

Project Management Appraisal
Testing the Effectiveness of Your Project's Management
R. Max Wideman, P.Eng
FCSCCE, FEIC, FICE, Fellow PMI
AEW Services, BC

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Executive Summary

Project management is a process by which certain predetermined goals are achieved. It is simply the means to an end.

On a small project, the senior executive management of the sponsoring organization (the Owner, or client) may be sufficiently familiar with the details and on-going progress that they are satisfied that the project is proceeding as expected. On a larger, longer, more complex project, such close contact may not be feasible. How then can the required degree of comfort (comfort level) be ensured? Rely on project status reports and telephone calls to the project manager?

Perhaps, but not always! In any case, what if the project status reports clearly indicate that the project is not going according to plan? Either way, some form of independent project management assessment and recommendations are well advised. Such an assessment should be designed to scrutinize the project's management, test its effectiveness, and if found wanting, to make recommendations for corrective action.

Part 1 of this paper describes some of the considerations involved in making an assessment of a project's management. It includes how, when and why, and hence the benefits and possible justification. Part 2 takes a structured look at some of the questions that should be raised.

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Part 1: General Description and Justification

Introduction to Part 1

Project management of medium and large construction projects has become well established as a way of developing and creating a new capital facility. This form of management is particularly appropriate where the work is of quite long duration, involves many different design skills, construction specialists and trades, and in the end result must satisfy many different groups of people. This qualification certainly applies to most public works programs and projects, industrial complexes and private commercial developments.

Yet the application of this management process does not necessarily assure a successful project. Many are the complaints of schedule and budget overruns, or complaints with the quality or productivity of the resulting facility. Or dissatisfaction with the contractual arrangements may be evidenced by the proliferation of disputes and litigation between the contracting parties. Why should this be, and how can performance on current and future projects be improved?

The very reason which makes project management appropriate, namely the necessity to involve many people in the planning and implementation of the project, is at the same time its weakness. This is because those involved are not all necessarily familiar with this unique form of management. This may be attributed to the players often having their individual conflicting agendas, but in any case the number of people on most large projects who fully understand the process and broader purpose of project management is still quite limited.

How then can the sponsors of the project and senior executive management satisfy themselves that the desired end results in terms of quality and productivity will in fact be achieved. That the project will be favorably received by those affected by it during and following completion, and that the project goals and objectives have not somehow been changed in the interim, or, indeed, that they are still appropriate?!

How can this required "comfort level" be assured? Rely on project status reports? Perhaps, but not always! Project reports tend to have a relatively narrow focus on work accomplished and the status of cost and schedule. In any case, what if the project status reports clearly indicate that the project is not going according to plan?

The answer seems to be some form of independent project management assessment and corresponding recommendations. Such an assessment should be designed to scrutinize the project's management, test its effectiveness, and if found wanting, to make recommendations for corrective action.

What is meant by "Testing" and "Effectiveness"?

In the context of this paper, testing means taking a look at the project management process in such a way that senior management can be reasonably certain about the effectiveness of its project management organization. Effectiveness means whether or not the project will meet its stated goals, and if so, to what

extent.

This pre-supposes, of course, that the goals are sufficiently well defined in terms of discrete objectives that can be measured against, that they are cohesive and consistent, and that they are in fact appropriate and achievable. It also presumes that there are no overriding "hidden" goals, or that if there are, they can be identified and factored into the assessment.

It is important to understand the linkage between the process and the objectives. At the same time it is important to recognize the difference in perspectives between examining the work activities to produce the various outputs and products of these activities, and their congruence with the overall project goals and objectives.

Project Management Appraisal (PMA)

An enquiry into the effectiveness of a project's management may take one of several forms. It may range from a one-off assessment, through a periodic independent review, to an on-going project management overview. It can also range from an informal internal enquiry to a full and formal project management audit.

For purposes of this discussion, since there are a range of possibilities in this testing of project management effectiveness, it will be convenient to use the term Project Management Appraisal. Obviously, the type of appraisal to be adopted must be selected according to the particular project circumstances.

