

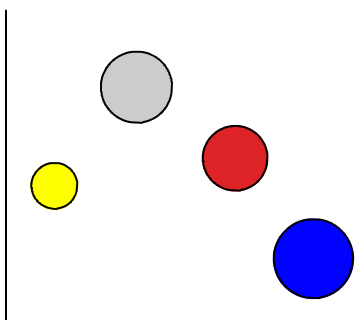


Concurrency

Strategy, People, Process, Tools, Technology

A Practical Approach to Portfolio Management

Kenneth Crow, DRM Associates



Portfolio Management is used to select a portfolio of new product development projects to achieve the following goals:

- Maximize the profitability or value of the portfolio
- Provide balance
- Support the strategy of the enterprise

Portfolio Management is the responsibility of the senior management team of an organization or business unit. This team, which might be called the Product Committee, meets regu-

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Successful Software Management: 14 Lessons Learned©

Johanna Rothman, Rothman Consulting Group, Inc.

Successful managers realize that they need to balance the needs of the business, the employees, and the work environment to be effective. In this article, the author summarizes her experiences in determining the work to accomplish, planning it, managing successful relationships with the group, and managing reactions to typical management mistakes.

Shortly after becoming a manager, I dragged myself home from work, flopped on the couch, and said to my husband, "This management stuff is hard. Nothing I learned in school prepared me for this people stuff. And that *management training*, that was just form-filling-out nonsense. The soft skills - dealing with people - are the hardest." My husband chuckled and commiserated.

If you are like me, and you started your professional career as a technical person, this *management stuff* is difficult to do. Not the forms, although the forms can be irritating, but the difficult part is knowing how to deal with people, and completing the work your organization expects of you. I have now had more than 15 years of management experience, and

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larly to manage the product pipeline and make decisions about the product portfolio. Often, this is the same group that conducts the stage-gate reviews in the organization.

A logical starting point is to create a product strategy - markets, customers, products, strategy approach, competitive emphasis, etc. The second step is to understand the budget or resources available to balance the portfolio against. Third, each project must be assessed for profitability (rewards), investment requirements (resources), risks, and other appropriate factors.

The weighting of the goals in making decisions about products varies from company. But organizations must balance these goals: risk vs. profitability, new products vs. improvements, strategy fit vs. reward, market vs. product line, long-term vs. short-term. Several types of techniques have been used to support the portfolio management process:

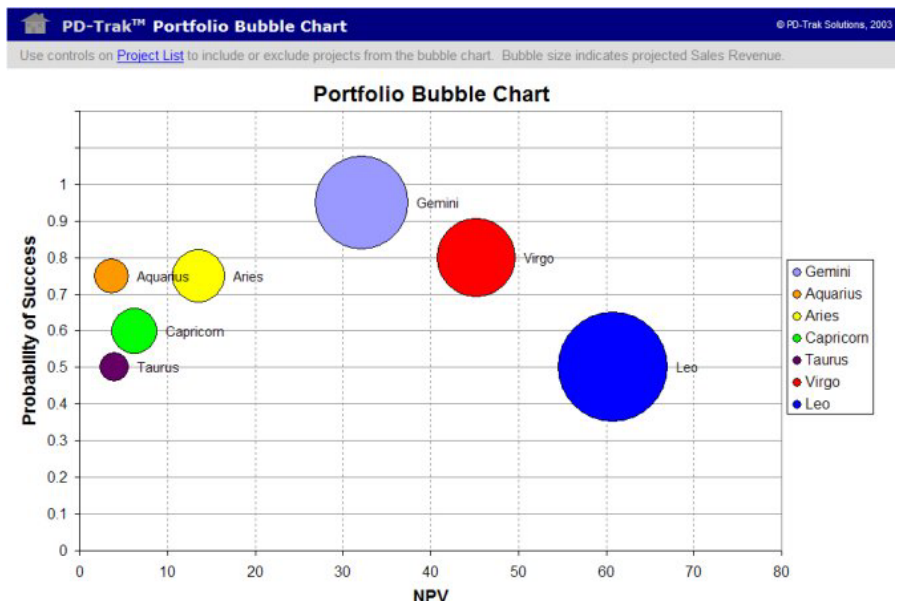
- Heuristic models
- Scoring techniques
- Visual or mapping techniques

The earliest Portfolio Management techniques optimized projects' profitability or financial returns using heuristic or mathematical models. However, this approach paid little attention to balance or aligning the portfolio to the organization's strategy. Scoring techniques weight and score criteria to take into account investment requirements, profitability, risk and strategic alignment. The shortcoming with this approach can be an over emphasis on financial measures and an inability to optimize the mix of projects. Mapping techniques use graphical presentation to visualize a portfolio's balance. These are typically presented in the form of a two-dimensional graph that shows the trade-offs or balance between two factors such as risks vs. profitability, marketplace fit vs. product line coverage, financial return vs. probability of success, etc.

