Proactive Managers Incorporate Analysis (PMIA)

Raise CONCERNS to ensure completeness, debate ISSUES to reach decisions and be proactive to avoid PROBLEMS

Some obvious analytical methods are driven by numerical data. These include time series analysis, statistical and probabilistic analysis and the practice of statistical process control (SPC). These are typically well established and supported by software and managed by a facilitator. But what about the analysis of managing human resources, equipment and budgets in the day-to-day world of work execution in the organization? Doesn't every manager employ some kind of analysis in their work? What makes the **PMIA Practice** different? A discussion of the **PMIA Practice** content and the timing of its application in project management follows.

A key feature of the **PMIA Practice** is to identify and address critical job tasks through development, early-on, of Work Packages by planners assisted by job supervisors. Add periodic review by managers and supervisors and one has a **PMIA Practice** with a built-in measure of achievement in the form of budget and schedule performance measures as a function of time. There are also performance measures that follow from job specifications that can signal the underlying concerns and issues that portend problems. These job specifications define installation, operation, and performance requirements and are time dependent.

Another key feature of the **PMIA Practice** is timing. Work Package use in the day-to-day work of the organization is nothing new, but what if the first task in addressing the work of the organization was creation of the Work Packages? One soon finds out what they don't know by using such an approach. At the first project meeting, specific parties receive job assignments and learn about their Work Package responsibilities on given job topics assigned to them. The second meeting is built around Work Packages that each responsible party creates to the extent possible at that time for presentation and discussion at this meeting. This second meeting and subsequent meetings at this early project stage become big-picture and synergistic events as everyone tries to figure out how to get the job done from the beginning. This focus puts everyone on the same page from the beginning. These are meetings of issues and concerns thus supporting organizational communication most effectively (see the Communication Blog Post articles). If the organization waits too long to develop Work Packages, the later meetings will likely be of trying to solve problems and cope with surprises.

Work Packages are essentially the synthesis of resources and actions to get you from where you are to where you want to be in a most effective and efficient manner. Work Packages are one of the essential definitions of analysis especially in the context of decision support. As a manager, this is a key function in controlling change. And, of course, you effect control through a supervisory function that should become part of your program design. The analysis required to execute and control project job tasks is complex and important in the enterprise's program management. So, in the project development and implementation for getting the work done, concentrate on the big picture, the synthesis of resources in task planning and scheduling (P&S)

and control of project activities. Remember, the analysis and control functions reside in your supervisory and P&S personnel. These functions must be integrated for effectiveness of day-to-day operations. The integrating factors are planning detail, procedural control, the work structure, and the scheduling meetings highlighting Work Package development. **Figure 1, The PMIA Practice Operating Infrastructure**, is a graphic representation of this practice. Assigning responsibility for each block will establish the accountability aspect for each job and provide better control and transparency to help eliminate dysfunction.

In addition, your personnel may require support from other units of the enterprise. Do not let the support functions impede your staff in their important work. This will be one of your most complex and difficult management interfaces. Politics and human behaviors take on important roles in influencing cooperation and leadership even in a team environment. The keys to managing these organizational problems are communication and attention to detail. Both of these keys are addressable through an effective P&S and control function supporting a project staff enlightened by their Work Package development experience. Figure 1 shows the big picture model for effective communication of job and task details as work progresses and should be the outline to follow in project meetings.

