

Staffing For Systems Management

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It is often said that people are the most important resource within any organization. This is certainly true as it applies to systems management. Smooth running infrastructures are built with robust processes and reliable technologies. But before procedures and products are put in place, first must come the human element. Skilled professionals are needed at the outset to develop plans, design processes and evaluate technologies, and then to transform these ideas from paper into realities.

This article describes various methods to use in staffing an IT infrastructure with appropriately skilled individuals. We start out by first showing how to qualify and quantify the diversity of skill sets required. Next, we discuss ways to assess the skill levels of current onboard staff, and, if necessary, some not-always-obvious alternative sources for staffing. From onboard assessments we then move on to some helpful tips on using recruiters, landing the ideal candidate, and retaining highly sought-after individuals.

Competent IT professionals who are both well-trained and highly experienced in the disciplines of systems management are in short supply and large demand. We offer effective approaches to meet this ever-increasing challenge.

Determining Required Skill Sets and Skill Levels

Most newly proposed IT projects begin with a requirements phase. Staffing for Systems Management also has a requirements phase in the sense that necessary skill sets and skill levels need to be identified and prioritized early on. A skill set is defined as technical familiarity with a particular software product, architecture or platform. For example, one enterprise may primarily use IBM mainframes with IMS databases while another may use mostly Sun Solaris platforms with Oracle databases. The skill sets needed to implement Systems Management functions in these two environments would be significantly different.

Within a skill set is another attribute known as the skill level. The skill level is simply the length of experience and depth of technical expertise an individual has acquired and can apply to a given technology. This process of determining and prioritizing the required skill sets and levels has several benefits. First, quantifying the skill sets that will be needed to implement selected functions forces you to more accurately reflect the diversity of technical experience your environment will require. Secondly, the estimating of necessary skill levels within each required skill set will reflect the amount of technical depth and expertise that will be needed. Finally, the quantifying and qualifying of required skill sets and levels are valuable aids in building the business cases.

Developing a skill set matrix that is customized for your particular environment can help simplify this process. For example, Table 1-1 below shows a skill set matrix for a relatively typical mainframe environment. The first column describes the major areas of focus for which Systems Management functions would apply and for which staffing would need to be

considered. These major groupings would obviously change from company to company depending on their own particular area of focus. Similarly, the entries under the Platform column may change for different enterprises.

Next are listed five groupings of skill levels starting with the least experienced Intern level and progressing up to the Senior and Lead levels. The value of a table such as this is that it visually helps to qualify the skills that will be needed to implement selected Systems Management disciplines. The table can also be used to quantify how many individuals of each skill set and level will be needed. Occasionally a skill set and skill level requirement may amount to less than one full-time person. In this case a decimal portion of a Full-Time Equivalents (FTE) is commonly used to represent the staffing need.

Table 1-1 Mainframe Environment Skill Set Matrix

Area of Focus	Platform	Skill Level				
		Intern	Junior	Associate	Senior	Lead
Operating Systems	IBM					
	Support Products					
	Other					
Database Management Systems	IMS					
	CICS					
	Support Products					
	Other					
Network Systems	LAN					
	WAN					
	Support Products					
	Other					

Table 1-2 below is similar to the previous table except that it applies to a midrange environment rather than a mainframe one. Several of the entries under Platform have consequently changed reflecting the difference in environments.

Our third table 1-3 below applies to a Client/Server environment. The two major platforms are UNIX and NT, and each is delineated by manufacturer. The manufacturer entry for NT is designated as various because the skill set for NT tends to be independent of the supplier.

Table 1-2 Midrange Environment Skill Set Matrix

Area of Focus	Platform	Skill Level				
		Intern	Junior	Associate	Senior	Lead

Operating Systems	IBM/AS400					
	HP/3000					
	DEC/VAX					
	Support Products					
	Other					
Database Management Systems	IBM					
	HP					
	DEC					
	Support Products					
	Other					
Network Systems	LAN					
	WAN					
	Support Products					
	Other					

Assessing the Skill Levels of Current Onboard Staff

Once we have determined the level and set of skills essential to supporting a particular Systems Management function, we need to identify potential candidates who have acquired the necessary experience. The first place to look is within your own company. Surprising as it may sound, some firms immediately look outside to fill many IT infrastructure openings rather than pursuing internal staff. Some believe the positions may be too specialized for someone not already having obtained the skills. Others may feel that the cost and time to re-train is not acceptable.

