Best Practices in Project Management

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Contractor Best Practices in Project Management

1. Introduction and Background

High performance project management capability is comprised of a set of individuals with specific skills developed from project management training and experience, carefully tailored system support tools, effective contractual and interpersonal relationships, all coupled with strong leadership involvement. Much has been written within and outside of the DOE complex on best practices and lessons learned in an effort to assure effective project performance. A mature project management capability is a critical element for success.

The DOE and its contractor community have been actively working for many years to develop, assimilate and adapt improvement ideas to specific projects, capture them within management systems that can assure sustainability of performance excellence, and use them to train the next generation of project managers (PMs) and support staff.

In 2004 the Energy Facilities Contractor Group (EFCOG) established the Project Management Working Group (PMWG) to collaborate across the DOE contractor community. The PMWG has been highly effective in sharing lessons learned and best practices and in working with DOE on specific initiatives to enhance the practice of project management within the complex.

Within the national laboratory community, the National Laboratory Directors Council (NLDC), through its Chief Operating Officers Working Group (COOWG), has continued to foster collaboration among laboratory PMs and the application of peer review to the management of large scientific facility construction projects. The GAO, in May 2008, recognized project management success within Office of Science national laboratory community based on best practices they have implemented (ref. GAO-08-641).

The NLDC COOWG solicited input from the 17 national laboratories on best practices in project management that are in use, being implemented, or under consideration. This report summarizes and integrates the input received. It does not attempt to list the myriad best practices found in the literature, but rather focuses on those the contractor complex has found to be of particularly high value, and offers some additional thoughts on several factors believed critical to project success. Additionally, the EFCOG organization surveyed member companies on methods utilized to assure their PMs are, and remain, qualified. A separate report has been prepared to discuss this critical element in more detail. Finally, some recommendations for follow-on actions are included.

2. High Value Best Practices

a. Project Manager Qualifications and Experience

A PM qualification/competency model that includes a matrix of project management qualifications considering education, experience, training, skills and management traits should be put in place. One of the key selection factors is the leadership abilities of the PM. Among these is the ability to lead a team, create a positive environment, manage relationships, make timely decisions, and hold people accountable. Selection of the PM for a specific project should consider the

highest risk (cost, schedule, or technical) associated with the project. A PM with demonstrated capability in that area should be selected; however, contractor senior management must always be afforded flexibility in PM selection. Use of a formal training/qualification and certification program that allows for a graded approach and use of experienced mentor based development processes and Deputy Project Managers is a recognized best practice for developing future PMs. Formal leadership development training and experiences should also be a part of the program to prepare future PMs.

b. Risk Management

A disciplined risk management process should be used prior to setting project baselines and updated monthly or as needed as the project progresses. There should be broad involvement of the integrated project team members in risk assessment and development of control/mitigation activities. An over-reliance on a formulaic approach to risk assessment should be avoided as it can obscure subtleties in the project risk profile. However, use of some formal risk management processes such as risk registries to identify key risks and control strategies have been effectively used. Cost risk can be minimized in some cases through the use of local cost estimating consultants familiar with local vendor/material pricing and local labor agreements and work rules.

c. Integrated Safety Management

The principles of Integrated Safety Management (ISM) are applicable to project management and should be a strong focus of the PM and integrated project team throughout the project life cycle. Where safety performance incentives are used in construction contracts, they must be carefully managed to guard against unintended consequences like potential for under-reporting by contractor staff. Provisions of incentive clauses should require that incentive payments predominantly flow to the worker level to ensure engagement where it counts most. Provide robust safety coverage on construction sites, with an emphasis on subcontractor safety management.

d. Earned Value Management System (EVMS)

Use of an EVMS by experienced practitioners, with a strong continuous improvement approach is highly effective. Several sites have used EVMS broadly, including on projects below the DOE O 413.3 threshold, as a training tool for future PMs and EVMS system specialists. In addition, utilizing external EVM Professional Certification (e.g. Earned Value Professional credential awarded through examination from the Association for the Advancement of Cost Engineering (AACE) International), is a recommended best practice for key positions within line item project teams.

e. Acquisition Management

Dedicated procurement staff resources, co-located with the project organization ("procurement cells") are important for projects above $50M, though these resources should be sourced from the central procurement organization which should also provide oversight and supplemental support as needed. Procurement peer review by experienced project procurement professionals should be used in acquisition planning. Subcontracts for design services that include an advance

outreach to the contractor/vendor community in the acquisition planning stage have also been found to be a successful practice. Contract type should be carefully considered as an integral part of the risk management strategy. Best value award criteria should be given strong consideration for subcontractor acquisition, especially for large dollar value or technically challenging procurements, to ensure selection of a contractor and project team strong in safety, technical and project management performance.

