

Business and Management

Thinking Like a Management Engineer

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Engineers are schooled to identify technical issues and analyze them to arrive at a solution. Managers deal with people rather than things. The functions of classical management are planning, organizing, directing, staffing and controlling. How does an engineer obtain the skills required for the transition to management?

Management responsibilities are both internal and external to the engineering firm. Internal management is related to employee and productivity issues. An engineering project is a process with a goal, budget and schedule. The management engineer needs to learn to manage the process, delegate, motivate and achieve client satisfaction, all while completing the project on time and within budget.

Start the process by organizing your own time. Critical technical tasks must be delegated to others. Your experience will be used to review the work. Use checklists to stay focused on critical issues. Look at what you do as a process and try to streamline the process. Meetings are important, therefore, avoid letting them waste time. Prepare and publish an agenda at least two days prior to the meeting. Each item on the agenda should have a time allocation. Start the meeting on time, follow the published agenda and end the meeting on time. People should leave the meeting with action items.

Communication is important in the management process. Be open and honest in what you say and do. Future trust and respect depends on your integrity. The often forgotten part of communication is to be a good listener. Encourage your team to tell you their solutions. Use a questioning style to encourage open discussion and additional ideas. Avoid a directive approach when communicating with your staff. Ask them what they would do in a given situation. Your team will produce a good solution to a problem, if you let them. Always listen to the reasoning behind a solution. Nothing kills innovation faster than always being told what to do.

External management is related to client relations and project management. The management engineer must understand who is being addressed within the client's firm and their function. When selling engineering services, or during the study phase of a project, the engineer frequently will be dealing with both the client's financial and technical personnel. The engineer must learn the vocabulary specific to each of these groups to effectively service the client. Clients will want to know the schedule, design costs, deliverables, design solutions and their benefits, design recommendations, paybacks, construction costs, high cost items and construction delivery options. The management engineer must thoroughly understand the contracted scope and deliverables. Learn to negotiate for additional fees when the client requests additional services.

Develop your public speaking and presentation skills through courses and speaking groups. Learn to use computer based presentation programs for visual aids. The text on screen should be an outline of your spoken word. Provide a mixture of photographs and charts to help convey your message. Introduce the subject matter, tell the story, and review the main points.

There are many options for learning management skills: education, mentoring, and volunteer activities. Today's educational opportunities are varied. Colleges at all levels offer classes in management, presentation skills and public speaking. You can obtain an MBA through programs designed for full-time students and those designed for the working professional. All of these opportunities will give you skills to become a better manager. However, the longer it takes for the education, the more the acquired knowledge has time to become useful in the course of daily work situations.

Some firms have mentoring programs that pair good managers with bright engineers to establish the educational process and the management skills needed in a particular setting. The students learn and are judged on their progress. This method requires senior managers willing to educate and engineers who are interested in management and willing to learn.

Volunteer activities such as ASHRAE, Boy/Girl Scouts, sports programs, church committees, PTA, etc. provide opportunities to learn and improve management skills. The added advantage of becoming a leader of a volunteer organization is that volunteers need to be led through positive actions. "Do it my way" rarely works in a volunteer organization.

This article has briefly touched on the functions, roles and skills needed for management. Become aware of the skills and knowledge that you will need to make the transition from a technical to a management position. Test your interest and enthusiasm for management through education, mentoring or volunteer activities. When you decide to make the leap develop a plan and monitor your progress.

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