The fact of the matter is that many companies enjoy unexpected success by re-deploying onboard personnel. Potential candidates in this case usually are proficient in one or more technologies, but not necessarily in the Systems Management function being implemented. The more similar the new skill sets are to a person's existing ones, the more likelihood of success. For instance, the discipline being implemented may involve the performance and tuning of servers running a new flavor of Unix. Onboard system administrators may be very capable in the performance and tuning of a different, but similar, version of Unix and thus easily transition to the new flavor. Re-deploying a database administrator into the role of a systems administrator or as a network analyst may be a more challenging transition.

Table 1-3 Client/Server Environment Skill Set Matrix

Area of Focus	Platform	Manufacturer	Skill Level				
			Intern	Junior	Associate	Senior	Lead
Operating Systems	UNIX	IBM/AIS					
		SUN/SOLARIS					
		HP/HPUNIX					
		DEC/ALPHA					

		REDDOG/LINU X					
		Support Products					
		Other					
	NT	Various					
		Support Products					
Database Management Systems	UNIX	Oracle					
		Sybase					
		Informix					
		Support Products					
		Other					
	NT	MS SQLServer					
		Support Products					
		Other					
Network Systems	LAN	Various					
	WAN						
	Support Products						
	Other						

Being able to predict which onboard candidates can successfully transition into a new infrastructure role can be invaluable for IT managers facing staffing needs. I developed a rather simple but effective method to help do this while filling staffing requirements at a major motion picture studio. The method evolved from lengthy analyses that I conducted with our Human Resources department to identify attributes most desirable in a transitioning employee. After sorting through literally dozens of very specific characteristics we arrived at four basic but very pertinent qualities: attitude, aptitude, applicability and experience.

While the definition of these traits is no doubt obvious to most, it is worth clarifying a few points about each of them. Attitude in my opinion is the most important feature of all in today's environment. It implies that the outlook and demeanor of an individual closely matches the desired culture of the enterprise. Some of the most brilliant of programmers and analysts in IT have become hampered in their careers due to poor attitudes.

Exactly what constitutes an acceptable or proper attitude may vary slightly from firm to firm but there generally are a few traits common to most organizations. Among these are an eagerness to learn new skills; a willingness to follow new procedures; and a dedication to being a team player. This trait contrasts with that of aptitude, which emphasizes the *ability* to learn new skills as opposed to simply the *desire* to do so.

Applicability refers to an individual's ability to put his or her skills and experience to effective use. A person may have years of experience with a certain skill set, but if lack of motivation or poor communication skills prevent them from effectively applying the knowledge it is of little value to an organization.

Experience is normally thought of as the sum total of years a person has in working with a particular technology. An old adage refers to distinguishing between someone who has ten years of actual experience in an area of expertise, versus someone who has one year of experience ten times over. Depth, variety and currency are three components of experience that should be factored into any assessment of a person's skill level.

Depth refers to the level of technical complexity a person has mastered with a given product or process. An example of this would be the ability to configure operating systems or modify them with software maintenance releases, as opposed to simply installing them. Variety describes the number of different platforms or environments an individual may have worked in with a certain technology. For example, one person may have familiarity with a multi-platform storage backup system but only in a single version Unix environment. Another individual may have a deeper understanding of the product from having used it in several different platform environments.

Currency refers to how recent is the experience of a person with a given product or technology. IT in general is a rapidly changing industry, and specific technologies within it may become outdated or even obsolete within a few years. A DBA, for example, may have extensive familiarity with a particular version of a database management system. But if the experience is longer than four to five years ago, it may no longer be relevant.