3. Critical Success Factors

As with most complex endeavors, in delivering a successful project, management systems and processes are necessary and important, but not sufficient. The factors that differentiate between project success and failure are often related to leadership and the nature of the relationships among the various parties that come together to deliver the completed project. In this regard, several senior PMs offered the following thoughts.

a. Institutional Ownership

Within the national laboratory community many of the large research projects are managed under the management and operating contract and often by laboratory management. The distinction of "a Lab project" vs. "a project at the Lab" has often been a key factor in project success. The sense of ownership, of institutional reputation on the line, and the direct linkage to mission outcomes produces a dynamic of strong awareness of, and interest in, project success at the senior leadership level and agility in the delivery of support services to the project.

b. Leadership and Peer Involvement

Strong involvement of institutional leadership in an oversight role on a frequent and recurring basis is viewed as vital. Monthly formal project reviews with senior leadership involvement are used at many sites. Several laboratory directors have used advisory groups comprised of senior level technical and project management experts and peers from across the scientific community to provide strategic and technical feedback. Several laboratories have formed internal project management groups that provide oversight to ongoing projects and also make the broad project management expertise of the institution readily available to PMs for consultation.

c. Contractor-DOE Working Relationship

A strong partnership relationship among the contractor, the local DOE authority and the assigned Federal Project Director (FPD) is viewed as essential for success. The FPD's project direction and oversight roles are key. The probability of project success increases dramatically where the FPD also serves as the "honest broker" between the contractor and relevant DOE HQ parties and as an innovative problem-solver. The DOE Contracting Officer also plays a pivotal role in project success. Their interactions with DOE HQ elements on facilitating approvals of large procurements are particular functions that often directly impact project schedule. On the contractor side, transparency of project information and decision-making is considered essential to foster trust among the integrated project team and allow early identification of, and attention to issues.

4. Recommendations

Several of the contractors surveyed offered recommendations for improving the project management process. These are not "best practices" per se, and as such, not strictly within the scope of this report. However they highlight potential concerns in the project management process and are presented here as topics for further dialogue within the DOE/contractor project management community.

DOE:

a. DOE should consider delegation of Critical Decision (CD) authority to DOE authority at the site. Where CD authority is held above the DOE site level, it should be within the line and the CD approval reviews should be conducted by a senior DOE line organization official.
b. DOE should consider limiting the applicability of DOE Order 413.3 to unique, high risk, major system acquisition-type projects and nuclear projects and holding contractors accountable for execution of other projects. An immediate step could be raising the limit of applicability from $20M to $50M.
c. DOE should consider raising the General Plant Project limit to $10 million permanently.

Contractors:

a. The laboratories and contractors should share lessons learned on training/development programs for PM, EVMS staff, and project procurement staff.
b. The laboratories and contractors should work with DOE/OECM to revise the process for EVMS certification and surveillance to improve quality and lower associated costs.

5. Conclusion

EFCOG and the NLDC share DOE's commitment to excellence in project management and look forward to continuing to work with all organizations within DOE to improve our performance as a DOE/Contractor team. As noted in the above best practices and critical success factors, there are many techniques that are in use and some that are under development to drive continuous improvement. The EFCOG Project Management Working Group and the NLDC's Chief Operating Officers Working Group will continue to share information, develop new approaches, and support ongoing DOE efforts in this important area.

As DOE moves toward an increased focus on line management responsibility for mission execution, including project management, we believe it is time to reexamine the current process for generating project requirements, conducting project reviews, and making key decisions with the goal of shifting more of the responsibility to the DOE mission/line organizations and the contractors. Several of the recommendations that were offered as a part of our survey of the contractor community suggest to us that a dialogue on these ideas would be highly productive and we look forward to participating.