EFFECTIVE MANAGEMENT OF PROGRAMS OF MULTIPLE PROJECTS

This article is for people who may be used to doing design and construction projects, but are about to embark on a Program of multiple projects, representing a significant change in the number or size or type or geographic range of their projects. What potential problems do managers in such a situation commonly not anticipate or underestimate? There are three general sources of potential problems: scale, complexity, and consistency.

SCALE

Surprisingly, just moving to a greater size or scale of project is not, in itself, the most thorny risk. In fact, scale offers opportunity. The opportunity to make different, but smart, decisions about buying design and construction.

On large projects, or multiple projects, the owners's purchasing power can be used to prepurchase and assign to later general contractors common materials and systems. An example might be competitively pre-purchasing security and controls systems for an entire family of different facilities on different sites. Or including in the first general contract the purchase and delivery of the light fixtures for every subsequent facility, then making light fixtures an owner furnished item on later contracts.

Centralizing services under one contract for multiple projects or sites can be cost effective. An owner might negotiate one testing contract for multiple construction projects and enjoy the economy of shared testing technicians and equipment.

Scale invites the chance for an Owner Controlled Insurance Program to be cost effective. Workers compensation coverage for all parties to the contract can be centrally purchased, and if managed aggressively by a program-wide safety team, any savings in loss experience can accrue to the owner, not the contractors. Similar savings in common liability coverages for all team designers and contractors are available.

For a suitably sized program, many owner management functions, such as program scheduling, cost estimating, and contract administration can be centralized at a savings compared to the costs of separate staffs for each project.

Scale also offers a real cost return in investing in the best practices of project management. For a suitable scale of projects, it really pays to perform first class video camera inspections digitized to the daily diary, high quality ADR techniques such as dispute review boards to expedite resolution of claims and disputes, and program level communications using local area networks and program wide common software. Scale offers large pay backs on formally planning the transition to operators, systems training, and stocking of spare materials and parts.

But just as scale offers opportunity, it can also pose dangers. An program manager might appropriately size his staff on the construction sites, but overlook the necessary increases to other parts of the team, such as central accounting, legal, and purchasing.

A serious risk is that managers will not set up a decision making process which can keep pace with the program. Many public owners live daily with the fiction that decisions are made only by the elected body meeting monthly or less. In fact their staffs stick their necks out to make the daily decisions needed to keep the projects going. But in a large program, the number of decisions becomes so great, and the weight of them so much larger, that staff may be inclined to wait for official approval, thus delaying progress, and increasing costs. New levels of delegated`authority, and perhaps new standing boards of review may be required.

The dollar figures in a large program are a risk themselves. The numbers can be so large, they become unbelievable. It is very common for owners to correctly estimate the size of project and program contingencies, then cut those numbers because they seem so large as to imply lack of confidence in their management skills. Likewise the numbers logically estimated for soft costs such as interest, insurance, design, and testing appear so large that they invite arbitrary cuts which later turn out to be unwise.

The scale of a program can completely exhaust the "spare time" that the eventual facility users have to devote to helping with planning, design, review, construction, and turnover and startup. Unless the user groups increase the staff devoted to the users role, programs can roll on with less and less user input, eventually reaching the point where users no longer get the facilities they requested.

Scale can also lead teams into taking on too much. A common story is that managers develop trust in certain design firms, and turn to them to design facilities for which they are not qualified, or allow them to take on more workload than their staffs can handle.

III COMPLEXITY

For programs with significant separate projects that connect to each other physically or functionally, or occur at a common location, the complexity of issues, increased number of players involved in each issue, and the resulting coordination required, can make complexity the source of difficulties.

If three projects are connected geographically, and if, say five systems, such as power, water, sewer, telephone, and storm drainage, are common to all five, and if only two design teams participated in design, and only two general contractors built all three projects, then the number of possible interface issues is XXXX?

As complexity multiplies, the number of issues to be resolved daily multiplies, and the tendency of team members to focus on detail increases. Thus one of the greatest risks in complexity is overlooking the basics. For programs involving lots of detail, managers must hold even more rigidly to the concept of a simple master schedule with straightforward, recognizable milestones. They should get agreement from the program stakeholders on a good, simple scope definition, and not accept scope growth without formal approval of budget and time impacts. They should set a clear program budget and report consistently against that baseline budget.

Managers should prepare for complexity with appropriate organizations. Great care is needed in integrating owner staff and consultant staff with a clear chain of command and authority. A project management plan including responsibility matrices is a must. A plan for communication to multiple groups is needed, who will communicate what and how often to the press, users, public, top management, and lenders or bondholders. A system is required to promptly effect coordination of multiple prime contractors whose work communicates or crosses. Since programs will have projects under construction while others are still in design, a re-coordination process is needed to ensure that later designs accurately reflect changes made to earlier designs during construction. Programs of long duration need a strategy for bringing on new players to an ongoing process, allowing them to buy in to program goals and processes without setting everything back.

Complexity demands the discipline of an excellent system of project controls. The scheduling system used must be flexible enough to communicate the big picture to top management yet appropriately model the work being done on the smallest contract. An excellent system for tracking pending issues or required decisions all the way to resolution is a must. The

budget and cost control system must be clear at the highest summary level, and offer the flexibility to add cost codes as decisions are made later in the program. Managers frequently underestimate the number of ways others can ask for sorts of costs expended from different fund sources. Allow for extra layers of cost coding to permit alternate ways of sorting and coding expenditure, and for moving money around as needed. Reporting must be customized for different levels and groups, but once begun, remain consistent during program life. Forecasting must be taken seriously, large programs require assembling, from the bottom up, logical independent forecast of the cost at completion and the best estimated completion date.

IV CONSISTENCY

Consistency in the contracts and processes used in managing the Program is highly valued by experienced Program managers. Consistency allows rapid training and effectiveness of new staff. Consistency allows economies of scale in processing the mountain of paperwork reflecting payments, changes, submittals, and issues. Consistency adds confidence to reporting and forecasting.

For those programs with a high number of projects or occurring over a wide range of geography, maintaining program consistency can be a great challenge. The program staff will be assembled from many different organizations and experiences. Without quality guidelines, they will each adopt the past practice, system, forms, logs, and reports they most recently used elsewhere.

Since multiple design teams will work on separate projects within the program, they must be given consistent design criteria, including energy budgets and O&M cost criteria and uniform CADD and specification formats. If not, they will each develop their own, and at project expense.

To avoid claims from separate designers and contractors, uniform contract administration is essential. The management staff must practice uniform safety enforcement, quality control inspection and testing, and uniform change order negotiation and processing. The program needs a fast, well defined system for resolving contractor claims.

Program management success requires many things, but principal among them is a vision of the practices needed to handle the scale and complexity innate in a program, and to achieve the consistency required.

MEMO

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From: Dick Cowan
To: Nick Smyth, John Moll, Jack Collins, Ted Branton, Rob Robinson, Lee Hannah, Jane Neilsen, John McGarvey

Attached is a draft article. Please give me your thoughts.

Jane, what is the best publication to try for getting this printed?