If the project is critical and/or complex, but not necessarily very long in duration or politically exposed, and if senior management are unable to participate sufficiently to be comfortable with reports of progress, then a relatively informal internal commentary may be all that is required.

If the project is likely to be politically exposed, or is in the public sector, then a more formal, and more independent enquiry is appropriate. If the project is also of longer duration overall, then a series of enquiries at selected intervals, or at key points of the project life cycle, will be required.

If during construction a weakness in management coordination is suspected, but the implementation of the project is already structured according to the terms of a central contract, or series of related contracts, then an on-going review, or Project Management Overview (PMO) as it is called, may be more appropriate to further strengthen the work of the project management team.

The PMO is not necessarily continuous, but rather is a relatively frequent periodic monitoring of the project's management processes. In fact, continuous monitoring is undesirable, since this merely adds another layer in the organizational hierarchy, and therefore tends to dilute the obligations of those who should normally carry the responsibility. PMO has application whether or not the project owner has its own supervising engineering department, or engages project managers, construction managers, or general contractors to execute its capital works.

If all of these considerations are applicable, and especially if the project or program is of long duration,

in fact many years, then full scale formal project management audits at prescribed intervals by an independent consulting firm specializing in this type of work may well be mandatory.

Why conduct a PMA?

A project management appraisal should be viewed as a useful, constructive and necessary diagnostic tool available for augmenting the capability of the sponsoring organization's project management team. It can be used to provide information ranging from an informal enquiry to an extensive analysis of the effectiveness of every aspect of the project management process. In the latter context it can be conducted to ferret out common failings of many project management arrangements. Some of these common failings include:

- Management on the project may be unable to see the forest for the trees.
- Decisions may be being unduly biased by contractual commitments already in existence, rather than being made in the best interests of the final project results
- Decisions may be similarly biased unduly by corporate policy
- Short term political expediency may be overwhelming (Crisis management)
- Key individuals on the project may be under the influence of some form of illegal pressure
- Management on the project may simply be naive, inexperienced, lack sufficient training in project management skills, or otherwise ill prepared for the difficult tasks at hand

PMA can therefore be used to:

- Identify the strengths of current practices in a project management organization, or on an existing project
- Establish how various groups within the organization perceive the organization's effectiveness in managing projects
- Examine the effectiveness of project communication and documentation, and clarify the relationships between project scope, quality, time and cost
- Identify barriers to better performance, or critical skills needed by project managers or their supporting teams to increase their effectiveness
- Identify sooner specific aspects which require improvement and hence speed the achievement of results
- Provide for an exchange of ideas, information, problems, solutions and strategies with project team members, and thus develop a plan of action for carrying out improvements

- Help to create a supportive environment focusing on project success, and the professional growth of project team members

Thus, by conducting a PMA in a timely and favorable manner, potential difficulties can be identified and brought out into the open for appropriate corrective action. Better still, potential problems may be circumvented altogether, if the concept and timing of a PMA is built into the project plan from the outset.

On which projects should PMA be conducted?

Some will argue that many projects, even large ones, are completed without any major difficulty and achieve their objectives quite satisfactorily. PMA therefore represents an unnecessary added cost, and for such projects this is probably true - but only in retrospect. Much more likely, such projects have in place some sort of PMA mechanism, which is the very reason why the results are indeed successful. At the very least, there is merit in conducting even a very minimal PMA simply to capture the ways and means for repeating such success on future similar projects.

On the other hand, the reality is that capital projects generally are becoming larger, more technology intensive, more complex, more urgent and financially more vulnerable. And all this is taking place in the context of increasingly technical specialization and consequently diminishing pool of talent that has the necessary broader construction project management training and experience.

Clearly, PMA is best suited to those projects on which there is significant risk of potential difficulties. This presupposes that the sponsoring organization has recognized the potential for risk on the project, and has, or will include risk management as a standard functional component of the project management effort.

Project risk management is a recognized project management functional area whose purpose is to identify, analyze and plan for, or protect against, various risk factors which may occur to the detriment of the project results. The responsibility of this function is to respond in a manner which is in the best interests of the project objectives.

