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Performance Based Payments (PBPs)

If it walks, talks, and quacks like EVM…it must be EVM[1]

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In October 1995, the Federal Acquisition Regulation (FAR subpart 32.10) was revised to create a new category of payments to suppliers on fixed-price contracts. They were called Performance-Based Payments (PBPs). The intent was to move away from potentially high-risk payments based simply on the incurrence of seller costs, to payments based on the physical completion of authorized work. This was a most positive move in the opinion of the authors. To be successful, it required a close working relationship between the buyers and sellers, the technical project managers, and the contracting community to fully define a performance measurement plan.

The concept of performance based payments is in fact a simple form of earned value management (EVM). But interestingly, nowhere in the FAR clause or any of the government's supporting guidance documents is the term "earned value" ever mentioned. But if it walks, and talks and quacks like earned value, and it most certainly does, it must be a form of earned value management.

Progress Payments Based on Costs Incurred Under Fixed-Price Contracts

For many years contractor's doing business with the United States Government (USG) have been receiving interim payments for their work, based not on physical progress, but rather on the actual costs they incur in the performance on a job. Such practices were allowed under the FAR subpart 32.5. The fundamental and questionable assumption with such payments was the belief that by spending money on a job, that commensurate progress would also be made. Not necessarily.

To be fair, there were a couple of provisions which gave some protection to the USG agencies and prime contractors making these type of payments. In the first place such payments were legally only interim loans, not final payments to suppliers. So such loans had to be later repaid, or liquidated by the suppliers. Also, payments were made not at full value of the costs incurred, but rather less a withhold of typically 20%. Yet losses did occur, when payments were made ahead of physical progress and contractors failed to finish the job. Payments were paid at full value and the contractors for various reasons failed to finish all of the work, in which case a loss sometimes happened. A better approach to contractor financing had to be found and it was.

Performance-Based Payments-PBPs (FAR Subpart 32.10): how they work

A new concept of contractor financing came out of the concerns expressed by private industry and the USG initiatives to improve contractor performance. One of the more important improvements was called Performance-Based Payments, or PBPs. It is a form of contractor financing based on the completion of authorized work. PBPs are for use on fixed-price contractual arrangements. The main focus is on the completion of authorized work, taking the form of milestones, points in time. No payments are paid to contractors until the agreed-to milestones are completely finished.

At the time of contract award, or shortly thereafter, the contract buyer and performing seller, supported by the technical support people, will sit down and define, negotiate, and agree on a series of milestones which completely defines the work to be done. Then a value is added to each milestone, taking either the form of a percentage or dollar value, the sum of which must add up to the full value of the job. This process takes work, requires detailed early planning, but gets all critical parties working together to formulate a plan against which performance can be measured. Once the plan is in place these same people will then monitor performance against their plan. Payments are paid to suppliers based on the completion of work, i.e., completion of milestones.

Each specified milestone can be severable (independent). or cumulative (dependent on completion of some earlier milestones). Each milestone once approved as complete, is paid at full value, less a 10% withhold which is held by the buyer until the entire job is deemed complete. All payments are contract financing loans, which must be liquidated upon final deliveries or completion of the job. If done properly, PBP can result in less oversight by all parties during performance period.

However, there are some risks with these type payments. Care must be taken by the buyer to prevent a front-loading of payments to the contractors. PBP are a simple form of EVM, but without the full benefits of EVM. They are like EVM in that performance is measured by the physical completion of authorized work and achieving the budget for such work. But since they are for fixed-price work, actual costs of performance are only available to the seller, not the buyer. Thus, the ability to use performance actuals to forecast final costs is only available to the seller. But that may be alright.

A simple example of PBP is illustrated in Figure 1 (on next page). Here a construction job is broken into eight measurable milestones, with a value listed for each milestone, the sum of which adds up to the total job. As of the reporting period the first two milestones have been completed so the contractor is entitled to a payment of $110,000, less a holdback or retention of 10%, for a net payment to them of $99,000.

Interestingly, the construction industry has for many years been employing a type of performance based payments to its suppliers. Also, as with PBPs they typically do not use the term “earned value management” either, but just as the FAR’s approach is similar to EVM, so is the construction payments to suppliers. The construction industry often refers to such payments as a “schedule of values.”