Table 1-4 summarizes the four key characteristics assessing an individual's skill potential in transitioning from one infrastructure to another. Additional descriptions are shown for each characteristic to assist in clarifying differences between them.

A more analytical approach to this assessment may be taken by applying numerical weights to each of the four key characteristics. These weights may be assigned in terms of their relative importance to the organization in which they are being used. Any magnitude of number can be used and in general the greater the importance of the attribute the higher the weight. Naturally these weights will vary from company to company. The attribute of an individual is then assessed and given a numerical rating. For example, the rating could be on a one-to-five basis with five being the best. The weight and rating are then multiplied to compute a score for each attribute. The four computations are then summed for an overall score. This approach is certainly not fool-proof. Other factors such as personality, chemistry and communication skills may override mere numerical scores. But the technique can be useful to narrow now a field of candidates, or as additional assessment data. Table 6-5 shows an example of how this method could be used. With a rating range from one to five, the range of overall scores could vary from between 10 and 50.

Table 1-4 Skill Assessment Attributes and Characteristics

Attribute	Characteristics
Attitude	<ul style="list-style-type: none">- empathy; patience; team player; active listener- polite; friendly; courteous; professional- helpful; resourceful; persevering- eagerness to learn new skills;- willingness to follow new procedures

Aptitude	<ul style="list-style-type: none"> - ability to learn new skills - ability to retain new skills - ability to integrate new skills with appropriate old ones
Applicability	<ul style="list-style-type: none"> - ability to apply knowledge and skills to appropriate use - ability to share knowledge and skills with others - ability to foresee new areas where skills may apply
Experience	<ul style="list-style-type: none"> - number of years of experience in a given skill - how recent the experience has been - degree of variety of the experience

Alternative Sources of Staffing

Several alternative sources for infrastructure staffing are available inside most reasonably sized enterprises. One source involves cross-training existing infrastructure personnel in related skill sets. For example, if a company decides to change from one type of Unix platform to another, a systems administrator who is familiar with only one variation of Unix may be cross-trained in the alternative version. Similarly, an NT systems administrator may be cross-trained on Unix.

Table 1-5 Skill Assessment Weighting and Rating Matrix

Attribute	Weight	Rating	Score	Characteristics
Attitude	4	3	12	<ul style="list-style-type: none"> - empathy; patience; team player; active listener - polite; friendly; courteous; professional - helpful; resourceful; persevering - eagerness to learn new skills; - willingness to follow new procedures
Aptitude	3	4	12	<ul style="list-style-type: none"> - ability to learn new skills - ability to retain new skills - ability to integrate new skills with appropriate old ones
Applicability	2	2	4	<ul style="list-style-type: none"> - ability to apply knowledge and skills to appropriate use - ability to share knowledge and skills with others - ability to foresee new areas where skills may apply

Experience	1	5	5	<ul style="list-style-type: none"> - number of years of experience in a given skill - how recent the experience has been - degree of variety of the experience
Total Score:			33	Comments: good recent experience; not always a team player

A more challenging transition, though nonetheless viable, may be between systems administration, database administration, and network administration. In some instances, suitable candidates may be found outside of the infrastructure group. Application departments may be able to supply DBA prospects or performance specialists, and planning groups may offer up metrics analysts. In certain cases, even business units outside of IT may have personnel qualified for selected positions within an IT infrastructure.

Recruiting Infrastructure Staff From The Outside

Not all infrastructure positions can always be filled from inside a company. The introduction of new technologies, or company growth, or simple attrition can necessitate the need to go outside a firm to meet staffing requirements.

Larger companies normally have Human resource departments to assist in the handling of recruiting, scheduling of interviews, and clarifying benefits and compensation issues. Smaller firms may need to recruit from the outside directly, or use professional recruiters to fill IT infrastructure openings. Recruiting directly saves costs but requires more time and effort on the part of managers and may take longer to locate qualified candidates.

