New Dimensions of Project Management

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With the information technology industry moving at the speed of light, the traditional roles and responsibilities of almost all skill-based positions are undergoing constant evolutionary change. Managers face new demands for not only a broad and up-to-date technical skills base, but also for more business aptitude, leadership ability, and interpersonal skills.

Nowhere is this more evident than in the project management arena. Although many still think of a project manager primarily as someone who maintains schedules and ensures on-time system delivery, in fact today's project managers are charged with greater leadership responsibilities. Increasingly, these positions require a wide range of skills. This is especially true in the IT industry, where innovation and change occur faster than in any other industry -- perhaps than in any other time in history. In a rapidly changing environment in which people are expected to deliver results faster, at lower cost, and with better quality, leadership plays a critical role in motivating teams and optimizing performance.

For most technical organizations, project management is "where the rubber hits the road." It's where dollars are spent, people are hired, systems are delivered, and contracts are won or lost. The project manager's primary responsibility is to deliver what has already been sold or acquired, and to meet expectations that are set for these deliverables.

In addition to challenging technical environments, project managers must contend with:

- Intra- and inter-team dynamics
- Financial, contract, and budget issues
• Insertion, migration, and integration of rapidly changing technologies
• Keeping management informed of progress and problems
• Staffing, training, and retaining a team
• Equipment and resource needs
• Competition from other project teams, vendors, and partners
• Demand for faster delivery cycles and higher quality
• Politics between departments and teams
• Potentially challenging customer relationships and environments

Although most of these demands have always factored into project management, managers must now deal with them in a compressed timeframe, and with the added complexity of rapidly evolving technology. This has heightened the demand for well-balanced, well-rounded project managers with enough skills and poise to handle anything and everything that comes their way.

**Project Management Skills**

In technical organizations, traditionally project managers were engineers who were brought up through the ranks. This made eminent sense, since it is critical that project managers have a strong foundation of knowledge about the system or project under their guidance. Some project managers had a strong technical focus; some were more business oriented. No matter what their strengths, these project managers focused on delivering systems on time, meeting system performance parameters, and doing it all within the prescribed cost.

In today's high-tech world, however, a project manager needs additional tangible as well as intangible skills and talents to be successful. Not only are systems more complex, but also there is typically more direct involvement with customers, which means things can get exponentially complicated in a very short time.

Many training organizations and universities provide instruction on traditional project management techniques such as earned value analysis, critical path method, risk analysis (tools for planning, evaluating, and managing projects) and financial management. These are essential for any good project manager to master, but equally important are other, "softer" skills, which I will discuss in this article. These are the skills that enable project managers to navigate their teams successfully through challenging, risky, and ever-changing waters.

**The Fundamentals**

Today's technical project managers need two basic prerequisites:

• Broad understanding of the technology issues
Appreciation and understanding of the key business issues

We'll explore these briefly below.

**Broad understanding of the technology issues.** Project managers in the high-tech industry must have a solid foundation in the technical disciplines related to their project. They do not need to be technical experts in those areas (that is why they have a team), but they do need to know the difference between a bit and a bat.

When I was a project manager for a US government agency, I worked with a few project managers who did not have technical backgrounds. Our group director believed that anyone with good management skills could be an effective project manager in a high-tech environment. Unfortunately, he was off base. Here's what happened to projects led by those non-technical managers:

- It was very hard for those project managers to gain the respect of team members without having a real understanding or appreciation of the technical challenges at hand;
- The project managers were overly dependent on their teams for things they should have been able to address without much assistance;
- Customers began circumventing the project managers and going to other people on their teams with technical expertise for help;
- The project managers began to feel overwhelmed by the situation and lost their ability to manage and lead their teams; the end results were usually cost and schedule overruns as well as dissatisfied customers.

This is not to say, however, that those without a technical background should never be considered for project management roles. Instead, I am advocating that directors place people in situations where they can succeed and contribute the most. With proper training and mentoring, the non-technical managers I described above might have maintained their confidence and credibility and been able to bring their projects to successful completion.

**Appreciation and understanding of the key business issues.** Project management is one of the world's greatest balancing acts. You must constantly juggle your own company's priorities, resources, and constraints along with your customer's needs and demands in order to keep the project on the right track.

