Helping Asset Owners effectively manage the interrelationships in Programmes

By the Introduction of Project Interfaces Management (IM)

Why Do We Need an Integrated Programme Schedule?

If a programme has 100 projects and each project has 5 interdependences that means there are 500 interfaces that are not being managed by the individual Project Managers and have to be controlled centrally by the PMO.

At a project level dependencies and interdependencies are usually stored in a RAID Log but from a programme perspective this is unsuitable as it does not provide an enterprise view. These interfaces are probably the biggest risk to the overall programme achieving success which forces a different approach.

Therefore when developing a large scale capital programme, it is important for the PMO to understand the project interfaces contributing to its delivery.

One way key factor in enabling this is to integrate the Project schedules within the Programme.

This will allow the PMO to provide a more effective service due the fact it:

• Includes all interfaces and dependencies
• Delivers the critical path for the overall programme as well as the projects within it
• Supports the full budget profile to the end of the programme as well as the project
• Provides representation of the defined Programme scope
• Allows the PMO to develop an accurate representation of the overall programmes resource demand
• Allows easier identification of programme risk as well as individual project risks
• Allows for “What If scenario planning” when interfaces impact recipient projects
• Becomes the main approach used for reporting schedule variance at a programme level

We’re active members of the communities we serve. That’s why at Stantec, we always design with community in mind.
Programme Dependency Types
As well as the usual internal project dependencies, there are three types of interdependencies that occur within Capital Programmes:

1) External Dependencies that are “external to a project” and external to the Asset Owner
   A. Regulatory approvals
   B. New legislation.
2) Inter Dependencies between projects within a programme
   A. Transfer of labour resources
   B. Transfer of equipment between projects
   C. Interconnected tasks between projects
3) Enterprise-wide project dependencies.
   A. Programme level Kit framework suppliers
   B. Utility diversions

Programme Schedule?
An integrated programme schedule is used where there are many projects of work being undertaken within an Asset Owner’s organisation.

The use of an integrated programme schedule produces a Milestone Interface register which identifies project clashes in the planning of activities. When large programmes are integrated consideration should be given to implementing an approach which can interrogate all the programmes within the Asset Owner organisation to produce consistent outputs to the PMO.

We are assuming that the schedules for the projects within the programme are being built as an enterprise. This approach is supported by leading toolsets such as Oracle Primavera P6, Microsoft Enterprise Project Management, and Asta Powerproject Enterprise.

Effective Interface Benefits

Delivery

The management of interfaces ensures that the programme and programme tranche is delivered effectively and efficiently and ensures that the interests of the programme are taken into account and not just specific projects within it.

Benefits

Management

Individual projects on the whole deliver outputs but benefits and outcomes are delivered at Programme level. Therefore the effective management of the programme and how interactions occur is critical to the overall success.

Programme

Performance:

Managing the interfaces gives the Programme Manager the ability to protect the balance of the programme when some interfaces become at risk, by allowing development of workarounds and carrying out what if scenarios.

Programme Schedule?

Also whilst interfaces can be placed between projects it is business critical that these links DO NOT DRIVE the projects after the baseline is taken. This is normally controlled by settings in the administration rights.

Where Does an Integrated Programme Schedule fit into the Overall Programme Cycle?

The project interface tracking process commences in the Management stage within the Strategic phase of a capital programme when the capital programme tranches are being finalised. Once the overall programme scope has been rationalised and the individual requirements formulated into tranches of projects the tracking capability has to be established.
The interfaces should be reviewed after each update cycle to ensure the continuous clarity of both project and programme end states. This enables timely interventions and re-direction of projects when required.

**Underpinning for an Interface Management approach**

If the realisation of benefits can be defined in a time aspect of the overall capital programme, this will help the Asset Owner’s management, in the business challenges that will occur on how the programme is performing towards its goals and intent.