Several direct recruiting methods exist to aid in this approach. Word-of-mouth recruiting by co-workers and staff can be surprisingly effective. Many companies now offer lucrative incentives for job referrals. Advertising in leading trade publications and local newspapers are other means of attracting qualified talent. Perhaps the quickest and simplest method today is the use of the Internet which businesses of all sizes are now using to post job openings.

The use of outside recruiters is a common practice today, particularly when filling positions requiring critical or advanced technical skills. Recruiters are becoming much more specialized these days enabling managers to pick and choose firms that best meet their particular recruiting needs. Care should be taken to ensure recruiters have a proven track record, and whenever possible references should be requested and checked up on.

Once you have selected your recruiter of choice, you should provide them with very specific information about the type of individual for whom you are looking. Most reputable recruiting firms have a sizable database of prospective candidates and should be able to match most of your requirements. The more detailed a job description that you send them, the more likely they will be to find the desired candidate. Do not specify merely the skill set and level of experience required. Describe the specific kind of work you anticipate the new

hire to perform, the types and versions of software products and platforms involved, and the amount of recent practical experience you expect. For leads and supervisors, request how many individuals were under their leadership and for how long.

A final suggestion on the use of recruiters is to always clarify with the recruiting firm any specific points of a candidate's resume that you may have prior to calling a prospect in for an interview. An experience I recently encountered with a dotcom company illustrates this point.

I needed to staff a critical position with for a senior Oracle database administrator. I selected a recruiting firm who specialized in these kind of candidates and within a few days had the resume of what appeared to be the ideal person for the job. This individual stated recent extensive experience with the exact levels of Oracle we needed. But upon interviewing the candidate it quickly came out that most all the recent oracle experience had come from training classes that the prospect's spouse, a professional Oracle instructor, had provided. The recruiter was even more surprised than we were to learn of this development, and needless to say all three parties involved ended up for the wiser, and parting ways.

Selecting The Best Qualified Candidate

Once a perspective candidate has been identified, a relatively formal interview process should follow. Both the employer and the potential employee should ask sufficient questions to ensure a good fit is likely. For key positions it may be appropriate to have several key staff members interview the candidate to ensure a variety of viewpoints are covered and to arrive at a consensus.

Telephone interviews sometimes are necessary to accommodate conflicting schedules, especially if multiple people will be involved in the interview process. But whenever possible, face-to-face interviews should be conducted to evaluate personality, body language and other non-verbal cues not apparent over a telephone. Most companies have unique job benefits, as well as drawbacks, and all of these should be discussed thoroughly and openly during the interview process. The fewer surprises in store for both the employer and the new hire once employment begins, the better for everyone involved.

For positions involving leadership and supervisory roles, references are almost always required. A minimum of two and preferably three or four should be requested and thoroughly followed up on. The explanation of company benefits to prospective candidates should be very thorough and is usually best handled by a company's Human resource department.

Sometimes selecting the best candidate becomes a process of eliminating those who are not quite the best. Two colleagues of mine within recent time of this printing each used a slight variation of this technique to narrow their field of prospects. One of these managers needed a senior level systems administrator who, among other things, would be willing to respond to periodic calls during the offshift and to occasionally come in to work on weekends. After the field had been narrowed down to two finalists one of them failed to show up for his interview at the appointed time. The next day he explained that on his way in to his

interview, traffic had been so bad from an accident that he decided to turn around, go home, and call back the next day to schedule a new interview. His apparent lack of a sense of urgency and his questionable decision-making skills were all my colleague needed to see.

The manager promptly extended an offer to the alternate candidate.

The other instance of eliminating a potential new hire occurred even earlier in the selection process. It happened while I was on a consulting assignment at a progressive Internet start-up company. This particular firm was becoming a very successful e-commerce and licensing company for pop culture merchandise and trends. The executives there had worked very hard to grow and expand their firm, and took pride in branding their company name. While looking through a stack of applications for a key management position, the hiring executive immediately rejected one of the resumes, even though the candidate had impressive credentials. His reason was direct and succinct. The applicant had inadvertently rearranged the letters in the company's name, changing the firm's image from very hip to very unhip.