The bubble chart as shown here provides a graphical view of the project portfolio risk-reward balance. It is used to assure balance in the portfolio of projects - neither too risky nor conservative and appropriate levels of reward for the risk involved. The horizontal axis is Net Present Value, the vertical axis is Probability of Success. The size of the bubble is proportional to the total revenue generated over the lifetime sales of the product.

Editor's note: to view enlarged illustrations of the PD-Trak figures referred to and/or included in this article, please visit the author's site, <http://www.npd-solutions.com/portfolio.html>

While this visual presentation is useful, it can't prioritize projects. Therefore, some mix of these techniques is appropriate to support the Portfolio Management Process. This mix is often dependent upon the priority of the goals.



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Our recommended approach is to start with the overall business plan that should define the planned level of R&D investment, resources (e.g., headcount, etc.), and related sales expected from new products. With multiple business units, product lines or types of development, we recommend a strategic allocation process based on the business plan. This strategic allocation should apportion the planned R&D investment into business units, product lines, markets, geographic areas, etc. It may also breakdown the R&D investment into types of development, e.g., technology development, platform development, new products, and upgrades/enhancements/line extensions, etc.

Once this is done, then a portfolio listing can be developed including the relevant portfolio data. We favor use of the development productivity index (DPI) or scores from the scoring method. The development productivity index is calculated as follows: (Net Present Value x Probability of Success) / Development Cost Remaining. It factors the NPV by the probability of both technical and commercial success. By dividing this result by the development cost remaining, it places more weight on projects nearer completion and with lower uncommitted costs. The scoring method uses a set of criteria (potentially different for each stage of the project) as a basis for scoring or evaluating each project.

The scoring method can be documented in a Project Scoring Table, in which the headings include Criteria (such as strategic alignment, product fits business unit, etc.), Evaluator Score, Average Score (for all evaluators), Weight, and Weighted Score. Weighting factors can be set for each criterion. The evaluators on a Product Committee score projects (1 to 10, where 10 is best). The worksheet (Project Scoring Table) computes the average scores and applies the weighting factors to compute the overall score. The maximum weighted score for a project is 100. This portfolio list can then be ranked by either the development priority index or the score.

Additional tables display the portfolio list, and as shown below the category summary for the scoring method.

PORTFOLIO INFORMATION												
Project cost	Sales over life	NPV	DPI	Score	SCORING DETAIL							
					Remaining cost	Profit over life	R-Factor	Prob. Of Success	Product Advantage	Strategic Alignment	Technical Feasibility	Market Attract.
\$903k	\$6.1M	\$3.6M	17.9	88.7								
\$153k	\$2.2M	2.4	75%									
\$2,331k	\$10.5M	\$6.3M	67.8	81.5	13.2	8.2	18.7	12.3	9.6	15.0	4.5	
\$56k	\$4.0M	1.7	80%									
\$2,331k	\$58.5M	\$60.8M	34.5	81.3	12.2	10.0	18.5	13.1	9.9	13.8	4.0	
\$881k	\$30.5M	13.1	50%									
\$2,331k	\$42.1M	\$32.1M	72.5	80.4	13.2	9.6	17.1	13.1	9.6	14.1	3.8	
\$421k	\$16.1M	6.9	95%									
\$1,209k	\$13.3M	\$13.5M	1000.0	78.8	11.3	9.9	16.1	12.9	9.0	15.6	4.0	
-\$1k	\$6.9M	5.7	75%									
\$2,331k	\$29.5M	\$45.2M	86.0	75.7	12.6	7.7	17.4	11.7	9.7	12.6	4.0	
\$421k	\$23.2M	10.0	80%									
\$403k	\$4.8M	\$3.9M	4.9	58.9	9.8	6.6	14.0	8.0	7.2	10.8	2.5	
\$403k	\$1.8M	4.5	50%									
\$2,331k	\$5.9M	\$2.3M	1000.0	54.5	9.6	5.3	12.9	7.6	6.0	11.4	1.8	
\$1k	\$2.2M	0.9	80%									

Once the organization has its prioritized list of projects, it then needs to determine where the cutoff is, based on the business plan and the planned level of investment of the resources

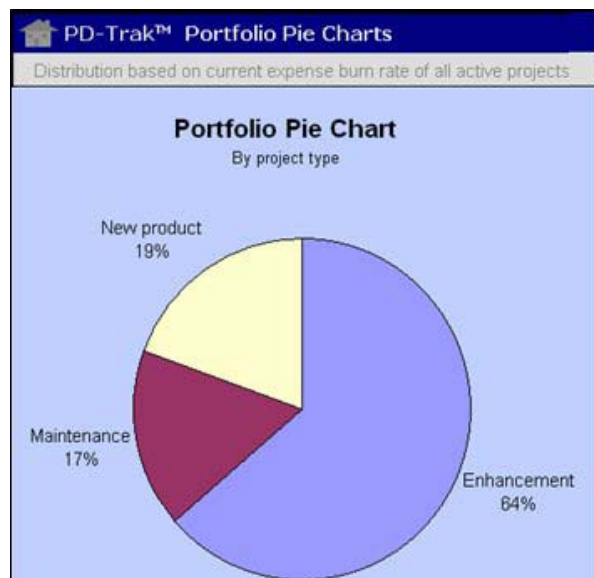
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available. This subset of the high priority projects then needs to be further analyzed and checked. The first step is to check that the prioritized list reflects the planned breakdown of projects based on the strategic allocation of the business plan. Pie charts can be used for this purpose.