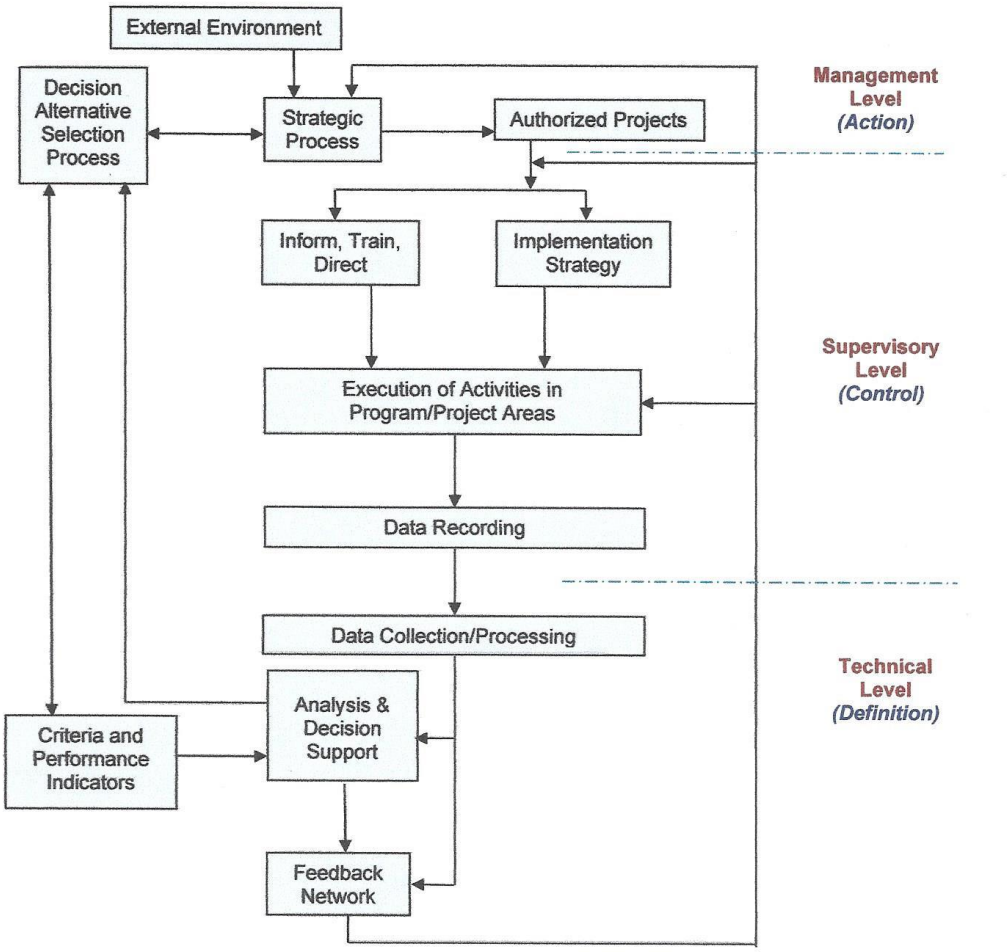
PMIA Practice Improves Project Communication and Control

Each of the assigned project personnel must operate within the concept of a planner as an analyst. Among the first tasks the planner (or assigned personnel) performs is an initial review of the assigned job and its associated tasks. The major activity at this point involves gathering information and data to start creating the big picture. So, the first things project personnel must do for themselves is define the job, identify what tasks must be done to complete the job, and identify the implementation strategy in the form of Work Packages to complete the tasks. The next critical item is to determine the complexity of the tasks.

NOTE: Levels of Complexity

- The task is complex if there are **several interrelated** resources (e.g., parts, tools, labor, and equipment availability) that **vary with time**, and have **uncertainty** about their availability to complete the task as planned.
- The task is moderately involved if the **uncertainty** factor is missing.
- The task is simple if there is **no uncertainty and no time variance** on resource availability.
- The task is minor and can be used as a filler task if none of the above factors apply.

Figure 1-The PMIA Practice Operating Infrastructure



This model represents the manager's **information flow network based on management system functions**. Each block is a topic of interest in the job **Work Packages** as collectively, they describe the job and task performance. The **PMIA Practice** also helps to nullify the "Peter Principle."