For such an enlightened sponsor, it is but a small step to involve the PM Appraiser in the project risk identification stage of the project planning phase. In this way the mandate for the PMA can be determined, be it extensive or limited, and corresponding funding set aside as part of the sponsor's own budget for the project.

How thorough?

The decision to spend time and money on additional management activity such as PMA is a crucial one. Sometimes the response is that the organization already has a financial audit process in place, and that this should be sufficient. However, the financial audit concentrates on the use and preservation of the organization's assets in accounting terms, and so is principally historically oriented. Remember that little can be done to change the past, other than to apportion blame, so that the financial audit can be very

intimidating. In contrast, the project management appraisal is broader in scope, more forward looking, supportive and success oriented.

The intent of the PMA should be to avoid unwanted and unnecessary costs in the future. Since avoided costs do not show up in normal accounting procedures, it is often difficult to justify this additional expenditure until management knows that it is already in trouble! Nevertheless, deliberate steps can be taken to ensure concentration on the relevant issues of the investigation, while avoiding those that are trivial.

The actual extent of an enquiry will depend on a number of factors such as:

- The size and complexity of the project
- Whether or not previous enquiries have already been conducted
- The extent of the concern that management has with the project
- How long the project has been running, and how much longer it is expected to take to complete.

As noted earlier, the difficulty with any kind of scrutiny, particularly a formal audit, is that the process can be intimidating to those responsible for running the project. This is particularly true if the checkup is not carried out with the right motives, or is not conducted professionally and with integrity. Such an enquiry may then prove to be more disruptive than beneficial.

Thus, it is critical to the success of a PMA that it be structured on the basis of serving to improve the probability of success of the project, rather than simply finding fault and pointing the finger at those responsible.

Who should conduct a PMA?

A project management appraisal needs to be conducted with a certain degree of independence in order to safeguard the credence and reliability of the resulting findings. In other words, it must be conducted by a third party. However, the third party may enjoy varying degrees of independence. For example, the enquiry may be undertaken by someone from another department or division of the sponsoring organization. Alternatively, it may be conducted by a completely independent party commissioned for the purpose.

Either way, it is important to ensure that the person or persons undertaking the appraisal have no direct personal, financial or organizational ties to the management on the project itself, or to the results of its progress. In addition, if the findings are to be credible, the enquiry must be conducted by people who are familiar with the technology of the project, and/or who are thoroughly knowledgeable in managing the processes of realizing a capital project. These processes include conceptual development, detailed design, procurement, construction and commissioning, as well as the broader aspects of overall project management.

The objective is to provide reliable and credible advice to the owner or sponsor's executive through a professional approach and a degree of independence which precludes any jamming of the messages through personal conflicts, professional pride or political influence. The reviewer must be recognized as being competent, fair, objective and thorough.

How should the PMA be conducted?

Perhaps the overriding consideration is that the PMA should be conducted, and the resulting report written, in a truly constructive vein. Failure to follow this basic precept can so undermine project morale, that it will be difficult to obtain the required information for PMA purposes, and any potential benefit will be totally negated.

The PMA, whether carried out formally or informally, regularly or one-off, is essentially the development of a set of questions and answers obtained through the examination of data or through personal interviews, and which provides a current snapshot of the health of the project. In this respect, however, it is rather like a company's annual financial statement. It may contain a lot of interesting information, but does not serve its full purpose unless compared either with similar previous reviews, or more importantly, with the governing project management plan.

In developing the set of questions, it is suggested that each should be cross-referenced to the relevant section of the governing plan or procedure, the potential concerns identified and the persons to whom each question will be addressed. The questions can also be most conveniently grouped according to the project management function as outlined in Part 2 of this paper.

Essential to the success of the process are three considerations, namely:

- The reporting level
- A future orientation (not past), and
- A perceived net benefit to the members of the project team themselves

The PM Appraiser should not report to, i.e. be responsible to, any of the individuals who may be referenced in the report. That is not to say that the draft findings should not be shared with those involved. Indeed they should be. Early acknowledgement of this basic factor will not only be in the interests of accuracy and honesty, but will encourage cooperation and ideally earlier implementation of the recommendations. Conversely, the final PMA report must be presented to those who are in a position to act on the advice, or ensure that the recommendations are effectively executed.

