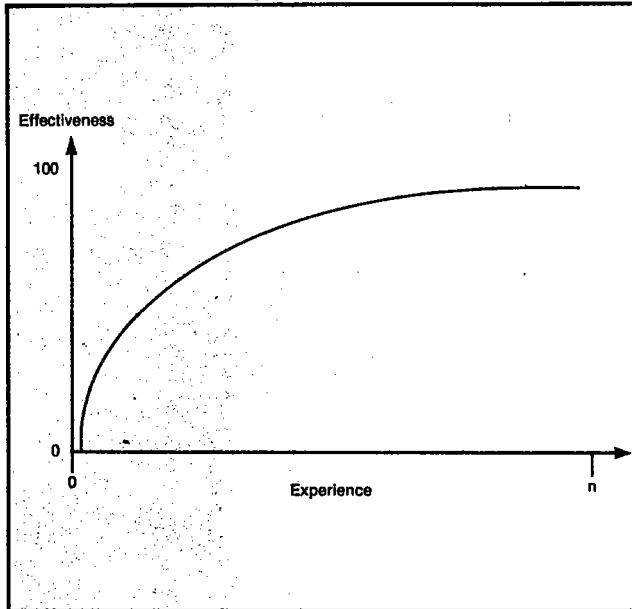
describes the amount of work done under various amounts of management. On the left hand side, it shows that with no management (i.e., no instructions), no work is accomplished. On the right hand side it shows that if everybody's job is to manage (over management), no work will be done.

The "trick" is to give the appropriate amount of detailed instruction to maximize the amount of work accomplished. The tendency of most project managers, when faced with a problem, is to move quickly to the right side of the curve and heavily increase the amount of management. Unfortunately, the problem may have been caused by being too far to the right on the curve in the first place.

Careful consideration should be given to the selection of the time unit used for scheduling. The time unit should reflect the amount of guidance the staff doing the work needs. For most projects, a duration of days or weeks is best. However, on some aerospace projects, tenths of hours make sense. I'm also aware of a project, in Saudi Arabia, for which scheduling by months was the best because of supply problems.

4. Too much too soon.

An assumption is often made that project management techniques can be applied without any learning curve. A manager decides to use them after attending a seminar or reading an article.

The manager forgets that project management techniques are tools. Successful use of a tool requires that a worker become familar with its potential. We don't expect someone to walk up to a lathe for the first time and produce to a tolerance of ± 1,000th of an inch. It takes time to understand what the lathe can do.

In the same manner, it takes time to understand what project management can and cannot do. As Figure 4 shows, effectiveness is a function of experience. As experience increases, a worker becomes more effective.

Many companies start using a project management system on too big a project. This would be the same as setting out to build a house right after you buy your first hammer.

It's best to start with a short, small project—one for which you really don't need a project management system. This gives you the luxury of making mistakes. A small project will teach you how to break the work down into manageable packages. Experience helps avoid mistakes, but mistakes produce experience.

5. Too many people.

I have never heard of a project which failed for the sole reason that it was short on staff. But I have known projects which failed for the sole reason of too many on staff. Why is this?

Each time a person is added to a project staff, the number of new relational interfaces is increased geometrically (see Figure 5). As Figure 6 shows, with two staff members, there is one relational interface. With three staff members, there are three relational interfaces. With four staff members, there are six relational interfaces. With five staff members, there are 10 relational interfaces. The number of relational interfaces (R) is equal to the sum of one less than the number of staff (N).

It's not uncommon to have a project so overstaffed that progress occurs slowly, if at all. On an overstaffed project, decisions are made slowly and are often subject to frequent changes.

8. Lack of communication of goals.

A sure death knell to any project is to have a staff with no overall picture of what's going on and no sense of importance. As a rule of thumb, either communicate the overall