It is obvious that a planner who can assess the problem situation in terms of the three complicating factors (several interrelated things, time variance, and uncertainty) is a planner who appreciates the complexity of the planning to be done for a particular job. Only then can a planner accurately describe the job and begin to develop the applicable tasks. Can the project personnel do this? Yes, if they follow a series of steps that will guide them in gathering the information and data needed to ascertain the big picture to plan the job and develop Work Packages. This includes consideration of all technical, procedural, Training, and administrative requirements for a job activity. Effective planning ensures that the project staff will perform routine project tasks efficiently and that complex project job elements will not devolve into problems or costly mistakes. When matched with a well-coordinated scheduling program, the major cause of delays in executing the project job elements tend to come under control.

Work Package development benefits from the attention of knowledgeable personnel, especially managers, who know how to evaluate this important project job activity. A periodic assessment through a process analysis of work in progress will focus attention on areas needing improvement and in general on how to improve even when there are no obvious problems (See the Process Analysis Blog Post).

Forecasting Cost, Duration, and Resource Impact

Forecasting can be summarized as a process that includes details and estimation of cost, duration and resource impact. It provides the input to work load scheduling and the first step in the budgeting process. Forecasting is the bridge from planning to scheduling and consists of the following major steps:

1. The planner reviews the job and from his big picture perspective assesses the overall scope.
2. The job is planned.
3. Based on work standards or an analytical approach for first of a kind work, the planner breaks the job into tasks with specific start and end points and estimates the cost, duration, and resource impact of these discrete job elements.
4. The planner provides the insights for assessing level of effort for primary involvement and support disciplines.
5. Identifies prerequisites, corequisites, and initial conditions for the job tasks.
6. Identifies training, procedures, technical documentation, and special requirements for job execution.

Apply forecasting on a job-by-job basis until most of the major jobs, on a task basis, are definable in terms of cost, duration, and resource impact. Such a base can then be extended to other jobs that have similar tasks until the majority of routine tasks are so defined. Not only will this provide the bridge between planning and scheduling and make scheduling more effective, it

will provide that unique, desirable ability all managers seek. Namely, the ability to make decisions about future events. But, after all, that is exactly what analysis should do for managers!

Forecasting is the important, often overlooked, bridge between planning and scheduling and emphasizes the analytical nature of the planning function. It provides the basic decision information about the future that every manager needs in order to make effective decisions about their operations. The **PMIA Practice** supports this need. To forecast the work, it is necessary not only to plan but also to estimate the cost, duration, and resource impact of the tasks associated with the plan for each job. This information will be useful in the planning process for estimating the major elements of the job that directly affect the scheduling and budgeting functions. The more accurate and precise the forecasting is and the earlier in the job these parameters are determined, the better the scheduling decisions will be with attendant improvement in budgeting information since it provides the initial step in the budgeting process. Forecasting is also important in the planning process in establishing prerequisites and corequisites for the work. Forecasting must remain flexible to accommodate reclassification or reprioritization of task elements. In preparing a forecast the planner must analyze previously collected information (enterprise specific and/or industry wide information) regarding the following:

1. Cost and schedule information developed from a review of history to determine actual costs and duration of previous jobs of a similar nature.

2. The work breakdown structure to accomplish the job. This includes identification and definition of engineering tasks, operations support, support activities by other organizations like QA/QC, materials management, and facility services.

3. Notification to the scheduling function of prerequisites and corequisites regarding training, procedures, technical documentation, and special conditions such as access control and high-level cleanliness requirements.

4. Notification to the scheduling function of equipment, system, and process conditions required for data collection before and after the work and for performance of the work itself. This includes special permit requirements such as burn permits, confined space entry, lockout/tagout, and hazardous work tasks (e.g., asbestos, toxic chemical, energized equipment).

As part of forecasting, the job cost, duration, and resource requirements are estimated by the planner. Estimating the work duration requires an analysis of the tasks that comprise the job. The duration of each task and the personnel or discipline required to accomplish the job become clear through analysis of each of the tasks for a given job. Standards are used if available and if they account for any unique work circumstances. If a standard is not available, develop one for future use as part of completing the current work. To do this, partition the job into discrete steps with identifiable start and end points. Estimate the duration and labor hours

for each step. Do the same for support personnel on the job and specify this information in the job Work Packages. Track and time the progress of the task excluding time for inefficiency and coordination delays. Adjust the estimate of duration and labor hours accordingly and record the new information in the Work Package for future planning use. When each task has been performed within the allotted time and labor hours, it then becomes the standard for this work.