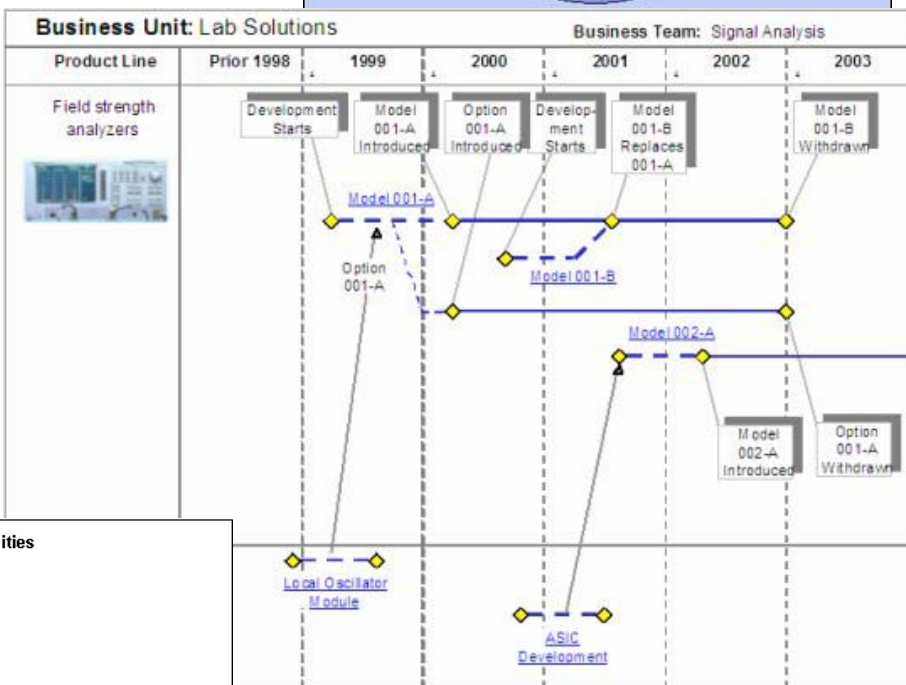
Other factors can also be checked using bubble charts. For example, the risk-reward balance is commonly checked using the bubble chart shown earlier. A final check is to analyze product and technology roadmaps for project relationships. For example, if a lower priority platform project was omitted from the portfolio priority list, the subsequent higher priority projects that depend on that platform or platform technology would be impossible to execute unless that platform project were included in the portfolio priority list.



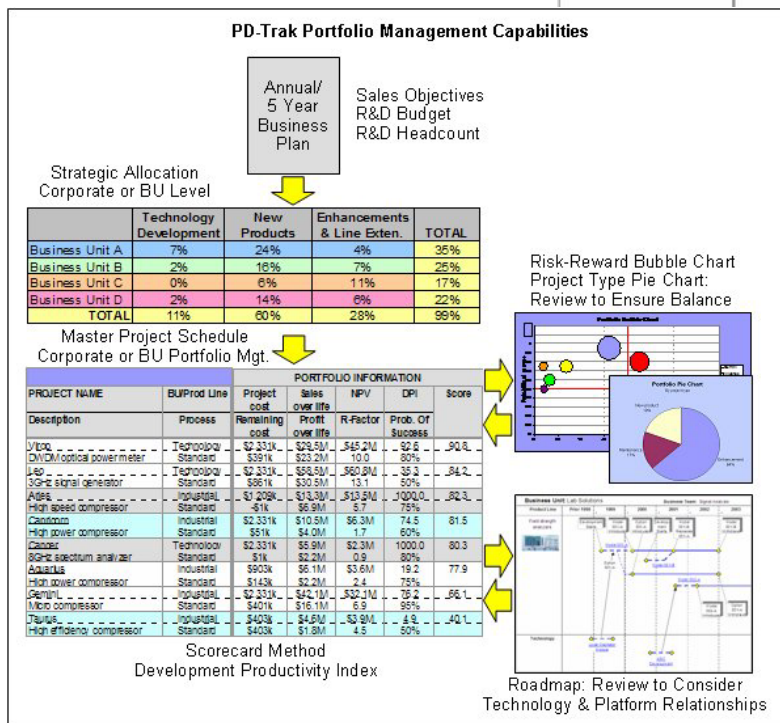
An example of a roadmap is shown at right. The overall portfolio management process is shown in the diagram below.