**How does an Integrated Programme schedule work?**

Understanding which projects have an interface or dependencies enables ownership of the integrated schedule by the Programme Manager. In the Strategic Stage an integrated programme schedule of all the project schedules within the tranche is developed and goes through a six stage process:

1. **Step 1:** All the defined projects within the programme tranche have schedules developed
2. **Step 2:** The interfaces between the schedules are identified, dependency milestones added and links applied between the schedules (note driving logic for interlinked schedules should be disabled)
3. **Step 3:** There should be a full review of each schedule and the impact of each of the interfaces
4. **Step 4:** A programme baseline of the specific tranche is taken
5. **Step 5:** The integrated baseline programme should be interviewed
6. **Step 6:** Delivery Update cycle commences the regular update cycle produces outputs such as the Milestone Interface register, which identifies potential slippages and clashes of unrelated projects, by comparing the new “Benefactor” and “Beneficiary” dates.
Once the baseline is established this is illustrated below where there is a slippage in the Baseline “Benefactor” date. As these are independent programmes using only non-driving links allows revised or alternatives to be identified before the impact the “beneficiary” date is allowed. If no alternative can be developed, the necessary audit trail is established and the receiving project dates are slipped.

**NOTE:** Only the EAC is changed and not the baseline.

### MILESTONE INTERFACE REGISTER

<table>
<thead>
<tr>
<th>Project Code</th>
<th>Description</th>
<th>Benefactor Activity</th>
<th>Benefactor Date</th>
<th>Project Code</th>
<th>Description</th>
<th>Beneficiary Activity</th>
<th>Beneficiary Date</th>
<th>Variance (Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MWH001</td>
<td>Fencing</td>
<td>0001 Erect</td>
<td>26/8/2016</td>
<td>MWH002</td>
<td>Alarms</td>
<td>0001 Install</td>
<td>1/8/2016</td>
<td>-26</td>
</tr>
<tr>
<td>MWH003</td>
<td>Fencing</td>
<td>0001 Erect</td>
<td>05/7/2016</td>
<td>MWH004</td>
<td>Alarms</td>
<td>0001 Install</td>
<td>1/8/2016</td>
<td>+26</td>
</tr>
</tbody>
</table>

**Example of update where receiving schedule Update accommodates the Interface slippage but only after controls are applied.**

The way this function is carried out each project has to identify the beneficiary dependency it needs, the beneficiary project then asks the donor (benefactor project) for the related activity information and a NON DRIVING link is established.
When developing a large scale capital programme, it is important for the PMO to understand the project interfaces contributing to its delivery. One way key factor in enabling this is to integrate the Project schedules within the Programme.
### Process/Operational interfaces

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>ICA &amp; SCADA upgrade to support operational control of the new plant and equipment</td>
</tr>
<tr>
<td>B</td>
<td>Hot water to be provided from THP &amp; CHP in order to commission LTP</td>
</tr>
<tr>
<td>C</td>
<td>New CHP required in order to shut down existing to enable exhaust gas connection to be made</td>
</tr>
<tr>
<td>D</td>
<td>LTP needs to be complete prior to commencement of THP centrifuge commissioning</td>
</tr>
<tr>
<td>E</td>
<td>Primary Tank modification in order to extract sludge for THP</td>
</tr>
<tr>
<td>F</td>
<td>Complete dewatering facility for provision of sludge cake</td>
</tr>
</tbody>
</table>

### Construction Logistics `interfaces`

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Co-ordination of civil works in proximity of the boiler house inc. spoil removal</td>
</tr>
<tr>
<td>2</td>
<td>Co-ordination of dewatering main shut down and diversion with site 2 operations</td>
</tr>
<tr>
<td>3</td>
<td>Existing digesters to be decommissioned for conversion to TTW</td>
</tr>
<tr>
<td>4</td>
<td>Provide raw sludge capacity to enable decommissioning of site 3 digestors</td>
</tr>
</tbody>
</table>
There are many ways to represent the programme interfaces such as:

- Extracted to excel to build tabular report
- TILOS Software using extract from enterprise scheduling too to form Network diagram, but the table is still needed for analysis.
- If the milestones can be related back to a geographic position on a building site the information can be
  - Synchro schedule visualisation tool.
- Oracle Primavera Visualizer Software to form network diagram, but the table is still needed for analysis
- Displayed in a GIS tool or 3d Modelling tool.

Understanding the multi schedule interfaces allows design to be developed into a model timeline allowing the sequencing to be scrutinised.

Key Benefits

- Constant Approach to all Programmes
- Integrated Programme Resource and cost loaded schedule
- Highlights all interfaces and dependencies
- Produces Milestone interface register

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