Making your computer work

If you’re investing in a computer, it should be working for you, and here’s how to keep it from being the other way around

By John Tefft
Systems Consultant

An investment in a computer system can be one of the best or worst decisions a contracting company can ever make. The key is making certain that the computer works for the contractor, rather than the contractor working for the computer.

A good system can cut costs, raise profits, provide up-to-date information and make a business easier to manage with lower risk. On the other hand, an ineffective computer system may, in fact, raise costs, provide little useful information and contribute to the failure of a company.

Certainly, one of the keys to getting the most out of the computer is knowing the right answers to a few key questions. But it is just as important to know what are the right questions to ask in making a computer system work for the company rather than against it:

**Who needs to know what?** A good computer system should provide the information that various people in the company need to know in order to do their jobs effectively. Therefore, the specific reports coming out of the system should be tailored to the direct interest of the various users.

Accountants need to know different aspects of the business, as do managers, supervisors, estimators, purchasing agents and others. Many systems attempt to serve these many masters by producing a few large reports that contain all of the information which anyone might want to know about a specific job.
These reports usually end up serving no one, rather than serving everyone. Few people have the patience to dig through reports to find the specific answers they would like to have.

Instead of all-inclusive reports, smaller more specific reports increase the usability of information by making it easier for individuals to use the information from the system.

What does each report mean? If only the person who designs the system has a grasp of the meaning of each piece of information, the system will be virtually worthless.

An important ingredient in making the system effective is the education of the users to help them understand both the ‘good news’ and the ‘bad news’ contained in the reports they review. In this regard, comparative information usually enhances report usage. For example, on a certain job, a report might tell us the labor expense to date is $10,000. By adding more information -- such as the labor estimate of $20,000 -- we have increased the meaning of the report. Of course, it would be more meaningful to know the job is 60 percent complete, and we are expecting a sizeable savings in labor costs. However, if the job is only 40 percent completed, the labor figure could post a red flag and call attention to an area which needs attention in order to prevent losses on the job.

Percentages and ratios of what each number is versus what it should be raises the information level from pure historical reporting to a management feedback system. Accurate projected cost variances make the job reports much more useful.

How much information is enough? Only key data should be contained in the reports people normally use. Throughout the years, many computer systems have produced large poundages of paper reports which were quite useless, because they contained so much information, nobody could find what was important. In the industry, we call these “My, My” reports.

Telling people only what they need to know makes the system effective. This restriction of information is true for job reports and all other reports. If your company uses a master list of work codes, limit the number of codes to just the breakdowns people really need to track.

For an individual job, choose work codes that will be utilized for that job so that the number of codes per job is even smaller than the master list. Also, be sure this list is prepared before a job is started and that people entering the information for the job have an easy way to correctly record what is being done on the job.

Spaces on input documents should be large enough so that they can be filled out correctly and and legibly. We see so many field input forms which require a fine point ballpoint pen and a very small handwriting to complete that it is ridiculous. Superintendents with this quality of legibility are rare: a dull number two pencil is more typical of the writing tools you find in the field . . . and that’s preferable to the rusty nail many other field people usually have available. Any codes used for field input should be made easy for field personnel to enter. And, consistency in job coding is a major factor, so that the same work item should not have different codes from one job to the next.

Why is the information needed? In addition to limiting the output of information, both the user of the information and the person initiating the input should know why the information is needed. Otherwise, input becomes an exercise in creative writing.

Our experience has shown that once people understand why the information is needed, the accuracy of their input becomes greater. Of course, this increased cooperation from people inputting the information would be true only as long as the system does -- in fact -- help people work more effectively. To gauge this point in a company, we normally ask people what they hear about from the computer reports.

If the answers indicate that the computer reports are used only to provide negative feedback to people, the input accuracy will be poor and people may even try to sabotage the system. If the system feedback is both positive and negative and addresses the things people are doing well or doing poorly, the attitude toward the system is much more positive.

In such an atmosphere, the people start seeing the computer as a helpful tool, rather than as a policeman. If superintendents hear only bad news about their jobs, they will be tempted to ‘sandbag’ input in order to cover up any ‘bad news’ entries.

