Managing Interns

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Internships help students determine their future career paths while providing companies with creative and energetic contributors who offer fresh perspectives and innovative skills.

Internships connect academia and industry. Students learn what it's like in industry by working as team members and contributing to projects. Successful internships can be terrific experiences for everyone—the interns, internship supervisors, universities, companies, and teams.

GOOD MATCHES

Successful internships begin with good matches. Good job descriptions specify job prerequisites clearly. Candidates who already know required languages, frameworks, tools, and technologies become productive much faster than those who need on-the-job training. Internships are relatively brief, perhaps only three months, although some companies can hire interns for up to six months.

Students should be honest about their skills; they will probably be quizzed during interviews by recruiters or potential supervisors about their experiences in courses and previous internships. Most technical interviewers can quickly determine when a candidate has exaggerated substantially, which sends a strong negative signal.

Personality matching—determining if the potential intern and supervisor will work well together—is even more important than specific technical skills. Successful interns are knowledgeable, smart, and creative, but they are also team-oriented, disciplined, enthusiastic, and adaptable. Sure, those are terrific attributes for any team member, whether an intern or not, but the short internship period implies that a strong working relationship must be established quickly.

ORIENTATION

Most companies offer orientation sessions that help new interns get started, perhaps pointing them to informational websites as soon as they accept job offers. All new employees, including interns, submit government and company paperwork (such as tax forms and confidentiality agreements), receive badges and equipment, and learn about the company and group they have joined. Orientations offer important information about company policies, organization, products, and websites, and may help new employees navigate the inevitable flood of corporate buzzwords and acronyms.

Interns are sometimes surprised by the scope of business activities that companies address. But the most crucial aspect of orientation involves fostering personal contacts. Orientation should include introductions to people in the same team and group, which makes it easier to talk to them later. When a company has interns throughout the year, as SAP does, existing interns are the best resources for new interns. These "old hands" recall the challenges they encountered in adapting to a new company and location and are usually eager to help others, just as they were helped when they arrived. Wiki pages describing past intern experiences (resources, activities, advice) also help.

SUPPORT

Every intern has a specific person identified as a supervisor or mentor. That person, who often isn't a manager, must supervise the intern's technical work. Often, the supervisor is one of the people who interviewed the intern when matching was evaluated. But sometimes assignments are modified for business reasons, such as changes in projects and personnel. The intern and supervisor should meet regularly, defining a project, examining approaches, reviewing progress, and discussing results. The supervisor should also explain the "big picture" of what the group is

doing, so that the intern can understand how a particular project fits in.

Sometimes several interns work together on a project and help each other. Because communication and teamwork are so important, the intern might also consult other people on the supervisor's team and in the lab as a whole, creating a small network of contacts. Networks of collaborators, advisors, and supporters are vital to employees who work full-time in industry.

In addition to the supervisor, interns usually have a manager, who might be in a human resources group or in the same technical group as the supervisor. The intern manager is responsible for handling corporate matters for groups of interns, such as recruiting, hiring, orientation, payroll, and special intern activities. These activities can include outings, internal seminars, or seminars across multiple local companies. Such cross-company seminars help interns gather additional industry perspectives and learn about career opportunities in the same geographical area.

Ideally, interns and supervisors will share a strong relationship and can deal with any concerns directly, but the intern manager should assist if issues arise that can't be worked out. Both interns and supervisors should feel comfortable talking to intern managers when necessary, so that problems can be addressed early on.

EXPECTATIONS AND DELIVERABLES

Interns are expected to be professional team members who attend group meetings, define their deliverables and schedules with their supervisors and—sometimes—project managers, communicate their findings regularly, and help adjust schedules when necessary. In some cases, supervisors define what they believe are accomplishable units before interns arrive, while some supervisors define projects with interns on the fly, based on how

quickly the interns learn and accomplish initial goals.

Projects may be experimental or directed. For experimental projects in research groups, goals might be defined loosely at first, with some room for independence and creativity. Interns should learn applicable internal and external technologies, define a project that achieves something or performs certain experiments, build a prototype (often based on some existing systems), understand and explain what they've learned from their experiments, then document and present their discoveries.

> What an intern accomplishes contributes to the supervisor's and project's success, and even to the overall company.

There may be enough time to modify or extend the prototype based on experimental results to do a better job, or to contrast multiple approaches. Sometimes negative results might be as valuable as positive ones, as long as the experiment is a good one and teaches something insightful.

