White Paper 2016-14

The Real Nature of a Project Baseline: the Project Data Structure

Establishing a Project baseline is a basic requirement of any Project start-up. Without a properly established baseline, there is no possibility to effectively control a project. However a baseline is a lot more than just a schedule, and this fact is often unappreciated. In this White Paper we explain the real nature and reach of a baseline. In reality, a Project baseline sets the ground in terms of Project data structure. The White Paper then explains some basic properties of Project baselines.

The Nature of a Project Baseline

Establishing a proper baseline that is fully self-consistent is a central activity of Project start-up. It is a very substantial activity due to its reach as it requires the collaboration of all Project functions under the supervision of Project Control.

A baseline is not just a schedule or just a set of data. It addresses the entire Project configuration and in particular, the most important component of a Project baseline is the underlying data structure.

The baseline is always extremely important as a reference, and the Project should always strive to revert (or recover) to the baseline.

Elements to be included in a Project baseline

The baseline needs to include the following elements that need to be made fully consistent – this set is often called the Project configuration:

- Contract and included relevant specifications,
- Project execution plan and strategy,
- Contractual constraints (e.g. specified dates and windows),
- Breakdown structures (Cost, Work, Cost-Time-Resource (CTR) for engineering etc.),
- Scope, including all deliverables:
  - document registers (with planned dates),
  - procurement plan (with planned dates),
- Schedule, including the fully linked and weighted Integrated Project Schedule, plus detailed schedules where relevant e.g. for process engineering, construction,
- Physical progress measurement rules,
- Project-specific procedures and processes (e.g. document management, procurement procedure including Client involvement, invoicing, handover etc.),
- A full Project Cost Model, including manpower plans,
- A full set of Project Risk deliverables (Risk Register, quantitative analysis).

The combination of all these elements in an overall baseline that makes sense and allows continuous updating throughout the project requires devising an underlying data structure that:

- Enables proper and accurate description of the project status and forecast
- Enables data transmittal consistent with the project description between different parties and components of the Project.

This explains why the first action when building a baseline should be to devise the data structure, i.e. mainly:

- Different breakdown structures (Work, Cost, Organization)
- Coding of all deliverables (engineering, procurement)
- Progress recognition status and credit rules
- Etc.

Realism and Resilience of the Baseline

The baseline needs to represent a realistic view of Project execution, because variances to the baseline will be the first warning sign of slippages and other Project execution issues. This is not always possible when there are commercial issues at stake, in particular in terms of schedule. However Projects that are executed with a baseline that is not realistic will inevitably face difficult issues, and this is not recommended beyond some easily manageable tweaks.

The most important component of a Project baseline is the underlying data structure.

The baseline also needs to be as resilient as possible to foreseeable internal and external events. This is provided through:

- Providing ample float on non-critical activities (reinforced through the convergence planning process – refer to our Schedule Handbook), and stress-testing the schedule using Schedule Risk Analysis,
- Providing for sufficient cost contingency commensurate with the level of execution risk (refer to our Risk Handbook).

In any case, it is the responsibility of the Project Control Manager to ensure that at any one time there is a single, consistent reference baseline applicable on the Project, throughout all functions and activities. This can sometimes be a challenge in terms of discipline, because when faced with deviations, people may be tempted to amend the reference on their own for their particular scope.

Producing the Project Baseline

Because at Project start-up, Project execution is contemplated from an actual execution perspective by a wider team there will generally be changes or adjustments compared to the plans initially contemplated at proposal stage. In addition, key components of the baseline will also need to be reviewed and approved by the Project Sponsor and the Client.

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The baselining exercise thus needs to be done carefully and is always a massive work that is coordinated by the Project Control Manager. It will take time to finalize a fully consistent Project configuration. For Large Projects it is generally achieved 2 to 3 months after Project kick-off, and can sometimes take longer, due to the fact that many key elements generally need to be approved by the Client.

Re-baselining if needed during Project execution due to a significant change of circumstances that makes reference to the initial baseline inadequate will require as much effort and create temporary control challenges. This is developed in our White Paper 2016-16 'How to Perform Project Re-Baselining and Still Continue to Control the Project'.

Conclusion

Project baselining is a much more ambitious endeavour than just producing a reference schedule or execution strategy. The baselining process implies to organize the Project data and is hence extremely structural to future Project success.