Hints on Retaining Key Personnel

Once a key candidate has been found, offered employment, and accepted, the challenge of staffing now shifts to retaining this person, as well as all other highly talented personnel. IT departments and Human Resource groups have been struggling with this phenomenon for years. As a result some creative approaches have been attempted to stem the tide of turnover and attrition.

Some of these new approaches involve creative compensation such as supplying personnel with free cell phone use, remote Internet access from home, laptop computers or mileage compensation. Recent research suggests that several non-monetary factors often come in to play as much as the quantity of pure cash salary. These include the amount of on-the-job training to be provided, the currency of technology used, attendance at conference and seminars, the meaningfulness and significance of the work being performed, the likelihood of promotions, and the stability of the management staff.

More often than not, a skilled technical professional will change jobs because of some key ingredient missing in the relationship between him or herself and their immediate manager. We have all heard the emphasis on the importance of communication, but it is hard to overstate its significance. Over the years I have come to know several highly skilled IT professionals who left an otherwise excellent job opportunity simply because of poor communication with their manager. Lack of recognition, little career planning, and inability to convey an organization's vision, direction and goals are some other common reasons employees give when discussing a poor management relationship.

A few years ago I headed up an outsourcing effort at a major film studio. One of the unfortunate circumstances of the project was that a number of good employees would need to be re-deployed by the prospective outsourcer. To mitigate the adverse effect of this displacement, we requested that each prospective outsourcing bidder itemize the employee benefits that they would offer to our former employees. The quantity and quality of these benefits would become part of our evaluation criteria in selecting an eventual winner of the contract.

To ensure that we were evaluating the proposed benefits appropriately, I also worked with our Human Resources department to survey our employees to determine which benefits meant the most to them. We jointly comprised what we all felt was a comprehensive list of typical employee benefits, including those that would likely come into play during a change in companies. We then asked each employee to indicate the level of importance they would give to each benefit. The rating was to be made on a 1 to 5 basis where 5 indicated the most importance and 1 indicated the least.

Table 1-6 Survey of Traditional Employee Benefits

<u>Rank</u>	<u>Benefit</u>	<u>Score</u>
1	Medical Coverage	4.76
2	Dental coverage	4.59
3	Base salary	4.53
4	Training in Client/Server	4.24
5	Vacation	4.24
6	Vision Care	4.12
7	Career Advancement	4.12
8	Company Matching 401K	4.06
9	Training in Networking	4.06
10	Sick Time	4.00
11	Proximity to Home	3.88
12	Medical Leaves	3.71
13	Training in PCs/Intranet/Web	3.65
14	Flexible Work Hours	3.53
15	Flexible Work Week	3.47
16	Training in Operations	3.12
17	Personal Leaves	3.12
18	Personal Time Off	3.06
19	Compensation Time for Overtime	2.65
20	Proximity to Current Employer	2.65
21	Opportunity for Overtime Pay	2.47
22	Van Pools or Car Pools	2.35
23	Bonuses	2.29
24	Absence of Overtime	1.17

The results of the employee benefit survey were surprising, even to some of the more seasoned Human Resource representatives. The responses provide some interesting insight as to where employee priorities truly lie. Table 1-6 shows the results of the survey. The benefits are ranked from most important to least important along with their average scores. As we can see, salary was not the highest priority benefit although it was close to the top. Medical care was first.

Even more surprising was the list of additional benefits that we asked employees to propose. We felt we had compiled a fairly thorough list of traditional benefits and were not expecting to receive more than two or three newly proposed benefits. As shown in Table 1-7, we underestimated the creative talents of our staff as they proposed an additional thirteen benefits.