The PMA must focus on the project's goals and objectives to be achieved in the future, through the work still to be done and the means of achieving it. Therefore, close scrutiny of projections and forecasts are much more appropriate than historic records reflecting what might have been done wrong or differently in the past.

Theoretically, the cost of conducting PMAs should be justifiable on the basis of benefits received. However, this is not always easy to demonstrate in hard accounting terms, because the benefits derived are obtained in terms of avoidance of unnecessary costs.

Therefore at the very least, the PMA process must be able to demonstrate that:

- potential problems are being identified earlier than they might otherwise be
- practical and timely recommendations for corrective action are being offered, and
- the presence of the PM Appraiser is welcomed by the project team

To be perceived as a net benefit to the members of the project team themselves, the PMA must not be seen as an additional layer of management. Rather it must be seen as an opportunity to improve the health of the project, increase the chances of a successful outcome, and hence a benefit to all those involved. The PMA process must be a mutually supportive and truly participatory effort, which starts from the top down and grows from the bottom up.

Commitment to the appraisal process by members of the project group will greatly improve its effectiveness, reliability and value. Properly structured, the PMA can provide a strengthening of the project management process and an early warning system for senior management.

One of many frequent findings is the need for additional training in areas of weakness, typically the knowledge and application of the project's management procedures. Since the procedure manual is both necessary and relevant, a program of regular discussions on this otherwise dry material can be illuminating to trainees and trainers alike. In fact, on-the-job training is much more cost effective than importing those with the additional expertise but who lack the detailed knowledge of the project. It is also a powerful motivator and builder of commitment to the success of the project.

The methodology involved is really quite simple. The PMA follows these steps:

1. Establish the PMA's goal and scope
2. Acquire information
3. Examine and correlate the information and, in the light of the reviewer's experience, determine its relevance, completeness and reliability
4. Draw conclusions on the current status of the project
5. Develop recommendations affecting the future project status
6. Discuss the preliminary draft of the findings and recommendations with those interviewed, and modify as appropriate
7. Present the final results for discussion with those who commissioned the appraisal
8. Discharge the appraisal team, until recalled

As noted earlier, the potentially adverse affects on the project organization of conducting a PMA must be recognized from the outset. Consequently, a constructive approach must be maintained which focuses on enabling the project organization to improve performance in the future. Any suggestion of attempting to pinpoint responsibility for past short-comings should be strictly avoided. In fact, any issues identified during the appraisal which, as a result, have already been corrected should obviously be so noted or omitted altogether from the report. Thus, the PMA must be carefully prepared and conducted with tact and discretion in the interests of continuing harmony.

When should a PMA be conducted?

Both "planned" and "spot" appraisals are possible. However, a program of planned PMAs, in which the parties concerned are notified well in advance, are much less intimidating and more constructive. This enables key information to be extracted or retained as a basis for the review, with minimal interruption to on-going work. It has the added merit that management will be obligated to set standards of conduct and performance, while individuals will keep mindful of these standards in the course of their daily activities!

In determining the timing for PMA, it is important to relate to the four basic phases in a typical project life cycle.

The first phase of a project involves its conceptualization, including preliminary configuration, technical and economic feasibility, positive and negative social and environmental impacts, and examination of project alternatives.

The second phase involves stages in which the technical plans are developed, any required technical feasibility studies are conducted, and the resulting findings provide input to a thorough planning stage. This planning stage typically culminates in a Project Brief which should both constitute justification for funding the implementation of the project, as well as provide the base line data necessary for exercising control during its execution. In other words, the conclusion of this phase represents a major go/no-go decision point in the life of the project, a distinctive separation between the planning of the project and its realization.

The third or execution phase of a construction project typically encompasses the stages of detailed design, procurement of construction services, i.e. tendering and award of contract(s), followed by the major part of construction.

The final or finishing phase of a construction project is not strictly discrete from prior stages, but is sufficiently different in content to warrant separate consideration. It not only involves the testing and startup of the facility, but typically includes training of operating personnel, transfer of responsibility for the facility, release of project resources and closing of project documentation.