For directed research projects and for most development projects, goals will be more focused and schedule-driven. High-quality results can be crucial, with a series of intermediate milestones defined to monitor progress. It's appropriate to adjust scope and dates for intern assignments when delivery is late or results are disappointing, just as it is for anyone working on a project.

For either research or development, an important deliverable is the end-of-internship presentation. Such presentations give interns the chance to describe their results to the entire group, giving them experience preparing demonstrations and presentations, presenting their findings,

and handling questions. Presentations also act as a driving force to deliver functional deliverables and well-grounded conclusions.

SUCCESS FOR EVERYONE

Everyone involved benefits from a successful internship. An intern is a member of a project team, just like other group members. Interns participate in the same meetings and activities as other team members and share responsibility for the success of their project. There are exceptions, however, because the intern is a temporary employee.

Both intern and supervisor learn new approaches and insights during internships. Interns must balance their own creativity with project needs. They must also recognize that they are being paid to contribute and their results affect others. A successful internship can improve the intern's résumé and result in a strong recommendation from the supervisor.

Although interns may focus on their personal achievements, an intern's work also reflects on the intern's university, particularly if the people on the project haven't hired many other interns from that university. Was the student well-educated and motivated? Will the company want to hire other students from that university? Similarly, will other students from the intern's university want to work at that company?

Moreover, the intern's success helps make the supervisor successful. Is the supervisor good at managing interns? If so, the supervisor might be a potential management candidate. Did the intern's project deliver useful results that contribute to the group and the company? If so, the supervisor might continue the project (perhaps with other interns) by writing additional code, internal documents, presentations, external papers, and sometimes patents, giving credit to the intern's contributions. A supervisor who collaborates well with productive interns

enhances his or her own reputation, as well as the intern's.

When an intern works on a thesis during an internship, the supervisor must be careful to balance the intellectual property rights of the company with the obligation to help the intern complete a thesis. Intern accomplishments should help determine the company's directions and success, just as any other employee's contribution would. An intern who learns how to work on a team, contribute substantially, and make a difference has acquired experience that will be valued anywhere that intern works in the future, perhaps even at the company where he or she interned. And for companies, internships are an important recruiting technique since supervisors and interns learn firsthand what it's like to work together.

FEEDBACK

Interns are new to their companies and projects and must listen and learn, but different people have different learning curves. Sometimes an intern is highly independent and creative and just needs context, encouragement, and a sounding board to make strong, novel contributions; sometimes an intern has trouble delivering basic functionality and must shift to a more digestible problem and seek extensive support. Most internships fall somewhere in between, and both supervisors and interns need to be patient, open, and adaptable. Even though intern, supervisor, and project all seemed like a great match, problem complexity, technical challenges, or interpersonal issues might cause difficulties.

Such concerns should be addressed early on. The intern and supervisor need to communicate regularly and frankly—just as any employee should communicate directly with his or her manager—so that adjustments can be made as soon as possible. These adjustments can include education and explanations from the supervisor

or others, breaking the problem down into simpler pieces, changing the intern's assigned problem, and—with help from management—assigning the intern to a different supervisor. Both the intern and supervisor should request assistance from the intern supervisor when discussing and resolving problems. Feedback should also come from other group members, not just at an end-of-internship presentation, but throughout the internship, as interns describe their results and challenges at team meetings, lunches, or informal discussions with colleagues.

Although discussion and course correction may be required in any supervisory relationship, the great majority of internships go very smoothly, and supervisors should make sure that interns know how much their work is appreciated, both in team meetings and directly. Supervisors can thank interns at end-of-internship presentations; in my group, supervisors provide desserts chosen by the interns as another way of expressing thanks.

Interns are ambassadors from their universities to the companies where they intern. Companies can learn a lot from their interns about what's going on at their universities. After internships end, interns also serve as ambassadors from their internship companies back to their universities. Other students and faculty might want to find out about the companies' and internships' projects and compare the experiences of different interns, which might help them determine if they want to work at those companies as interns or full-time employees.

Internships offer a terrific way for industry and academia to stay connected. Yes, there are many other ways, including exchanges between professors and industry researchers, industry-sponsored academic research programs, conferences,

journals, and sabbaticals. But internships offer significantly different advantages. They give students a paid opportunity to learn industrial practices and cultures in what should be a highly supportive team setting geared for success, perhaps in a location that's new and exciting, where they can meet, get to know, and have fun with interns and other employees.

Internships help students determine what they want to do and where they want to do it. For companies, interns provide creative and energetic contributors who offer fresh perspectives and provide innovative skills that help projects meet their goals. When internships are successful—and they usually are—they are a win for everyone involved: students, universities, supervisors, projects, and industry. ◾

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