

PRACTICE MANAGEMENT

'Compression management' can help in keeping up with new technology

NEVER AGAIN will we live in an age when technology evolves as slowly as it does today. While the challenge of coping with emerging technology is universal, the problem is

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particularly acute for radiologists due to the variety of modalities they use, compounded by the high cost of many of these products. Deciding whether or not to make a purchase, comparing product offerings, negotiating contracts and then implementing a new service have become increasingly time-consuming and stressful.

Accomplishing these tasks while performing routine job functions mandates that the time frame required to evaluate a proposed purchase be compressed. The time needed to successfully implement a new service is likewise often in need of compression. This process of accelerated review and implementation of new technology is called compression management.

There are four phases of compression management. Phase one is the prepurchase phase. It starts when someone proposes an acquisition and ends with the signing of a binding purchase agreement. Phase two is the installation phase, which begins with the finalization of the architectural plan and ends with the formal acceptance of the system for clinical use. The third phase is unique in that it has a defined time period—six months. This is the start-up phase. We have found in trying to implement a new technology that less than six months is too short a period to advance sufficiently up the learning curve, while extending the start-up over a longer time results in loss of interest. During the fourth phase—continuing results—the use of the system is optimized. This fine-tuning is an ongoing, never-ending process.

The goal of compression manage-

ment is to compress time and to expand volume. A key to success is to deemphasize the focus on just getting to opening day. While selecting good equipment, designing a nice facility and initiating service prior to a competitor are common objectives, we encourage clients to set their sights not just on getting to opening day, but also on getting through the first six months of usage as successfully as possible. In some cases, it is better to allow a competitor to enter the market first while preparations are made to come in at the right time with a quality product.

The initial offering of a new imaging service can be compared to the opening of a restaurant. The best meals should be served on opening day. How often do people return to a new restaurant that has lousy food? Likewise, if referring physicians send patients to a center and get excuses rather than useful diagnostic information in return, they will probably start referring their patients elsewhere. While compression management can be used to expedite a project, it also encourages the delivery of a quality product.

Program evaluation

A useful tool for compressing the time and effort required to implement a new

acquisition is a program evaluation and review technique (PERT) chart (see page 77). This chart identifies the key events that must be accomplished and the sequence in which they are to be completed. Although many of the examples in the following discussion relate to magnetic resonance imaging, the same principles apply to other imaging modalities, picture archiving and communications systems and other forms of technology. How one goes about deciding what to buy, how to buy it and how to obtain desired results are not specific to any one technology.

The first step towards reaching one's goals is to realize that every step in the PERT chart must be completed. Equipment selection is often overemphasized while other equally important steps are either swept aside or overlooked. While choosing the best equipment for the existing need is a crucial step, so are other events. For example, if the right power and air conditioning sources are not included in the computer room, the system is unlikely to perform properly. It is also inevitable that a system will not be used to its potential if the staff is inadequately trained or quickly burns out.

We are often asked which step in the



Principles of compression management are commonly applied to start-up of MRI centers, but are not specific to any one technology.

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PERT chart is most crucial to success. The answer is simple. It is that step that was least effectively accomplished. Excelling in any one event does not guarantee a successful project; it only enables one to move on to the next event.

A frequent problem with high technology is that the involvement of personnel is underestimated. It is important that a competent team of people who are committed to the project be assembled for it to succeed. This group's efforts must be focused by a facilitator to take action on specific tasks. Regardless of whether the facilitator is someone from inside the organization or a consultant, he or she must have talent for the job and not be emotionally buried in the content of the project.

While we believe that every step is equally important, we have found from experience that certain major benchmarks in the PERT chart are frequently underemphasized. These include the value of the modality, the preinstallation meeting, the kick-off meeting and the initial results analysis.

Valu. of modality

Four criteria must be met to determine the value of a modality:

- Is there truly a diagnostic need for the acquisition?
- Is it affordable?
- Does the project satisfy all legal requirements? and
- Are the key people who must approve the project in favor of it?