Given this brief outline of the construction project life cycle, it will be seen that PMA should be planned into the project early in the second phase, by identifying the PM Appraiser and together establishing a suitable mandate. A PMA can be conducted with advantage towards the end of the second phase, which provides an opportunity to verify the various risks involved, and possibly identify additional risks, which can then be provided for in the Project Brief. This can add significantly to the credibility of the Project Brief and its chances of securing funding for the ensuing phases of the project.

PMA activity would normally be stepped up during the several stages of the third phase of the project and, like the various other project activities, trailed off in the final phase. Nevertheless, the PMA documentation can make a significant contribution to the project's final close-out report.

What should be included in the PMA?

The scope of a PMA may be as extensive or limited as circumstances indicate. However, it is important to appreciate that there are at least three separate dimensions which may be covered by any such study of the project. Each may have equal importance to its final outcome and success.

The first consideration relates to the Technical Objectives of the project as represented by its Scope and Quality parameters. These are both areas which require specific management attention not just in terms of technological content, which of course is of fundamental importance, but also in terms of managing and controlling the development of the content, consistent with the overall project objectives.

Sometimes, scope and quality are referred to as performance requirements. However, since the quality of the end products need to be designed in right from the start (and not merely "inspected-in" during construction), and further that quality is a separate variable which may very well be impacted by the standards and prevailing attitudes of those on the project, it is far preferable to give each separate and specific attention.

The second dimension of the project relates to the business management objectives as represented by its time and cost parameters. How often is heard the cry that the project is late in delivery and over budget, particularly when it comes to large publicly funded projects! Indeed, the mark of a successful project is often characterized as one which is "on-time" and "on (or under) budget". Yet these are by no means necessarily the most important criteria, especially if they lead to compromising the project's scope and quality.

There are many documented examples of projects, particularly energy projects, which were on time and budget, but which were not necessarily considered successful simply because they did not subsequently perform up to expectations. Conversely, there are also examples of projects which ended up substantially over time and cost targets, but which were nevertheless viewed as significant successes because of their satisfactory long term economic and/or social return.

The third dimension, which is much more difficult to grasp, has to do with "stakeholder satisfaction" and their collective perception of the success of the project.

Depending on the nature of the project, the stakeholders may be many and various. In the case of, say, a private manufacturing facility, obviously the owners and operators of the facility are the key stakeholders, together with the users of the particular product. In the case of a large infra-structure project such as an irrigation system or a transportation network, a large sector of the population may be impacted, particularly those who may be displaced by the new development. Thus, the stakeholders will extend to those who are physically impacted and more than likely politically active.

If a majority of the principal (or most vocal) stakeholders feel that they have achieved a net benefit, then, notwithstanding cost and schedule overruns, the project may still be considered a success.

Therefore, a complete Project Management Appraisal should take all these considerations into account. If this is the case, and different disciplines are involved, then a small team of experts will be necessary.

Part 2: A Structured Approach and Some Typical Issues

Introduction to Part 2

Modern project management is generally considered to be encompassed by the integration of eight functional areas. These include the four core or constraint functions of scope, quality, time and cost, and four integrative and interactive functions of risk, human resources, contract/procurement and information/communications management.

Each function tends to require a separate skill set, so that on a larger project, or in the larger project management organization, responsibilities naturally tend to be grouped accordingly for their proper conduct. Consequently, the investigative format of a project management appraisal also more readily follows these functional descriptions.

The sequence in which these functions are listed above is significant because of their dynamic relationship. The sequence parallels both the progressive flow of information as well as the flow of work through the project management process. The information flow represents *what* is managed, while the process flow reflects *how* it is managed. Since projects should be planned moving progressively down the list, projects in the planning phases might well have the first four functional areas examined first. For projects in the implementation phases, on the other hand, the latter four functions might be given priority, and in the reverse order.

The content of the questions to be raised will also be highly dependent upon the particular phase of the project in which the PMA is being conducted, and therefore should be structured accordingly.

For example, the content of technological questions under a PMA conducted early in the implementation phase of a construction project would focus on the availability and adequacy of information to carry out detailed design efficiently, or to commence construction activities productively. Similarly, technological issues to be raised just prior to commissioning would likely cover quality assurance records, validation of equipment and system check-off, dry-runs and so on.