Finally, this balanced portfolio that has been developed is checked against the business plan as shown on the following page to see if the plan goals have been achieved - projects within the planned R&D investment and resource levels and sales that have met the goals.

With the significant investments required to develop new products and the risks involved, Portfolio Management is becoming an increasingly



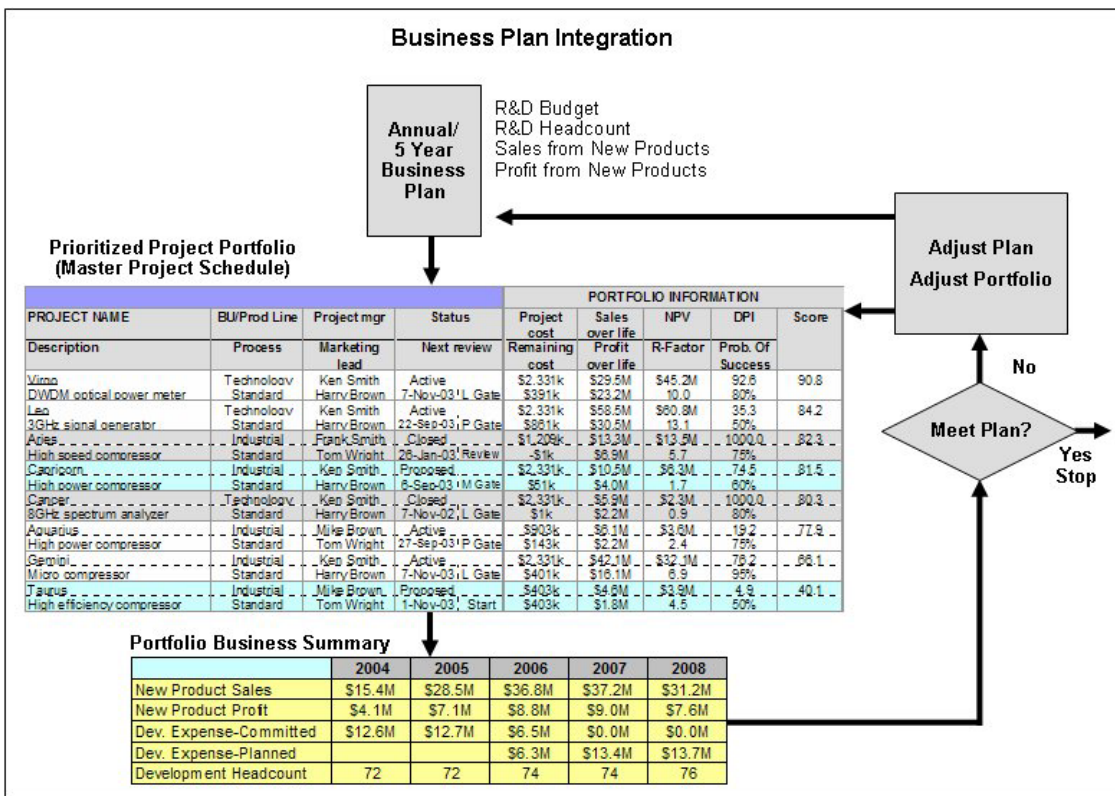
important tool to make strategic decisions about product development and the investment of company resources. In many companies, current year revenues are increasingly based on new products developed in the last one to three years. Therefore, these portfolio decisions are the basis of a company's profitability and even its continued existence over the next several years.



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He has written papers, contributed to books, and given many presentations and seminars for professional associations, conferences, and manufacturing clients on managing product development, design for manufacturability, design to cost, product development teams, QFD, and team building. Among many professional affiliations, he is past President of the Society of Concurrent Engineering (now SCPD), a member of the Engineering Management Society, and is a certified New Product Development Professional through the Product Development Management Association.

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Successful Software Management

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have learned a number of lessons about managing people.

Define the Manager's Role

When you become a manager, your role is to organize purposefully [1]. For me, that means creating an environment where people can perform their best work. As a software manager, that means I work to create business value by balancing the needs of the business, the employees, and the environment. There is no *one right way* to do this; every organization is different. However, the following lessons have served me well in numerous organizations.

1. Know What They Pay You to Do

I have been a manager of developers, testers, and support staff. You would think it would be easy to know what the company paid me to do. However, my mission as a test manager - to report on the state of the software - is sometimes different from what the organizations desire: to find the Big Bad Bugs before the customer does, or bless this software. Even my mission as a development manager - develop the team members as much as the software - was different from what another organization desired: create software just good enough that we can be bought out.

My mission does not have to be the same as yours, and you may modify your mission as your organization changes. However, delivering on your mission as a manager is what your organization pays you to do. What is important is to notice when your title, your mission, and what the company pays you to do are not synchronized.

