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DE-STRESS TO DELIVER

Right for Accounting. Wrong for Project Management

by **Vector Consulting Group**

Getting it right in accounting...

Financial accounting is a challenge in project organizations involved in delivering large construction projects for its clients. The activities can start in one financial period and end in another. Unlike regular production, where we wait till dispatch of completed goods to recognize revenue, we cannot wait till the delivery of complete project for revenue recognition. If we do that, then the accounts will be distorted and comparison across periods will be impossible. So revenue has to be recognized along the duration of project execution. So revenue recognition and matching costs to the revenue for determining the performance of the firm for a period has to have relevant assumptions, so that we can compare a firm's performance effectively across periods. The Institute of Chartered Accountants of India has defined accounting standards (AS7) to deal with the problem. AS7 highlights that % expenditure booked (actual expenditure incurred as compared to total expected expenditure) can be used as a factor multiplied by project order value to book turnover for the period. The expenses will be matched accordingly. The good enough assumption did solve the accounting problem to a large extent.

...can make it wrong for project management

The problem starts, when organizations work towards the turnover booking rather than managing the project. Is there a difference?

If we look from accounting point of view, the relative importance of tasks is based on the costs associated with doing the tasks. However, if we look at tasks from a project management point of view, the relative importance of task depends on the dependency relationship and location along various paths of the project plant. The paradigm of managing the project using rules of project management can get into a conflict with the paradigm of managing the project using the financial accounting guidelines, particularly in environments of limited resources. And yes, most environments have resource limitations which are shared across various paths of the projects. Many EPC companies even have the engineering and procurement resources shared across projects. So under resource limitations, when one prioritizes tasks for turnover booking, one can end up doing it at cost of moving along the longest path of projects, thus harming the project as a whole. (The longest path activities contribute to a small fraction of the total billing or turnover as most of the tasks in a project do not belong to the longest path of the project).The problem aggravates in multi-project departments where sharing is done, as one needs subordination not only to the longest path of a project but also subordination to the longest path of a delayed project. When there is pressure for turnover booking, the prioritization of tasks may not align with the criticality of projects.

The cascading delays...

Most organizations have yearly turnover targets broken down to quarterly and even monthly. These targets are then set as departmental KRAs. When monthly or quarterly turnover targets drive the departments' KRAs, there is a pressure to start design ASAP and get on to procurement. This leads to an environment of bad-multitasking in these departments of shared resources. The badmultitasking in engineering department leads to expansion of lead times. The designs where inputs are required from other resources groups or vendors get into further delays due to conflict of priorities. The delays of design usually put pressure on engineering department to pass on unapproved designs or design with omissions or just pass on drawings which are easy to release. It is no wonder; in many EPC organizations designs have 5 to 6 revisions before they are closed. Under

pressure of billing, procurement starts procuring items where designs are easy to finalize. (In most cases designs of longest paths activities require integration inputs from various different sources and hence are the most difficult to finalize.) As a result, many times, items required much later lands up in site much earlier, while there are delays in the critical items. Similarly manufacturing tends to get the easier designs earlier (where there are less of integration inputs) and some items are produced much ahead of time, while others are delayed. Many times, manufacturing focuses on items which are good from expenditure booking at cost of other critical items where expenditure is not much. While from turnover booking, many such items tends to get billed as expenditure is incurred. But from project management point of view, it does not help the project as a whole as erection is held up for want up items.

...and the vicious loop

With bulk of the civil or structural work done, many items procured, when site is close to final erection, bulk of the expenditure is booked on the project and turnover realized. But from project management point, this is a point where all delays accumulate. Usually the necessary items are missing and erection is held up. At same time, the management focus has shifted to another project (due to reduced turnover booking opportunity). This further delays the erection of project. Finally under customer pressure, the sites are somehow commissioned with a long pending list of items. After commissioning is over, bulk of the project resources are removed and client mostly gets on with the regular operations.