The following discussion is intended to give an indication of the issues that might be looked at, both in terms of the function under consideration, and the phase that the particular project has reached.

Project Management Core Functions

As noted earlier, the first four functions: scope, quality, time and cost, are generally considered to be the basic functions of project management. From the sponsor's point of view, these four functions embody the project's basic management objectives, while for those providing services to the project, i.e. design or construction, they constitute constraints. They therefore represent a set of core parameters which are used to control the project.

Scope and Quality

If specific technological aspects of the project such as engineering, manufacturing or constructibility, are to be reviewed, such an investigation must clearly be conducted by those thoroughly conversant with the project's technology. In addition, most projects today have some degree of recognizable environmental, social or safety impacts. If these have not already been analyzed and arrangements made for monitoring and mitigation, then persons with corresponding knowledge and experience must undertake such review.

Even so, certain general management questions can be formulated with regard to the technical scope and quality of the project.

For example: Is the scope consistent with the project's goals, and are these goals consistent with current market opportunities? Has it been sufficiently developed prior to the commencement of project planning, in order to avoid, or at least minimize changes and enhancements during project implementation?

Have the major stakeholders been involved in this development process, and are they required to sign off on the plan prior to implementation?

Have the expected results of the project been defined in measurable terms in order to facilitate control during implementation, and will the stakeholders be required to signify acceptance upon completion?

Is all of this clearly understood by the project team?

In the case of quality: has the project's executive given priority to building the required quality standards into the project planning and execution process right from the outset? Is this standard consistent with production, operation, maintenance, safety and social acceptability expectations, so that the facility will perform economically during its life time. Indeed will the facility last for its required life time?

Have the members of the project team been selected on the basis of their qualifications for their respective roles, and likewise will similar considerations be given to those providing detailed design and/or construction services during project execution?

Are meeting the end-user's requirements seen as being at least as important as, if not more important than, meeting cost and schedule targets, and will a post project review include a critique of the project's quality attainment?

Schedule and Cost

Similarly, specific questions can be posed regarding schedule and cost. For example: Do project plans include a milestone schedule indicating major pieces of work to be accomplished, and who will be responsible for each?

Are project schedule time estimates and logic developed using input from members of the project team, in order to build in commitment? Are they prepared using a structured breakdown consistent with the

work breakdown structure, such that cost and schedule can be correlated?

Are project schedules allowing sufficient time to get the work done right the first time, and without causing overruns? And when changes are made during project implementation, are corresponding changes made to the schedule to accommodate these changes?

The cost situation should be similarly examined, and the direct impacts on the cost situation of any changes in the schedule also recognized. Thus typical cost questions should include: Is the estimate realistic, including both direct and indirect costs of all required resources, or have any changes taken place since, in terms of the project's parameters or the external environment, which might require its re-evaluation?

Has a benefit/cost analysis been conducted for inclusion in the project brief as part of the project's justification, and is project financing soundly based?

Has the estimate been converted satisfactorily into a budget against which costs can be readily assigned in the manner in which they have to be collected? Are all relevant costs being collected and faithfully allocated, and are cost estimates of the remaining or outstanding work being prepared on a regular basis so that forecasts of the eventual final total cost can be compared to the total budget, as a primary management control tool?

Project Management Integrative Functions

As indicated earlier, the issues under scope, quality, time and cost only really question the status of the project's relatively static objectives. If the answers are found to be unsatisfactory, then it will be necessary to examine the means to influence them within the remaining time left for the project to run.

The next set of questions therefore investigate the supporting integrative and more dynamic functions of project management, which consist of the management of risk, human resources, contract/procurement and information/communication management.

Each of these functions influence the success of the project through the performance of people. They involve as much art as science, and, suitably managed can affect the course of the project and consequent outcome. Unlike scope, quality, time and cost, which deal with project outputs and deliverables, these four functions impact the activities, i.e. the work involved in achieving those outputs and deliverables.

Often, these areas of review provide a much more illuminating area of investigation.