A lot of time and effort can be spent in anticipation of a project being approved only to have it shot down at the last moment. We have on a number of occasions been brought into a joint venture to assist participants in making a final decision on the vendor and to assist in negotiating the contract, only to find out that all parties are not truly committed to moving ahead. Thus, instead of being at the final step of the prepurchase phase, these projects are still at step one, confirming the value of the modality.

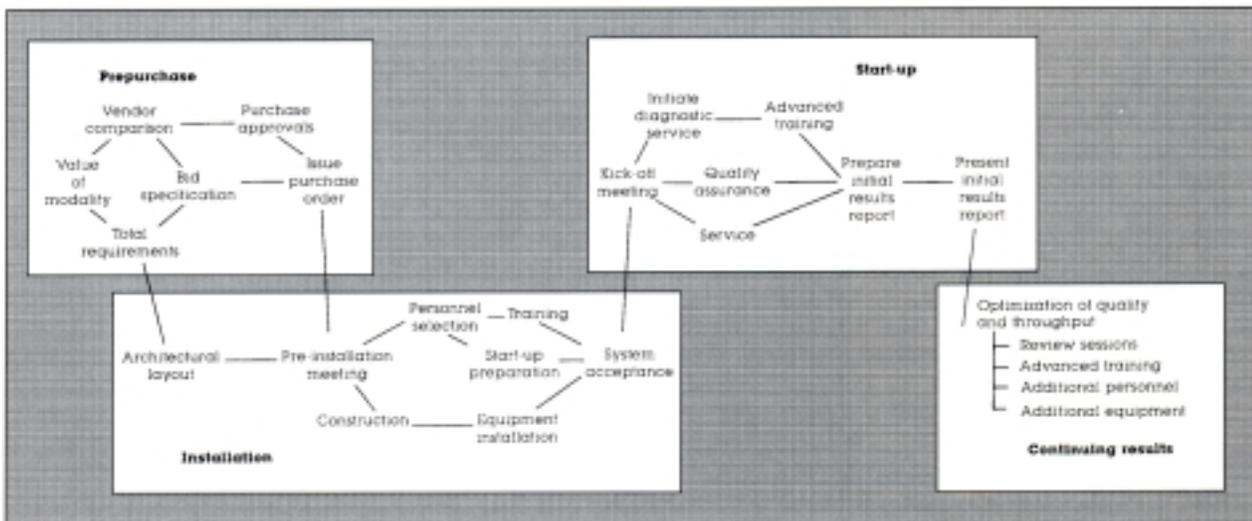
Determining whether one is still in the feasibility stage or truly committed to moving forward with an acquisition is one of the most challenging tasks to be done in the early phases of a project. We have found that in a proposed joint venture, there is often little concern expressed about financial issues because "all costs will be shared equally" among participants. A good way to test commitment to a project is to suggest the creation of a general fund to cover expected start-up costs with the contingency that if any party drops out while the project continues, that party's deposit is not refunded. It is interesting to observe the reactions that occur when a proposal like this is made. Generic phrases, such as "We are all committed to this project, aren't we?" or "Let's agree to move ahead aggressively" are often made in these meetings and everyone seems to be in agreement. Actually moving ahead can have entirely different implications, however, to different people. Until these

issues are clarified, it is difficult to predict whether the project is truly advancing or still in the feasibility stage.

In analyzing the diagnostic need, factors that should be considered include the impact on existing services, future acquisitions, and the long-range plan of the hospital or imaging center. We urge particular caution in placing too much faith in using computer models for influencing decisions on whether or not to proceed with a project. While these models do have a place, they should only be used as a guide.

Many computer models used to predict the success of an MRI facility fail to properly calculate patient throughput. They do not distinguish a healthy relationship between radiologists and key referring physicians from a relationship that is negative or where referring physicians are investors in a private MRI center. We have encountered projects where computer models have incorrectly predicted success, while in other cases we have encouraged clients to proceed even though a model predicted disaster.