Planning Feedback and Action

Information from previous jobs that the planner reviews provide insight into areas needing improvement or identifies overlooked items that require attention in future planning of the job type in question. Typically, the supervisors and planners review job performance on completed jobs in the following areas:

1. Tools, equipment, and materials-were all of these items used as specified or were there shortages, missing items, items not applicable, items not in compliance with specifications, or items needed but not included in the Work Package?
2. Planned hours-what is the difference between actual labor and planned labor for the job performance? Was the job executable within the time frame and hours allotted?
3. Deviations and problems-could the reported deviations and problems be avoided by better planning? What additional planning is required?
4. Was the job complexity correctly identified? If not, why not.

This type of information follows from a job debrief that can be formal or informal but should be in the form of a face-to-face meeting. The important thing is that some feedback mechanism exists to tell the planners how they are doing. The face-to-face communication with project personnel and supervisors will benefit all functions in making them more effective and efficient in performing their daily work. The emphasis must be on the team concept because everyone has a vested interest in getting this complex aspect of project implementation right. Ensure all parties understand that this is not a blame game but a cooperative effort to improve. When they do reach a satisfactory level of effectiveness, then remind them they don't have to be sick to get better so keep on doing it. Make the feedback process a procedural requirement. Some uses of this information in addition to the obvious include the following:

1. Performance measurement-resources estimated for the job represent some level of cost to the operation. When these costs are expended but the work is not finished, some quantifiable measure then exists for assessing performance. Tracking this deviation against work shifts, plant conditions, support group participation, and place on the schedule among other variables, provides insights as to where improvements are possible.
2. Training assessment-performance issues uncovered in the planning feedback process with

planners, task personnel, and supervisors working together to get at the root cause of the problems quickly reveal skill deficiencies relative to the scope of work assigned. Not only are the right personnel involved in the assessment, the planners and supervisors are also the right personnel to implement the corrective action.

4. Scheduling improvement-scheduling parameters such as job duration, initial conditions, and resource availability are refined in the feedback process and provided to the scheduling function for future use. As a secondary benefit, this information is also useful in refining workload leveling strategies because feedback is always useful to determine what other work becomes doable under the current work's tag outs, lineups, and area impacts.

5. Change in scope-work in progress may reveal additional actions necessary to complete the job as originally planned. These additional actions usually result in increased job scope that requires additional planning. Work should not proceed under expanded scope conditions without planning review. In all cases the expanded scope issue must always be addressed in the feedback process. First, to ensure the planner knows to adjust the Work Package, and second, for task leaders and supervisors to instruct their personnel about the inherent danger in performing expanded scope work without adequate planning. Questions like "Is the existing tagout adequate for the expanded scope work?" must be addressed to ensure personnel and equipment safety.

These feedback meetings must be a continuous aspect of the analysis function to maintain and improve performance under all circumstances that can cause disruption in day-to-day task execution. Document feedback results and include that documentation in the project history to ensure it becomes part of the corporate experience and knowledge.

Summary

While use of Work Packages in managing project work has been a common practice, applying the concept of a planner as a management system analyst at the very beginning of the project is not. The discussion in this blog demonstrates that the conduct of project meetings with an early-on application of Work Package development can produce control benefits. There is nothing like having responsibility for describing the interactions in one's job between labor, budgets, and equipment to wake up the project staff. The message is clear to all that from the beginning, the job complexity will be defined and addressed on a regular basis consistent with the operating infrastructure and the development of the Work Packages for each job. When this is done from the very beginning of the job to the end of the job, one will deal with issues and concerns instead of problems and surprises.

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