One quality assurance (QA) manager said it this way, "My management only wants me to manage the testing, not raise risks, look for process improvement opportunities, or even gather and report on what I think are standard metrics. My manager and I are both frustrated. Focusing on just the testing is wrong." This QA manager has at least one alternative - change his title so that he and the organization both know that he is not attempting to perform organization-wide process improvement, to clarify expectations in the organization.

Doing what the organization pays you to do, and not doing what they do not pay you to do makes a huge difference in how successfully you and your group can accomplish your mission. Make sure you clarify your mission at your organization so you can create to-do and not-to-do lists. These lists help you plan the work - for you and your group.

One development manager who temporarily took over installations from the tech support people realized that he no longer had a development team, but an installation support team. The development manager put installations on his not-to-do list and developed a plan to move installations back to tech support.

When you align yourself with your manager's priorities, you do the work they pay you to do.

2. Plan the Work: Portfolio Management

It is easy to be reactive at work and feel buffeted by the requested changes of your group. It is harder and necessary to be proactive and plan your group's work, even if that work changes every week. For me, planning includes these activities: identifying the project portfolio (i.e., new work, ongoing work, periodic work, *ad hoc* work), developing strategies for managing the work for each project, and knowing what done means for each project. One of the questions I like to ask is, "How little can we do?" I do not want to shortchange any project, so by asking about the minimum requirements, I can accommodate more projects successfully.

Part of planning the work is assigning the people to projects. I assign people to one important project then allow them to take on little bits and pieces of less important work when they need a break or are stuck on the important project. I avoid context switching (moving from one unrelated task to another) as much as possible.

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*It is harder
 and
 necessary
 to be
 proactive ...*
 ”

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3. Accept Only One No. 1 Priority at a Time

I have worked for many managers who demanded that my staff and I work on several top-priority projects simultaneously.

Senior managers perform different work than first-line and middle managers. It is not possible for senior managers to work on more than one top-priority task at a time. However, because they tend to have more wait states in their work, these senior managers are under the illusion that they are working on several top-priority projects at the same time.

Middle and first-line managers can only work on one No. 1 priority task at a time. However, sometimes we confuse urgency and importance [2]. At one organization, I would arrive at work in the morning, check my voice mail, and respond to all message requests. That took until noon. Again after lunch, I would check my e-mail and voice mail and run around responding to those urgent requests. After a week of this, I realized I was not performing any of the important work such as planning for the group and lab, reviewing critical development plans, or planning my hiring strategy. I also realized that although people marked their emails and voice mails *high priority*, they did not utilize the information I had given them at the time I responded.

I stopped responding immediately to urgent requests and re-planned my days. While I still checked voice mail and e-mail, I tended to ask more questions about the deadlines for requests. Prioritizing requests helped me manage my management time. I still had the problem of too many high priority projects coming into my group, so I asked my manager these questions:

If you could have one project first, which one would it be?

What are the consequences if we release any of these projects late?

We talked and negotiated which projects had to be completed when and why. When I understood the trade-offs between projects, I was able to manage the work coming into my group.

4. Commit to Projects After Checking With Your Staff

Business needs change. Sometimes your manager will grab you in the hall and say, "Hey, can you do this project now, and finish it in two months?" Or, a senior management planning committee will call you into its meeting and say, "We need this project now. Can you commit to it?"

It is very tempting to say yes. However, saying yes is exactly the wrong thing to do. You can say, "Let me check to see if my previous estimate is still accurate, and I'll get back to you before 5 p.m. today."

If you say yes, you are training your senior management to ask you for answers when you do not know the answers. You have also committed your staff to a project that may not be within the scope you originally estimated.

5. Hire the Best People for the Job

Especially if you manage many projects, your greatest leverage point is in hiring appropriate staff. Too often, we hire people who have similar technical skills and personalities as the people already in our groups. Hiring people who are *just like the ones we have now* does not always gain the best people for the job.

When you hire people your staff thinks are great, you increase morale in the group, and you increase your group's capacity over time. I recommend you develop a hiring strategy that identifies the technical and soft skills you are looking for, and that you choose a variety of techniques for interviewing.

I have found auditions [3, 4, 5] to be an essential technique for interviewing technical staff. I

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normally create 30- to 45- minute auditions to see how a person works in a particular setting. Auditions help candidates show what they can do. If you organize a congruent audition, you do not trip people up on esoteric ideas or jargon; you create a simplified situation that the candidate could encounter at work. Watching the candidate or having the candidate explain their answers/results is a powerful interview technique.

You can create auditions for any position, including project managers, developers, testers, writers, support staff, analysts, systems engineers, product managers, program managers, and people managers. Define the behaviors you require in a position, and then create an audition using your products or open source products to see the person at work. Create auditions that are 30 minutes long to start. If you are having trouble deciding between multiple candidates, define another audition that is one hour long and invite the candidates back to see how they manage that audition. Auditions show you how the person works at work - priceless information.