One hospital we know was close to purchasing a mobile MRI unit to share with another hospital, based upon computer models generated by an accounting firm. The models had indicated that a mobile service would be successful while a fixed installation would fail. The radiologists at this hospital were well respected by neurologists and orthopedists in the area, however, and a qualified member of



PERT chart identifies key events that must be accomplished and sequence in which they are to be completed.

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their group was particularly interested in becoming the project leader. We therefore encouraged this hospital to acquire a fixed MRI system. It did, and the project has been a success.

We do not feel it is necessary for all projects to make a profit or to break even. If something is going to require a subsidy, however, it is important to determine who will underwrite the losses. A pro forma need not be complex. It is generally not that difficult to estimate costs with reasonable accuracy. The challenge is in estimating revenue. Very slight fluctuations in throughput have a tremendous impact on the financial feasibility of a project. Typically, more time should be spent in analyzing the assumptions on which a pro forma is based and on the impact that slight variations in these assumptions will have on the bottom line. Whether one wishes to be optimistic, realistic or conservative in financial assumptions should be clarified before initiating a project.

Legal issues cannot be ignored when attempting to purchase equipment. While certificate-of-need regulations in many parts of the country have been reduced or no longer exist, the proposed Stark bill and other pending legislation are on the horizon. Although many of these bills have good intentions, they can have a damaging impact on legitimate projects. Right or wrong, these issues cannot be disregarded.

Finally, it must be determined who will ultimately decide whether or not the acquisition is approved. It may include insiders, such as other physicians, administrators and board members. Similarly, CON boards, local community leaders and others can influence the fate of a project. Knowing when and how to obtain the support of these individuals is imperative. Involving them too soon or too late can have equally detrimental results. Those with the greatest influence are often not the most vocal or visible but people who stay in the background. Identifying these individuals and having their support is critical to the success of the project.

Preinstallation meeting

The preinstallation meeting is the second event in the installation phase of

the PERT chart. It should occur within a few weeks of the signing of final purchase agreements, but should not be held until architectural drawings have been made.

All key parties who will participate in the installation and start-up phases of the project should attend this meeting, including a spokesperson for the administration and a radiologist, as well as the radiology administrator and possi-

Legal issues cannot be ignored when attempting to purchase imaging equipment

bly some technologists. The sales representative who sold the equipment, the service representative responsible for the installation, and the architect should also participate. A good deal of preparation should go into this meeting as its primary purpose is to confirm individual responsibilities and the time frame within which these tasks are to be done.

In many respects, a better name for this meeting is the "get honest" meeting. It brings together the people responsible for installing and operating the equipment. This team needs to work together, not just to complete the installation but to insure that the system is used properly. A worthwhile goal is to make the installation a showcase for the vendor. This occurs only if the purchaser is truly satisfied with the results that are achieved. To do this, an open and honest working relationship must be developed among all key players.

Several vital issues should be discussed at this meeting. Among them is whether there is any way the architectural design can be improved to increase ease of operation and performance. Small refinements in the location of a door or the size and height of a window can have a major impact on the quality of work and throughput. Relocating certain electronics may reduce downtime by either minimizing failures or making equipment easier to service.

Another architectural issue that should be verified at this meeting is power and air conditioning needs. These are sometimes underestimated in early planning. Few incidents cause

as much uproar as having to shut down a sophisticated piece of imaging equipment to install a power conditioner or water chiller. Not only must someone cover these costs, which can be high, but a bigger challenge lies in finding space to locate this equipment. Even if it is felt that it is possible to get by without this equipment, we recommend that adequate space be allocated for installing it at a future date if there is even a slight chance it may be needed.

At this stage the purchase agreement signed with the vendor should need no changes. This should be verified during the meeting. It should also be determined whether there were any items deleted from the original agreement that might be beneficial to the user. Likewise, any unwanted or unnecessary items in the current agreement should be deleted now. New product announcements that might be added to the agreement should be determined. While these issues can be delicate to broach, it is important that they be discussed during the preinstallation meeting.