The Vicious Loop
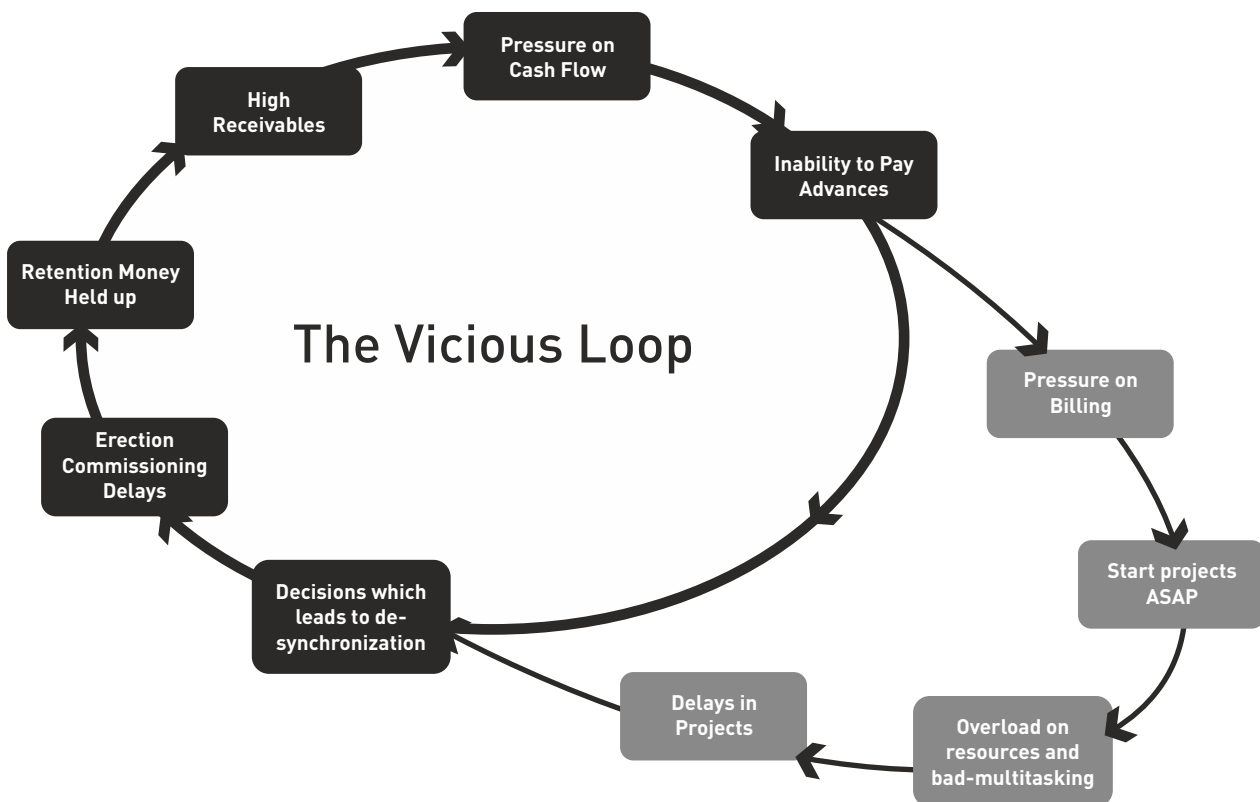
The pending list remains pending and so does the retention money. (Close to 10 to 15% of the project fees is usually held up as retention money for most such EPC projects.)When management attention shifts to turnover booking of another project, the old projects are left behind, like a long expanding tail, with some resources and retention money. Since site is not handed over to the client, some resources continue with the project, managing even the maintenance work. Gradually such "inactive projects" get piled up. The receivables go up. (It is not surprising to see many companies in this business, having receivables of close to 1 year.)With rising receivables, there is a pressure on cash flows which in turn affects the billing of other projects. The pressure on working capital slowly builds up with retention money stuck across many inactive projects. This vicious loop goes on. Working capital problems leads to delays in paying advances to vendors which in turn leads to delays in supplies and eventually the billing of new projects starts getting effected. Every year management tries to close the long tail projects but with increased time, other conflicts add up to the problems.

The issues of liquidated damage claims and material pilferage carry risk of potential write-offs to close a site. Some companies break the vicious loop by taking harsh decisions of write-off of part of the retention money to close the issue. Time to time management takes such harsh decisions to somehow close the sites and get the cash for billing regular new projects.