It is essential that you understand your customer's key business drivers so you can discern what is really important to them and then align your team's effort and strengths to deliver maximum benefit. Is it time-to-market concerns? If so, then schedules will be of primary interest. If it's quality, then technical performance will be the main concern.

As with any management position, however, staying focused on the big
picture is also essential. To be successful, project managers must make timely decisions based on many project variables rather than just one or two dimensions. Making trade-offs between cost, schedule, and scope, for example, requires understanding of the project landscape and issues that are important to your company. If you get too focused on one area, then you may take your eye off important issues that can blindside you later.

**Communication and Organization Skills**

This is a key area for technical project managers. Software development is no longer the isolated endeavor it once was. The progress, delivery plans, and ultimate success or failure of a project can affect all levels of an organization -- your own as well as your customer's. A good manager must be able to:

- Communicate effectively in all directions
- Relate to customers, employees, and partners at different levels
- Organize and report data consistently
- Set realistic expectations

**Communicate effectively in all directions.** Never underestimate people's ability to take the simplest message and contort it in ways you could never imagine. The goal of good project communication is to remove as much fear, doubt, and uncertainty as possible and keep everyone on the same page. This is especially critical when a project team is on site at a customer location; it is important to make sure that the project's purpose, direction, and status are communicated in a consistent way by everyone on the team.

I always find it very useful to hold regularly scheduled team meetings or conference calls that last no more than one hour. This gives everyone a chance to share information, seek guidance, and vent as necessary. These meetings can also serve as a good forcing function to keep your people well prepared and focused on results. No one wants to appear ignorant about the status of their project in front of peers. Limit the meeting to one hour so you don't turn it into a technical exchange and waste the time of people who are not engaged in the activities you're discussing. If further discussion of a topic is required, set up another meeting with the interested people.

**Relate to customers, employees, and partners at different levels.** Empathy is a quality that enables project managers to understand what is important to their teams and their customers at different levels. Interacting with everyone in the same way is unfair and generally leaves all parties feeling dissatisfied. Good project managers try to "get inside the skin" of others: to know what is important to people at various levels (from practitioner up to senior manager) and how to communicate useful information in a way that will have maximum impact. CxOs, for example, are generally concerned with ROI, competitive advantage, and costs, while practitioners are generally concerned with technical feasibility, schedules, deliverables, and training. All of these concerns are related, but the higher
up you go in a customer organization, the more business-oriented the discussions should become. I’ve seen many project managers brief a CIO using the same information and approach they used to brief system engineers -- and the results are always dismal.

Organize and report data consistently. Data, data, and more data. Most projects generate more than their fair share of information, but not all of it is needed. Good project managers monitor -- at a minimum -- costs, schedule, technical performance, risks, and dependencies, and issue regular, concise reports to the customer. These reports are critical. They provide:

- A written summary for the customer of issues and their status, plus overall project status
- A mechanism for the project team to focus on important issues and report progress or setbacks
- A valuable history of the project in case of employee turnover
- A written record of all report correspondence in case issues or disputes arise
- Readily available information for customers to show to their management

The Rational Unified Process (RUP®), in addition to providing a flexible framework for software development, also provides templates and examples of artifacts and deliverables that can be used to provide consistent reporting and data analysis/collection during the various project phases.

I have always found that the more organized the project manager, the more likely the project will succeed. Since project managers are concerned with many areas, such as financials, manpower, artifacts, action items, version control, technical issues, and overall planning, things may fall through the cracks if there is no infrastructure to support them. The situation is analogous to Chinese checkers; the best strategy is to move all your marbles across the board in a defensive formation rather than attempting to get one marble all the way over to your opponent's side before moving the next one. Rational tools such as ClearCase for configuration management and ClearQuest for unified change management are examples of technologies that can help establish an infrastructure and process to ensure that project data and artifacts are properly managed and disseminated. Rational Project Console, a powerful tool that is currently under development, will help managers capture project metrics for tracking, analysis, and reporting.

Set and maintain realistic expectations. Another key skill for project managers is the ability to set expectations. Make sure that you gather all parties together at the start of the project to establish success criteria; get agreement from everyone involved. As a project manager, it is wise to avoid over-promising and under-delivering. Give yourself some wiggle room to account for unknowns and setbacks. Continually tuning and reinforcing the proper expectations is critical to the success of the project.
and to earning customer satisfaction.