I also recommend behavior-description interview questions [5, 6] to understand how a candidate has performed in previous jobs. Behavior-description questions are open-ended and ask the candidate to tell you the story of previous work. For example, to understand how a project manager deals with a project team who has not yet met a schedule, ask this closed question: "Have you ever managed a project where the team had trouble meeting the schedule?" If the answer is no, you can decide if the project manager has enough experience to manage your team. If the answer is yes, ask the open-ended behavior-description question, "What did you do? What actions did you take on that project to help the project team meet the schedule?" The answers you hear will help you assess that candidate's ability to work in your organization.

6. Preserve Good Teams

Part of my hiring strategy is to hire people who fit into my already-existing team, but sometimes you inherit teams or a project has completed and a team is ready to move on. When a team is successful, I try to keep them together so they can continue working well together. I may bring more people into the team, one at a time, especially if the team has been highly productive. But I do not scatter the productive team and hope they will form more productive teams. That just reduces their productivity.

Teams can overcome bad management and bad processes, but they cannot overcome a team un-jeller. A team un-jeller is the person who walks into the lunchroom, and suddenly everyone else leaves. Or, the un-jeller creates an argument out of every conversation. If you have a team un-jeller, find another place for that person to work, preferably for your competitor.

7. Avoid Micromanaging or Inflicting Help

Many of us were software developers, testers, analysts, or some other technical role before we became managers. When we were technical contributors, we knew how to perform the technical jobs. However, once you have been a manager for a while, you probably will not know precisely how to perform the employee's job.

I once had a boss who liked to creep into my office, stare over my shoulder, and say, "On line 16, shouldn't that be a ..." By the time he reached "16," I had jumped out of my chair, become flustered, and lost my concentration. Micromanagement neither gets the job done faster, nor does inflicting advice or help.

On the other hand, you and the employee both need to know that the employee is progressing. I ask my staff to decide when they have been stuck for too long (time-box the work). Some tasks require weeks of study, but most tasks require days or hours. If the employee spends more than the agreed-upon time on the task, their job is to ask for help. As the manager, your job is to find them help, not necessarily inflict your help.

“

What actions did you take on that project to help the project team meet the schedule?

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8. Treat People Individually and With Respect

Buckingham and Coffman [7] claim that each employee's relationship with his or her manager is key to that employee's success and long-term happiness in the organization. That means we need to treat people fairly, but uniquely, so that we build and maintain the best possible relationships with each employee.

Everyone has his or her own preferences, especially in their communication patterns, and how they organize their thoughts about work. Some people prefer e-mail communications; some prefer in person discussions. Some people want to understand all the reasons behind your requests, and others will take the request at face value. Some people need to gather data to make decisions; others will develop a model about the situation and make a decision based on that model.

It does not matter if people work top down or bottom-up, or if they want to talk in person or by e-mail. What matters is that you, within reason, accommodate everyone's uniqueness.

I once managed two very talented developers who shared a large office. Begrudgingly, they allowed me to have 20- minute one-on-ones with each of them every two weeks. In between, if I wanted to talk to either of them, I had to e-mail them first - dropping in was not allowed. I treated them differently than the other people in my group, but fairly, considering their preferences.

They frequently worked on the same software. They never spoke to each other aloud, they only communicated via e-mail even though they shared an office. Because they were so successful at their work together, and even mentored others in the organization by e-mail, their communications preferences were a bit odd but acceptable. If I had tried to change them to meet my needs and work with them the same way I worked with the other people, none of us would have been happy.

9. Meet Weekly With Each Person

Even if you have hired stars, you still need to know each person's progress on their tasks, and how the project as a whole is progressing. I use one-on-ones weekly to meet with each person. We discuss the employee's progress on his or her tasks. Sometimes, tasks are amorphous and it is difficult to know when to stop or if the employee needs help. I ask each employee to show me visible progress on each task: drafts of plans, multiple designs, prototype test results, anything that shows me the employee is making progress and is not stuck. If the employee needs help completing the task, we discuss what kinds of help are appropriate.

I receive many benefits from these weekly meetings. I learn what everyone is doing and can track it in my notebook. It is easy to write up useful performance evaluations, including examples of successful and not so successful actions the employee has taken over the year.

And, because we meet weekly, I can give feedback then, not when we make time. I also reduce the number of staff interruptions because everyone knows they can ask me non-urgent questions during the one-on-one. I can perform weekly career development and learn if my staff has personal issues affecting their ability to do their jobs.

If I am managing more than eight people, I meet biweekly with more senior staff because they need less direct supervision.

Some of you are probably thinking you do not have time to meet with everyone once a week. However, if you do not set up specific times to meet with everyone, you tend to either not know what people are doing, or you are interrupted frequently by your staff with questions.