The wrong paradigm...

Accounting assumptions were invented to depict accurately the performance of a firm. It was never meant to be the driving tool for managing projects. In fact, using billing or expenditure booking as a key metric to drive operations of such organization eventually leads to much less expenditure booking than is potentially possible.

...and the wrong solution

With due date failures and customer complains, many project organizations have realized the problem to set the project management right. However they continue with monthly expenditure booking targets. Time to time, these organizations lookout for a new gizmo – new project management software. These gizmos look even more attractive when a single tool claims to integrate the needs of accounting information, cost management, material management and project management. Many vendors of the project management software present the fancy information reports to the management as part of their sales pitch. The new reports look attractive to management who look at the entire problem as an "information gap" problem. Most organizations do not evaluate the overheads of maintaining such systems. The enormity of upfront detailing required in planning and frequent updates required in execution makes it almost impractical to maintain such systems. In multi-project environment, where bad multi-tasking is prevalent, the initial task schedule in project plans become useless within no time and needs constant revisions to maintain pace with execution. Many times, the upfront detailing required for such systems is known only after one has executed part of the project. For example, only after general arrangement drawings are over, the exact scope of detailed drawings are known. Any tool which requires a detailed and stable plan, as a starting step, become difficult to implement as these project environments have significant uncertainties. The discipline required for maintaining the data is tremendous and most difficult to get in a multi-project environment. (In a highly uncertain world, it is most difficult to put people under a rigour of process discipline).The middle and lower

management do not see any value to themselves in maintaining the systems. They look at it as an extra burden. It is not surprising to see many firms, after buying the tools and putting all efforts in implementing, use the tools very superficially or do not use them at all (as data discipline is almost absent)

Caught between the devil and the deep sea...

As we have analyzed, if we use the billing or expenditure booking targets as a measure to drive project execution, one ends up messing with project execution. On the other hand, most project management tools do not seem to help.

...and the way out

Invented by Dr Eli Goldratt, Critical Chain Project Management provides the execution process framework to increase speed of project flow in multi-project environments in the EPC (engineering, procurement and construction) domain. CCPM is about implementing two important paradigm shifts, to get the desired benefits. The first one questions the conventional wisdom: early start leads to early finish. This assumption is erroneous for environments with limited resources. (When the default rule is ASAP, resources end up doing bad-multitasking, this in turn increases the lead time, wastes capacity due to frequent switches.)The only way to get out of the mess is to control the release of projects in design and procurement. At times, it is also important to control drawings released to site to prevent resources stealing (working at non-priority areas at cost of high priority areas) and thin assignment of resources across sites.

The second paradigm shift questions the widely held wisdom: in order to complete a project on time, each task should complete on time. This assumption leads to hidden buffers at task level. Once the buffers are hidden within the milestone, it tends to get wasted as milestones turn into self fulfilling prophecy. The milestones prevent managers from intervening on a task early and prevent gains from passing on in a chain of activities.

CCPM deals with the above problems by staggering the projects and work packets within project based on the capacity limitations. The projects are not planed with so called "accurate estimates". The task estimates are made aggressive and buffers (about 1/3rd of the project lead time) are placed at end of the project as project buffer and end of feeding chains, before the integration point, as feeding buffers. The transparency in buffer consumption provides the early warning system to take expediting actions at right time. The buffer signals also provide way to prioritize tasks across projects (project buffer penetration has higher priority than feeding buffer penetration).The new measurement system to guide projects is no longer expenditure booked on a project. It is % completion along the longest path, compared with the % buffer penetration. With these new measures, it becomes impossible to compensate for slow progress in longest path by fast progress in feeder paths. The new measures transfer the bad news to management ASAP. If there is no progress on longest path, the % completion remains the same, while buffer incursion goes up. This brings the necessary focus and prevents the effect of "90% project complete in 1 years and rest 10% in another year". Finally we have a solution to look good on accounting numbers without trying to drive them.

As long as we understand that expenditure booking or billing is an indirect effect of effectively managing projects, we will be better off. CCPM offers a practical process framework to make that distinction.