Kick-off meeting

The kick-off meeting occurs during the preinstallation phase. It is similar to football players meeting in a locker room prior to the start of a game. Its purpose is to define specific goals for the first six months of operation.

The key people who will be involved in making the system work should come together for a kick-off meeting about a month before clinical use of new equipment begins. Most of those who participated in the preinstallation meeting will be involved. Topics to discuss include:

- When will applications training be conducted?
- What preparations can be done to make this most worthwhile?
- What are the expected hours of operation for each of the first six months of operation?
- What throughput is expected to be achieved each month?
- Which exams should be done initially?
- Which exams should be deferred until later?
- How will scheduling and billing be handled?

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We suggest that specific throughput goals for each of the first six months of operation be established. Much like the success realized in the space program when the definitive goal was set to put a man on the moon by the end of the decade, specific goals should be established for throughput. Without these goals, it is difficult to determine if a project is on target.

We experienced the positive results that can come from a kick-off meeting recently with a hospital that was installing an MRI system. Its system was scheduled to be ready for use the last week of November. In analyzing the many distractions occurring at that time of year, it appeared to make sense to use the month of December for developing standard imaging protocols and scanning volunteers. Billed clinical work would start Jan. 1. Following discussion at the kick-off meeting, however, it was decided that if everyone was comfortable with the quality of the diagnostic information that was generated, it would make sense to begin billing for selected exams in December. The result was that 62 exams were billed in December for a net revenue of about \$40,000—money that otherwise would have been lost.

Initial results analysis

For the same reason that a football team goes into the locker room at half time to analyze what is working well and what changes are needed, the team that has worked together to implement new technology should huddle at the end of six months for an initial results meeting.

There are two purposes for this meeting: to analyze what has been accomplished during the first six months and, more importantly, to establish new goals for the future.

It should be decided whether the volume of work performed is satisfactory. The initial volume of work can be misleading. For example, when we analyzed the data from one imaging center, it was discovered that more than a third of all patients had been referred by just six physicians. This occurred despite the fact that the center was ahead of its pro forma goals and had more than 100 physicians referring patients. Two objectives thus became apparent. One was to ensure that the six physicians remained satisfied with the service. The other was that an effort was needed to build a broader base of referrals. Accurate data to track referral patterns is becoming increasingly important to the success of a center.

During initial results analysis it should also be determined whether any changes to protocols, hours of operation, or personnel should be made. Any additional hardware or software to be purchased should also be discussed. These types of issues should be evaluated now that the center has six months of experience. In most cases there have also been developments in technology to be considered. Some rather simple changes or purchases can often increase the quality of work and throughput being achieved.

The secret is to create an environment in which all individuals view each other as resources rather than adversaries. We find that with much of today's

technology, the technologist has a major impact on both the quality of information that is generated and the throughput achieved. Encouraging technologists to periodically visit other institutions to see how they work can result in worthwhile insights that can be incorporated into a practice.

The process of keeping current never ends, no matter what technology has been purchased. Whether a system is operating at capacity, is wearing out or has become obsolete, one never really leaves the purchasing cycle. Due to the time that it typically takes to complete a purchase, the cycle should be initiated well before an existing system needs to be replaced. While it can be awkward to approach administrators shortly after an expensive new technology has been installed, this is often necessary because of the planning time required. Under these circumstances compression management can help to see that new technology is properly implemented. EI

Continuing results

Emerging technology is unpredictable. A constant effort should be made to upgrade results achieved with current equipment. These improvements may be modifications in how the equipment is used or may require purchasing new hardware or software upgrades.

Once the novelty of a technology wears off it is not unusual that little attention is paid to optimizing its performance. In addition to reading journals and attending seminars and meetings, team members are encouraged to seek creative approaches to ongoing educa