Project Risk

Questions under this heading should include: Has the project planning included a program or study of risk identification and analysis with recommendations for mitigative actions?

Does the project's management effectively anticipate potential obstacles at each stage in a way that

avoids future hindrance

Have adequate contingency planning and allowances been incorporated into the project parameters to provide for major risk factors which may adversely affect project success?

Human Resources

Questions which address the issues of people and their motivations are frequently the most significant, since essentially projects and the degree of their success are achieved through the project's human resource element. Therefore, this area of the PMA may be quite intensive.

For example: Does the project team enjoy the active and visible support of the project's sponsor, and is the focus consistently on the project's stated objectives?

Has the sponsor assigned the leadership of the project the necessary level of authority for it to execute its responsibilities, and is it held accountable accordingly? Is this process visible and effective?

Are people resources available when needed? And do they have the required levels of technical skills, or if not, are they encouraged or provided with suitable training? Are they rewarded for exceptional effort?

Is conflict handled and used constructively, in order to sustain a highly motivated team? Will the final project evaluation include a critique of the project team's collective performance?

Contract/Procurement

The manner in which the project is to be facilitated or procured is an issue which should be dealt with very early in the project planning phase, since it will have a significant effect on the way in which the project parameters are expressed. For instance, construction which is to be accelerated, or "fast-tracked", should require a shorter schedule but will carry significantly higher risks. Conversely, the more time taken to improve the definition of the project's scope, the lower should be the project risks. In each case, the form of contracting must be tailored to suit.

Hence questions such as: Is the sponsor and/or senior management committed to realistic scope, quality, time and cost parameters for the various contracts? Is the project team committed to preparing and administering contracts such that they will do whatever it takes to get the job done right?

Are the contract/procurement function and the efforts of the rest of the project team integrated to ensure a common commitment to the objectives of the project in contractual decision making?

Information/Communications

Information is best viewed as the data upon which the project is configured and upon which decisions are based, while communication is the oil and grease which keeps the whole project progressing smoothly. Questions in this area might therefore include: Does the project sponsor keep the project manager informed on matters affecting the project, and in turn does the project manager keep the

members of his team similarly informed? Are project team members free to voice their opinions and concerns for the project? In other words, is information flowing satisfactorily through the organizational structure, and in doing so, is its quality and integrity maintained?

Similarly, are the necessary mechanisms in place to inform those who are outside of the project organization, and inform them according to their respective interests? For example, an external stakeholders' public relations program could be very necessary where the construction and completion of the project is politically sensitive, since adverse reaction could have a damaging affect on the ultimate success of the project.

Are all members of the project team and their respective work forces clear on what is expected of them? Are the responsibilities of each clearly defined, and are the corresponding project policies and procedures clearly set out, accessible and easy to use?

Do project status reviews compare what has been accomplished with planned expectations, and when the project is off-track is an opportunity provided to develop a recovery plan? In arriving at such solutions, is everyone involved who should be involved, in order to build commitment to the required results?

Does the project differentiate between meetings to discuss progress and planning on the one hand, and problem solving meetings on the other, in order to improve the effectiveness of both? Are these meetings efficiently managed, with prior agendas and subsequent action oriented minutes which focus on the future rather than the past, and show responsibilities clearly assigned?

Is the project provided with adequate systems and data processing support, particularly in the areas of scope change, quality, and forecast schedule and cost controls?

Summary and Conclusions

It will be seen from the foregoing discussion that the Project Management Appraisal can be structured to cover the full range of functionality of the project management process. It is a powerful tool which should not be overlooked but which must be judiciously applied . This is especially true when project success is critical to the success of the sponsoring organization.

It can and should be conducted early on in the project life cycle. This can serve to identify shortcomings in the planning of the project, as well as to identify potential internal risks that might not otherwise have been allowed for.

The PMA can also be conducted to particular advantage during the project's implementation phases. This can provide confirmation and confidence to senior management and the project's sponsor that all is as it should be, or if not, provide a timely warning as to what should be done, where and when.

With the increasing size and complexity of capital construction projects today, as well as the increasing incidence of litigation, new approaches are required to ensure optimum performance. The PMA process provides this opportunity.

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