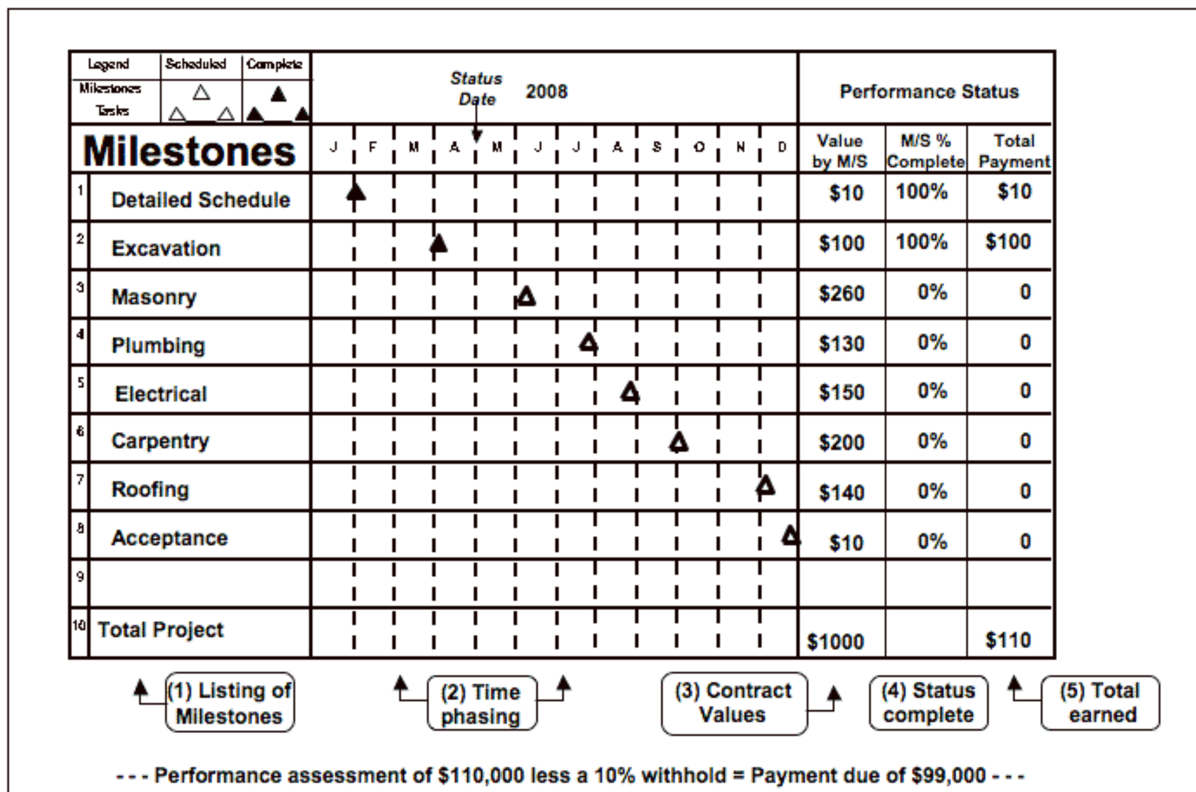

Figure 1: Performance Based Payments

The construction industry has used a similar approach…successfully for years

The fundamental difference with the construction industry is the focus of monitoring. With construction they define work with use of tasks (bars), work that happens over a period of time. Thus the buyer and seller must agree on completed work as a percentage of completion of each task. This is contrasted with PBPs which must be 100% complete in order to receive payment. As with PBPs, care must be taken to not allow for the front-loading of the work tasks, or the over-valuation of completed work. They do not want to allow for over payment of completed work.

In many construction jobs the schedule of values is simply an output report from the critical path method (CPM) networks, available with most project management software packages today. An example of a construction schedule of values is shown in Figure 2 (on next page). This is the same project as was displayed in Figure 1 using PBPs. Since task 3 with the schedule of values is partially complete, the payment to the supplier is greater using a schedule of values than with PBPs. Both concepts make payments at full value of work completed, less a withhold or retention until the full job is completed.