Figure 5: Relational Interfaces And Project Management Staff

Number of relational interfaces

R

$$R = \sum_{1}^{N-1} x$$

0

0   Number of project staff   N
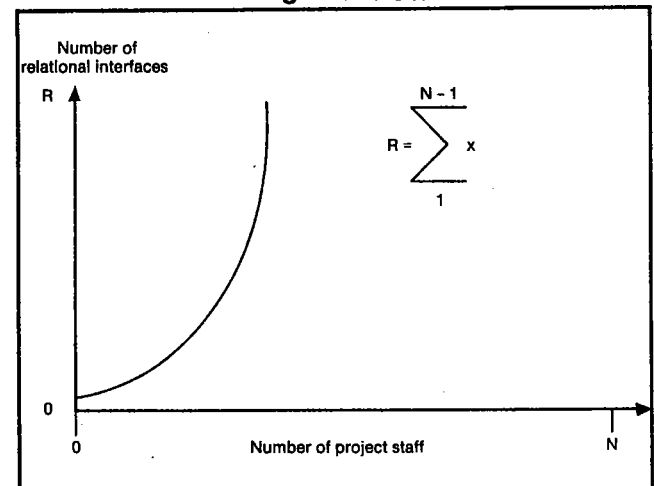
Figure 6: Diagram Of Relational Interfaces

—— = Relational Interfaces

project objectives and present situation, or give your employees a good reason they shouldn't know (i.e., national defense, competition, etc.).

Never decide to not communicate at all. This will result in lower motivation. An employee's perception of his or her job can be greatly influenced by a project manager. Fitzrenz (1978), in his job satisfaction study, ranked factors of job satisfaction in order of importance to employees. The top five were 1) achievement, 2) possibility of growth, 3) work itself, 4) recognition and 5) advancement.

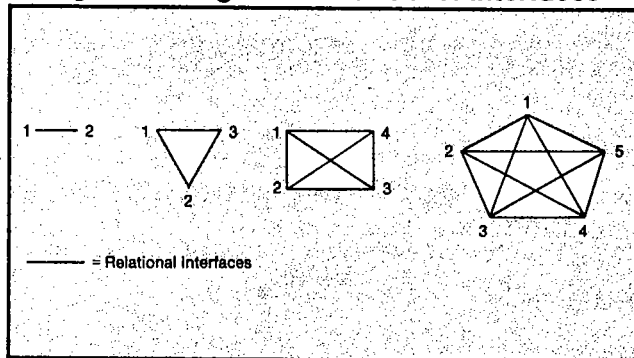These five are all related to how employees see themselves in a project or organization. Will they be able to achieve something? Can they grow in their field? Is the work interesting? Are they recognized for good work? Will this project lead to advancement?

7. Rewarding the wrong actions.

Psychologists have long understood that people respond to rewards. If management makes a point of counting the number of pages in each design document an engineer produces, be prepared to have very thick documents with little or no substance.

Be sure to reward action that contributes to the progress of a project. The project manager must continuously focus upon the goal of finishing the project.

If some action doesn't help you finish the project, don't do it. Rewards can be as simple as a "good job" memo after a presentation or recognition at a project meeting.

In summary, what I've discussed should not come as a surprise to project managers. These are very basic, obvious concepts of management. Nevertheless, it bears repeating that project managers cannot allow themselves to become so busy trying to master impressive theories that they forget the obvious.

Two-way communication

Successfully avoiding these problems requires a high level of regard for those who work for you and an understanding and appreciation of what is important to your staff. This can be accomplished only with authentic two-way communication among all levels of your organization.

The following concepts should be used for successful project management:

☐ Invest in training. Everyone involved in managing should be instructed in project management techniques and the use of the software package you select. Don't forget the goal of the project and the proper use of the project management system.

☐ Don't use project management as a punishment tool. Use it to identify problems and solve them. Maintain an atmosphere in which the project staff is willing to identify problems before they become serious.

☐ The level of detail in any planning should reflect the amount of guidance the people doing the work need. Too much direction has the same effect as too little direction.

☐ Start out small. Use a short duration project or a small subproject to learn how to manage a project. Work as a deputy who has experience managing projects. There is more to managing a project than knowing how to calculate a critical path.

☐ Keep the level of staff appropriate for the amount of work that needs to be done. Some tasks just take time. Adding staff won't always solve a problem, but it will make communications more difficult.

☐ Communicate the project goals. Post management level schedules where employees can see them. Let workers know the final goal of the project. Team leaders should continuously communicate to members of each team how their work fits into the overall project.

☐ Reward actions which contribute to the progress of the project. People enjoy being recognized for their work. Build into the project ways of publicly praising individual staff members.   IE
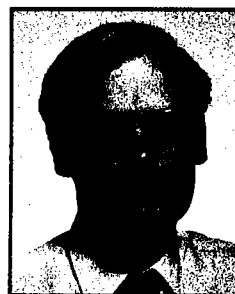
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