**People Skills**

Of all the skills that project managers need, these are probably the toughest to acquire if you're not "born" with them. With good role models, training, and mentoring, however, almost anyone can cultivate more people smarts. If you know you need help in this area, seek it from senior people within your organization or take outside classes and workshops that include role plays and practice scenarios.

The most important people skills you'll need as a project manager are:

- Ability to identify and hire smart and talented people
- Desire and ability to lead and motivate teammates

**Ability to identify and hire smart and talented people.** Project managers must be skilled at finding not only talented technical and business people, but also people who can mesh within a team culture, especially if they are joining an existing team. The project manager must have good interviewing skills in order to minimize the chance of hiring employees who may not be a good fit. The best way to gain these skills is through experience and by seeking advice from those who do a lot of interviewing professionally, such as recruiters. Also, the team, not just the project manager, should participate in the interview process and focus on different subjects. It's a waste of time if everyone asks the same questions regarding technical ability but no one focuses on motivation or adaptability, for example.

Once a teammate is brought on, the real work begins. Project managers should have a development or ramp-up plan to ensure that the employee understands the project and can start participating as soon as possible. People are eager to contribute and make an impact, so new teammates should be given every opportunity to do so. In addition, assigning mentors to new teammates provides them with a reliable source for answers and can help them in building relationships within the team.

**Desire and ability to lead and motivate teammates.** As a project manager, you are the one who keeps the trains moving on time. Your success depends on the success of your team and their ability to work with other teams to deliver the system. I once assumed the project manager role for a very complicated project being executed under extremely difficult conditions. The team was fractured, discontent was running high, and morale was low. While many on my team wanted to focus on the technical issues, I spent the first few weeks on personnel issues, trying to get everyone back on the right track and open up the lines of communication. If you find yourself in a similar situation, my advice is to forgo the e-mails and voicemails and have sit-down, one-on-one, face-to-face discussions instead. Not only will you gather more information that way; you'll also begin to build trust with your team. In my case, the change took some time, but conditions improved and we eventually got back on track.
Another key to leading teams is having trust in your team members. I've seen project managers who had plenty of expertise in their discipline but failed simply because they could not let team members do their jobs. Why? These managers always thought they could do the job better. This is a serious mistake. If, early on in a project, you establish and clearly communicate the goals, success criteria, and schedule to your project team, then there is no need to micromanage. Instead, step back to see how the team performs and whether they understand the plans you have laid out. If you start doing their jobs, they will think you don't trust them, and they may never become a high-performance team.

Keep in mind that even though you are the project manager, you don't have all the answers or know all there is to know about the customer. Your teammates work with various parts of the customer organization and have valuable insight and knowledge about the company's inner workings, so take advantage of that. They probably know more than you do about certain aspects of the customer's business, so take their advice and let them take the lead when this is the case.

When technology issues are at the forefront, for example, a good project manager will look to his key technical people to provide leadership and recommendations. If you never let your team members experience this shared leadership, then they will always feel they must defer to you to make decisions. They will lose the sense of ownership and empowerment that drives dedication and creativity. Think of shared leadership as a powerful asset in a team situation; it can help team members grow and feel comfortable and confident about making decisions and interacting with customers and other teams.

For more on the topic of effective leadership, refer to my article, "Changing Ladders: The Move from Individual Contributor to Manager," in the March issue of The Rational Edge.

Are You Cut Out for Project Management?

Although the role of the project manager is demanding, it can be very rewarding. Breadth and depth of experience -- or dedication to achieving competence -- across many functional areas are a must for a project manager to be successful at addressing and resolving all the variables and issues involved in a complex project. Also critical are the ability to work closely with customers and take a sincere interest in their success. Many projects take weeks or months; more complex projects can even take years. With such long timeframes and persistent demands coming from many directions, the ability to maintain focus and performance is a key factor in delivering quality results.

As for any role that requires new skills and abilities, if you aspire to become a project manager, the best route is to find a way to work alongside a skilled project manager who is adept at coaching and mentoring. First-hand experience and exposure will give you an appreciation of the demands of the position, so you can decide if it's really for you and start to develop the competence you need to assume it.
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