What helps to guarantee accurate information? In addition to ease of input, the processing of the information should insure accuracy. A good computer costing system will have good accounting controls and

EDITOR’S NOTE: John Tefft is a veteran systems consultant with The Fails Management Institute. He now also serves as Vice-President of Concord Management Systems. In this article, Tefft draws on his years of experience to identify points that should be considered in evaluating a computer system.
easy audit trails. Computer systems should make the auditor's job easier, not more difficult. Yet, many systems designed by nonaccounting personnel ignore what the accountant needs from the system, and therefore, actually increase audit and accounting costs rather than reduce them.

Certainly, your system should serve far more than just the accountants so this same level of accuracy should be maintained for the purpose of providing credible estimating information, job status reports, etc. After information is created accurately for input, it should be verified before being posted to all the records within the system. Unless these controls, as well as the programming controls themselves, are top notch, the system will produce inaccurate information. The credibility of the entire system will deteriorate.

As people lose faith in the system, they get more cautious about the use of the information, and the system may become a tremendous drag on good people trying to do a good job.

**How do you get information that is up to date?** Month-old information is of questionable value to anyone. In recent years, this up-to-date requirement has become much easier to meet as computers have moved from the batch environment to operator interactive systems. In the old batch systems, each application had to be run and posted before the next application could be run. This technology provided information even later than most manual systems. Today's operator interactive computers make it easy for an operator to input information as soon as it is available and to post it to all records within the system from a single entry. This technology cuts the cost of input at the same time it is keeping records up to date. Rather than having to wait for a particular report to be run, anyone with proper computer security clearance can request information on a screen, look at the information and produce a paper report if it is needed.

Thanks to the current generation of computer technology, up to date and accurate information is an easy matter so long as the programs themselves are designed to meet these criteria.

**The most useful computer systems today have fully integrated data.** A single entry goes to all places within the system where the information is needed rather than having to be put into the system many times. The data also should be fully integrated to ensure that all totals equal the sum of their parts. The direct cost total on the income statement should balance with the job cost reports, just as the accounts payable detail should always balance to the general ledger total for accounts payable.

This integrated structure ensures that information is in balance and reports are not, in fact, lying to their readers. Information should be arranged in a hierarchy for easy analysis. That hierarchy should allow for studying costs and profits according to total company, division, department, project manager, superintendent, estimator, master job, specific job, phase and cost activity.

By arranging the information collection and processing in this hierarchical structure, the system will reveal valuable information about the level of profits for different kinds of jobs, different estimators, etc.

**How can the system address the future and not just the past?** The accounting profession primarily is devoted to the accurate recording of financial history within a company. That same historical trap applies to many of the nonaccounting types of information we routinely keep in a contracting firm today.

While knowledge about the past may be important, it is probably not as important as information about the future. The success of a company lies in what is going to happen to its future, not in what has happened in the past. For example, the accounts payable system should show the amounts of money the company will need in order to take its discounts and make other disbursements in the next several weeks. Purchase orders should be used as a basis for expediting materials so that job supervisors will know when to expect what on the job. Backlog scheduling should be designed to show critical manpower needs in the future. A good system for a contracting firm should include these and many other items of information about where the company is headed -- not just where it has been.

**Is the computer system expandable?** The computer itself should be upgraded by merely plugging in more components. In the past, most computers were so limited that company expansion would result in having to replace the computer.

Several computer manufacturers now produce equipment which can be upgraded through the simple addition of more components. This expandability enables the company to grow without wasting its investment in computers every three to five years.

The same point of expandability would apply to the software -- the programs that actually produce information for your company. You should be able to start with a basic accounting system and add integrated software for such functions as inventory, estimating, expediting, scheduling, resource analysis, pricing, etc.

As the contracting business grows and diversifies, its information needs will certainly change. Unless the system is designed with these factors in mind, the company will outgrow its system in a short time.

The points identified in this article can be used to ensure that your computer system investment will be one that produces a high return.

Millions of dollars have been wasted on incorrect hardware and software applied to this industry. Ineffective systems not only cost a lot of money, but they also cause a great deal of frustration for the people trying to use the information produced by systems that do not meet the needs of the company.

A computer system is like any other investment. It must be a tool which enables the company to operate with higher profits, lower risk and less frustration.