Table 1-7 Newly Proposed Employee Benefits

<u>Number</u>	<u>Description of Benefit</u>	<u>Respondents</u>
1	Long Term Disability	6
2	Life Insurance	5
3	Floating or Additional Holidays	4
4	Bereavement	4
5	Direct Deposit	4
6	Pension Plans	3
7	Attendance at Conferences	3
8	Education Re-imbursement	3
9	Early Retirement	2
10	Quality Management	2
11	High Degree of Teamwork	1
12	Respect for all Ideas and Abilities	1
13	Training in Mainframes	1

The Use of Consultants and Contractors

Another alternative available to infrastructure managers needing to fill positions is the use of consultants and contractors. Their use in IT environments in general, and in IT infrastructures in particular, is increasing at a rapid rate for a variety of reasons. Outsourcing, company downsizing, acquisitions and mergers and global competition are leading to significant reductions in full-time IT staff.

This trend toward reduced IT staffing, especially in larger, more established shops, is also feeding the supply of ready consultants. Many of the previously displaced IT personnel elect to become independent consultants. Often times many of these former workers enter into service contracts with their previous employers. Others market their skills to companies with similar IT environments to ensure a good fit between the skills they can offer and the technical requirements needing to be met.

The explosive growth of the World Wide Web and the flood of Internet start-up companies have also contributed to unprecedented demand for IT consulting services. The integration of dissimilar architectures such as database software, desktop operating systems, and networking technologies often require specialized skills. In many cases managers find it easier to contract with a consultant for these specialized skills than to attempt to home grow them from within. A heightened awareness of the benefits of new, replaced, or migrated systems is pushing implementation schedules forward. Accelerated schedules are well suited for the immediate availability and short-term commitments that consultants and contractors

can offer. The shortened project life cycles of open system applications, the rapid deployment of web-enabled systems, and the intensifying of global competition are some of the forces at work today that fuel this demand for accelerated implementations.

Consultants come in a variety of types, and they contrast slightly with the notion of a contractor. Understanding the differences can help ensure a better fit of consultant and contractor skills being offered to the business requirements needing to be met. The term consultant normally refers to someone hired to do an analytical task such as a capacity study, a security audit, or a re-engineering assignment. This contrasts with the term contractor that generally refers to someone hired to perform a more specific task such as coding an interface or developing a software enhancement.

Consultants are commonly supplied from one of the major accounting firms, or from major computer hardware or software suppliers. Contractors, on the other hand, are more likely to come from software development companies or are in business for themselves. Consultants tend to be oriented towards issues of strategy, service process and management. Contractors tend to be oriented towards issues of coding, documentation, technology and deliverables. These orientations then determine the specific type of consultant or contractor to be hired.

Knowing the specific type of person to be hired helps in one other important area, that of teaming with onboard employees. For example, a consultant hired to develop IT service levels with customers needs to show empathy towards the customers that he or she is dealing with. Similarly, a contractor hired to work with an existing team of onboard developers needs to be able to fit in with the members of the group.

Benefits of Using Consultants and Contractors

One immediate benefit of using consultants and contractors is their ability to provide readily available technical expertise. Since they are under contract, you pay for only the time they expend. As the demand for IT services continues to increase, it often becomes difficult, if not impossible, to attract and retain skilled, knowledgeable, and highly motivated personnel. This requirement becomes even more challenging as the diversity of IT environments continues to grow. Shops are migrating from hardware platform to another at ever increasing rates, or from one software architecture to another, be it applications, databases, or operating systems. In the midst of these many transitions, there often may not be the necessary level of technical expertise onboard at the time to perform the migration, support, or maintenance of these systems. Highly specialized consultants can help alleviate this by providing technical expertise in the areas needed.

Another benefit that consultants and especially contractors offer to an enterprise is assistance in accelerating critical development schedules. The schedule to implement some major applications is often dictated by specific needs. For example, a critical distribution system in a major toy company may have been cost justified based in its absolute time deadline of being able to meet the Christmas rush. New systems that were designed to correct the year 2000 problem obviously had to be in place prior to the start of the new millennium. Organizations may have the necessary quality of skilled employees onboard, but simply not an adequate quantity of them in order to meet critical schedules. In these

instances, consultants and contractors may be quickly brought in to assist in keeping projects on schedule.