10. Plan Training Time Each Week

Technical work is constantly changing; most of the technical people I know enjoy learning



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new things. If you have a budget for formal training, that is great. Even if you do not have a budget, plan weekly training time in the form of brown-bag lunches, presentations from other groups in your organization, an internal usergroup meeting of one of your tools, or presentations from people in your group about their successes or difficulties.

I use the weekly group meeting as a time to deliver the training. When I managed development groups, I organized this internal training, including technical leads of other sub-projects to explain their architecture and application programming interface (API) to other groups, testers to explain patterns of defects they found, different techniques for peer review, or discussion of a particularly interesting article in one of the technical magazines someone had read.

11. Fire People Who Cannot Perform the Work

Even when you meet regularly with your staff and encourage them to acquire help when they need it, some people in your group may not be able to perform at the level you require. First, make sure you have been specific and have given feedback to the employee with examples of inadequate behavior. If the employee understands the lack of performance, you can choose whether to coach the person or perform a get-well plan, or in radical circumstances, escort the employee out the door.

Retaining non-productive employees has direct and indirect costs. The direct costs are easier to define: You are paying a salary and benefits and not receiving the expected work. The indirect costs are much subtler and more damaging.

When you continue employing an inadequate employee, the morale of the entire workgroup declines. If morale declines enough, your best people will leave. Not only do you have someone in your group who is not successful, that person has driven away the people who are the most successful.

In addition to low morale, you and your group accomplish less than you expected. You are not just accomplishing less because of the one employee who cannot work at the level you require; that person probably has to hand off work to others in the group, and those other people will be delayed by the inadequate work.

I once inherited a group where the previous management had *spared* an employee from layoffs because he was having personal problems. Those personal problems affected his work - he did not always come to work, he was late on every deliverable, and he was unable to perform most of his work. In my one-on-ones with the employee, I gave him examples of his work and asked if he was able to continue to work. He said yes. (If he had said no, we would have put him on short-term or long-term disability.) We chose to perform a get-well plan, which the employee stopped after a week. After the employee left, the morale in the group jumped dramatically and we were able to accomplish more work.

12. Emphasize Results, Not Time

I have worked for senior managers who rewarded individuals based on their work hours, i.e., those who started early and stayed late. Unfortunately, these managers had no ability to understand the results the long-working employees imposed on the rest of the organization: buggy code, inadequate designs, and tests that did not find obvious problems. When people work long hours, their productivity decreases, not increases [8]. In "Slack" [3], Tom DeMarco says, "Extended overtime is a productivity-reduction technique." The longer people stay at work, the less work they do. Instead, they perform the life activities they are not performing outside of work.

Make it possible for people to only work 40 hours a week. The less overtime people put in, the better their work will be.

If people tell you they are working long hours because they cannot accomplish anything in

“
*... buggy code,
 inadequate de-
 signs, and tests
 that did not
 find obvious
 problems ...*
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their regular work weeks, ask them where they spend their time. Look for patterns such as multi-tasking, or meetings that do not have any productive output. Use your management power to discover and remove the obstacles preventing people from working a 40-hour week.

13. Admit Your Mistakes

Sometimes, those obstacles to people completing their work successfully in 40 hours arise from your management mistakes. It is difficult, and sometimes embarrassing to have to admit you have made a mistake. In my experience, when I admitted mistakes to my staff, they have respected me more for it.

14. Recognize and Reward Good Work

Money is not an adequate reward for many technical people. If people think they are paid fairly, then more money is not reward enough. Recognition of good work and the opportunity to perform meaningful work [9] is much more important. Lack of money can be a demotivator, but only money is not sufficient when recognizing good work.

Kohn says, "[Rewards] motivate people to get rewards." If your organization has trained employees to expect money as a reward, this appreciation technique may seem small. Try it anyway.

When I use appreciation as a recognition technique I say, "I appreciate you, Jim, for your work on the blatz module and API definition. Your work made it possible for Joe to write great tests and for me to predict the project's progress." Appreciation between peers could mean even more than money from you. When you appreciate a person for good work and you explain what the work meant to you, you are motivating the person to continue performing similar work.

In addition, consider time off, group activities, movie tickets, or funny awards such as *best recursion of the week* as recognition techniques.

The most important part of a reward is to make sure it is congruent with each person's performance. Your staff knows who is performing well and who is coasting. If you recognize and reward evenly, you are not differentiating between outstanding performance and adequate performance. Make sure you reward a person's entire contribution (the entire work product, including how good the work product is, the timeliness of the deliverable, the person's ability to work with others, and whatever else is important to you), not just the size or quality of the work.

Summary

Managers exist to help people do their best work to serve the business of the organization. Technical people can make great managers as long as they understand people and want to succeed at working with them. Many successful technical managers took the time to learn about management, putting as much effort (if not more) than the effort they took to learn the necessary technical background for the technical jobs. Managers do not have to be perfect; they have to be good enough to create a working environment for their employees to deliver great work.