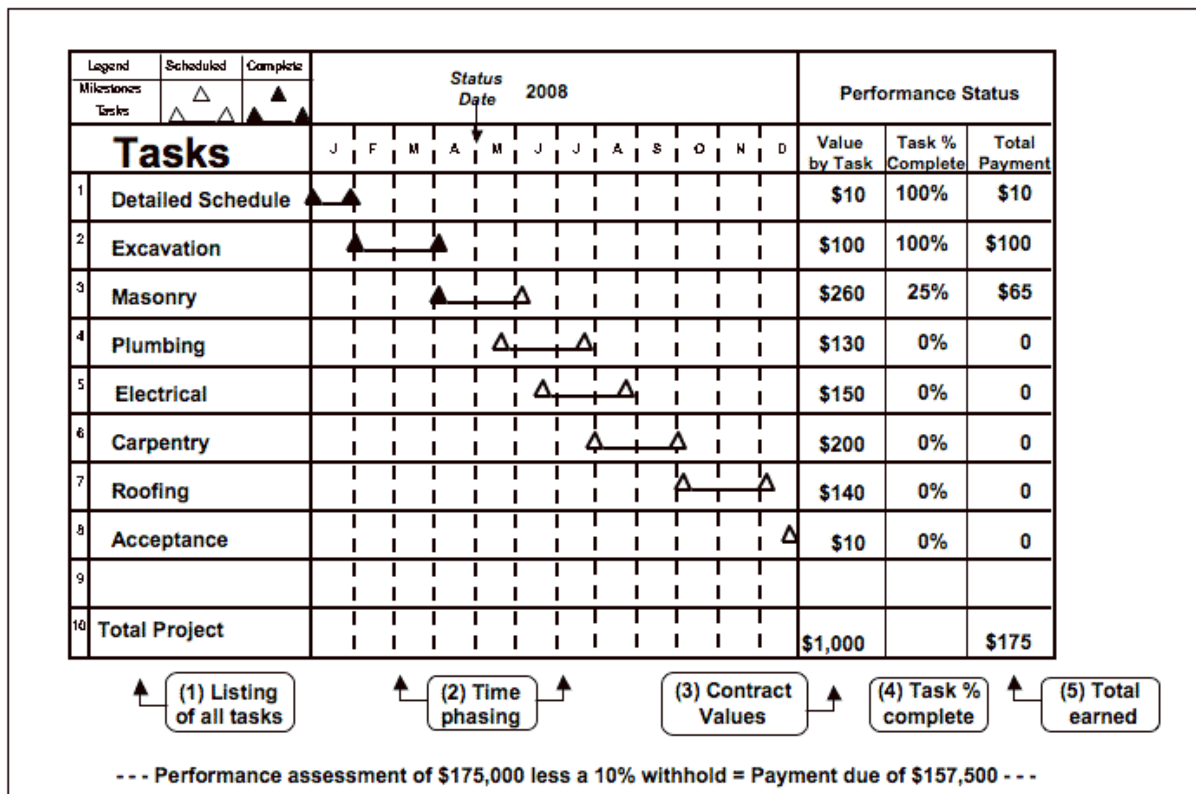

Figure 2: Construction Schedule of Values

PBPs are a simple form of EVM, but missing one key element: actual costs

Earned value management can be a powerful tool in the management of any project where the risks of cost growth exist. But on firm priced arrangements, only the seller (supplier) of services is at risk for cost growth. The buyer is protected from cost increases by the contractual arrangement. As long as the specified work doesn't change, and the seller can finish the job, there is no risk of cost growth to the buyer on fixed-price arrangements.

Thus, with PBPs, the benefits of earned value management rest primarily with the sellers of services, not with the buyers. Nevertheless, both parties can benefit from a project management technique that can be used to define, plan, schedule, budget, status, and forecast the final cost and schedule requirements so that any projects can be successfully completed.

But, from the perspective of the performing seller, PBPs can be a simple but effective form of earned value management. In order to employ EVM, total contract performance must be planned, scheduled, and a budget assigned to all tasks, which will be earned at the time of completion of each task, i.e., when each task milestone is

completed. Payments are made not simply on costs incurred, but rather on the completion of authorized work.

Thus if a seller completes a task valued at $100, they can compare the $100 earned versus the actual costs they incurred to complete the task and tell if they are hitting their budget, overrunning or under-running their budget. With EVM cost efficiency is easily determined by the value of work performed divided by the actual costs spent, referred to as the Cost Performance Index or CPI.[2] If the CPI is 1.0, the project is right on budget. Any CPI results less than 1.0 would indicate they are overrunning their budget. CPI values over 1.0 indicates they are under-running the effort. The CPI is likely the most important of the many EVM metrics which are available, and is considered an “early warning signal” to practitioners.

However, from the perspective of the buyer on fixed-price contracts, they do not see the actual costs of performance. Actual costs spent are only available to the sellers. But it really doesn’t matter since the buyer is only going to only pay the budgeted amount for completed work since their arrangement is fixed-price. Remember, the sum of the value of all tasks on PBPs must equal the total value of their contract.

One last important point on the utility of EVM to sellers using PBPs. This issue deals with the ability to forecast the final costs to complete a project. With EVM the sellers can quickly quantify what their final costs are likely to be, based on their actual performance to date. The EVM forecast formula: Total Project Budget divided by the Cost Performance Index. Thus if the seller is only part way through a contract, as early as only 20% complete, and they have been achieving a CPI of .90, they are likely to overrun this project by about 10%. They had better change their ways, or they will likely overrun by 10%. They get this important message early, in time to make a difference.

In Summary

We find it most interesting the fact that Performance Based Payments-PBPs are in effect a simple form of earned value, but no where in any government documents do they call it earned value management. But it certainly is earned value. And the beauty to practitioners of earned value is that the technique is scalable. When project managers and technical team members understand the value of tracking their CPI and other EVM metrics, they will find they have a most useful new tool, which can be used to better manage a simple one hundred thousand dollar project, or a complex one billion dollar project to a successful conclusion.

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Fleming and Koppelman are the co-authors of *"Earned Value Project Management",* originally published in 1996 by the Project Management Institute (PMI). Their Third Edition of this book was released in the fall of 2005. Over 80,000 copies of the book have been sold by PMI worldwide.

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[1] Reprinted with permission from the National Contract Management Association, *Contract Management* magazine, March 2008 issue.
[2] See *A Guide to the Project Management Body of Knowledge, PMBOK ® Guide*, Third Edition, 7.3.2.2.