One of the most highly publicized examples of an IT development effort missing its critical deadline involved the Hershey Chocolate Corporation. A totally new and highly advanced distribution system was slated to be implemented during the Summer of 1999. Teams of consultants and contractors were brought in to assist in this effort. But a series of missteps undermined the progress of the project. Unanticipated problems, untimely miscommunications and a possibly over-aggressive deployment plan all contributed to a six month delay in the launch of the system. Unfortunately for Hershey, the majority of their annual sales comes during the month of October in preparation for Halloween. The system was eventually implemented successfully, but long after the lucrative holiday sales season.

Occasionally a highly unique technical requirement may arise. Even a fully-staffed and highly diversified IT department may not possess the unique technical expertise required for such a task. Consultants may be a more cost-effective alternative to hiring full-time personnel, particularly if the implementation of the project is relatively short-lived. Interfacing an NT-based application with a Unix/Oracle database environment may be an example of this.

Drawbacks of Using Consultants and Contractors

One of the primary drawbacks of using consultants and contractors is their high costs in relation to onboard staff. The rates of critically skilled consultants from key suppliers or major accounting firms can easily exceed multiple thousands of dollars per day per individual. But if the need is of a high enough urgency, expense may not be a prime factor.

Another drawback that occasionally occurs in larger shops is the adverse affect on employee morale. Consultants and contractors who are highly skilled in a critical technical area may dismiss the need to be good team players. Their extremely high rates may justify in their minds the insistence for priority treatment in order to optimize their time on the clock.. Thorough interviewing and reference checks can usually mitigate this concern.

Since most consultants and contractors bill on an hourly or daily basis, there is always the concern that some may not work as efficiently as possible. The more time spent translates into more revenue earned. Three areas commonly prone to this issue are their use of emails, voice-mails, and meetings. Email is an excellent mechanism for distributing simple, one-way information to many recipients. It typically does not lend itself to activities such as brainstorming, problem-solving, or personnel issues where tone, emotion, and reactions can be easily mis-interpreted. When consultants or contractors engage in these latter activities, a task that may have taken only a few hours can often drag on for days or even weeks.

Voice-mail and telephone mis-use is another source of inefficiencies among consultants and contractors. A simple technique of leaving detailed messages on voice-mail about the nature of the call when a called party is not available is often not done. Instead, the consultant or contractor asks only to have the call returned with no mention of subject, topic or the issue at hand. This usually results in numerous round of time-wasting telephone tag. Efficiency-

minded consultants and contractors often can actually resolve issues with voice mail by simply providing specific questions, information or responses.

Meetings can become a drawback of consultants and contractors from two standpoints. The first is simple mis-management of meetings. Commonly accepted meeting practices such as advance online invitations, an agenda, objectives, action items, minutes, and the use of a scribe, timekeeper and facilitator can significantly improve a meeting's efficiency and effectiveness. Contractors, and especially consultants, need to conduct numerous meetings as part of the performance of their duties, few follow many of the common meeting practices described above. The second drawback with meetings is the holding of them by consultants and contractors when not always needed. Often times a brief face-to-face discussion or even a telephone call may accomplish the same result as that of a costly and time-consuming meeting.

A final drawback of using consultants and contractors is the issue of hidden costs. The total costs of employing a consultant or contractor is not always apparent when their initial contract is drawn up. Some of these include costs for office space, parking, and long distance telephone use. Most consultants today have their own laptop computers or access to a desktop. But an independent contractor who is employed primarily to do coding work may require access to a company desktop computer, login authority to the company network, and printing services. All of these activities require setup time, administration work, and other expenses not specifically spelled out in the initial contract.

Table 1-8 below summarizes the benefits and drawbacks of using consultants and contractors.

**Table 1-8 Summary of Benefits and Drawbacks
In Using Consultants and Contractors**

Benefits	Drawbacks
<ol style="list-style-type: none">1. Immediate Availability2. Pay Only For Effort Expended3. Ability To Accelerate Schedules4. Can Supply Rare or Unique Technical Expertise	<ol style="list-style-type: none">1. High Costs2. Potential Source of Morale Problems3. Occasional Inefficiencies4. Hidden Expenses