Acknowledgements

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Successful Software Management

(Continued from page 11)

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About the Author



Johanna Rothman consults on managing high technology product development, which helps managers, teams, and organizations become more effective. Johanna uses pragmatic techniques for managing people, projects, and risks to create successful teams and projects. A frequent speaker and author on managing high technology product development, she has written numerous articles and is now a columnist for Software Development, Computerworld.com, and StickyMinds.com. Johanna served as the program chair for the Software Management conference and is the author of "Hiring Technical People."

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Concurrent Product Development in Practice

Design a Better Consumer Experience

“After decades of market research and focus groups, corporations realize that they still don’t really know their consumers — or how best to connect with them.” **Business Week’s May 17, 2004 cover story, The Power of Design**, describes how award winning Palo Alto design firm, IDEO, partners and works side-by-side with customers to build a “culture of innovation.” IDEO’s process integrates traditional product development best practices into a five step sequence consisting of:

Observation: consultants and clients together observe people using products and services, facilitated by photo journals and interviews.

Brainstorming: teams apply this classical approach to idea generation in intense, focused, rapid fire sessions.

Rapid Prototyping: quickly provides low-cost no-frills mock-ups to help visualize design ideas for products, work spaces, services.

Refining: more brainstorming narrows down the choices to a few.

Implementation: strong multidisciplinary, multicultural teams of experts create the product or service.



IDEO is one of several design firms using this client involvement approach to translate user research into products and services, rivaling traditional management consulting companies that conduct a study and leave behind a heavy binder that sits on a desk.

With offices in six cities in the United States, London, and Munich, IDEO’s clients include well known corporations such as Intel, Nestle, Samsung, and Kaiser Permanente. One example: when the latter was contemplating expansion, by having doctors and nurses play the role of patients, the consultants helped show that the focus should be on designing human experiences rather than buildings. An AT&T client characterized their experience with this design approach as fun; changing corporate culture can be fun.

Note to product development meeting and conference planners: somewhere in this fascinating BW article may be just the lead you are seeking for an interesting topic and speaker!

Concurrent Engineering:

A systematic approach to the integrated, concurrent design of products and their related processes, including manufacture and support. This approach is intended to cause the developers, from the outset, to consider all aspects of the product life cycle from concept through disposal, including quality, cost, schedule, and user requirements.

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April 28, Evening

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Journal of Concurrent Product Development

SCPD will soon launch our new refereed journal. Papers are solicited in all core areas of Concurrent Product Development, including:

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- Cross functional teams
- Management

To submit a paper:

Papers should be approximately 6000 words and submitted both as hard copy and by email.

Mail hard copy to Society of Concurrent Product Development, PO Box 68, Dedham, MA 02027-0068.

Please also email the following information to David Meeker at meeker@mit.edu :

- Title of paper
- Names of all authors
- Name, address, phone number, fax number, and email address of corresponding author
- Three to five keywords
- Microsoft Word version of paper to facilitate the review process.

For more information, please contact David Meeker at meeker@mit.edu

SCPD VISION

To be recognized by industry, academia, and by other professional societies as the best value source to attain the knowledge necessary to achieve advanced product development capabilities and practices.

SCPD MISSION

To further the development of and to promote the application of Concurrent Engineering (CE) and Integrated Product Development (IPD) in companies and organizations worldwide.

SCPD VALUES

- **Leadership:** To embrace rapid product realization techniques and to advance our nation's economy, driven by ourselves, our companies and our Sponsors.
- **Member Recognition:** To individuals in our organizations as facilitators of improvement, to our companies and to Sponsors for foresight in fostering environments that lead to the adoption of improved design practices.
- **Learning:** To satisfy our thirst for continuing personal development and renewal and to provide an accessible resource for industry as a whole, bringing new knowledge and skills to the workplace.
- **Networking:** To stay abreast of industry trends, to interact with like-minded professionals and to identify opportunities for business relationships
- **Friendship:** To make professional acquaintances and to solidify old relationships; taking the SCPD meeting as a professionally rewarding yet enjoyable "time out" from the pace of daily work.

SCPD OBJECTIVES

- Disseminate knowledge to promote **understanding** of Concurrent Engineering (CE) and Integrated Product Development (IPD) concepts and processes.
- Provide a continuous **forum** for networking and sharing of ideas among professionals in all disciplines involved in product development.
- Improve **enterprise effectiveness** by expanding the CE/IPD Body of Knowledge by emphasizing the implementation of practical approaches in industry.
- Participate in the origination and/or refinement of the Concurrent Engineering knowledge using both internal capabilities and **collaborative relationships**.
- Foster a continuous learning organization by maintaining a SOCE **Body of Knowledge** that remains comprehensive while focusing resources and activities on emerging and leading edge techniques.
- Operate to achieve **multi-national and multi-lingual** communications and text capabilities.

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