

THE PROJECT INFORMATION CHALLENGE

Proper Management of all Contributions is a critical Success Factor



A typical project dealing with infrastructure, facilities, and large assets, presents challenges in managing the multitude of partners, suppliers, and contractors. Examples are the construction or upgrade of an industrial plant, civil structure, or utility complex.

External parties, who often contribute to 80% of the project cost, provide up to 50% of the project information and documentation. Hence, proper collaboration and communication with all parties is a critical success factor.

Although each complex product is a unique combination of standard components, the details on how these components will be integrated to build the unique solution is often not defined at the onset of a project. Material and documentation to be delivered are moving targets. Teams need to work with estimations and assumptions. Those can, depending on the complexity, differ significantly from the actual required deliverables.

Based on experience of managing facility projects in the power and process industry, a methodology has been developed. Through rigorous and unambiguous structuring of the project, milestones are achieved and cost overruns are avoided. Part of the methodology is the definition of reference configurations which provide Key Performance Indicators (KPIs).

Business Challenges & Needs

Dealing with a large number of stake-holders, offers further challenges:

- complex division of work and responsibility
- coordination of geographically dispersed teams
- management of changes towards affected stakeholders
- delivery of complete up-to-date documentation according contractual and legal obligations
- contract and claim management.
- financial predictability for project life cycle to completion

This requires comprehensive, pro-active control of projects thus avoiding that processes, information and project members are disconnected.



“We believe that our methodology should be applied to projects dealing with complex scope of supply and work and multiple stakeholders to be managed, monitored & controlled.”

Dirk Hanewacker (President of KPC-E)

Recommended approach

The core element of the approach is a project language that connects the functional breakdown structures with the cost breakdown structure. This backbone, provides transparency and eliminates information gaps. It helps to avoid differences along project phases and between the involved stakeholders.

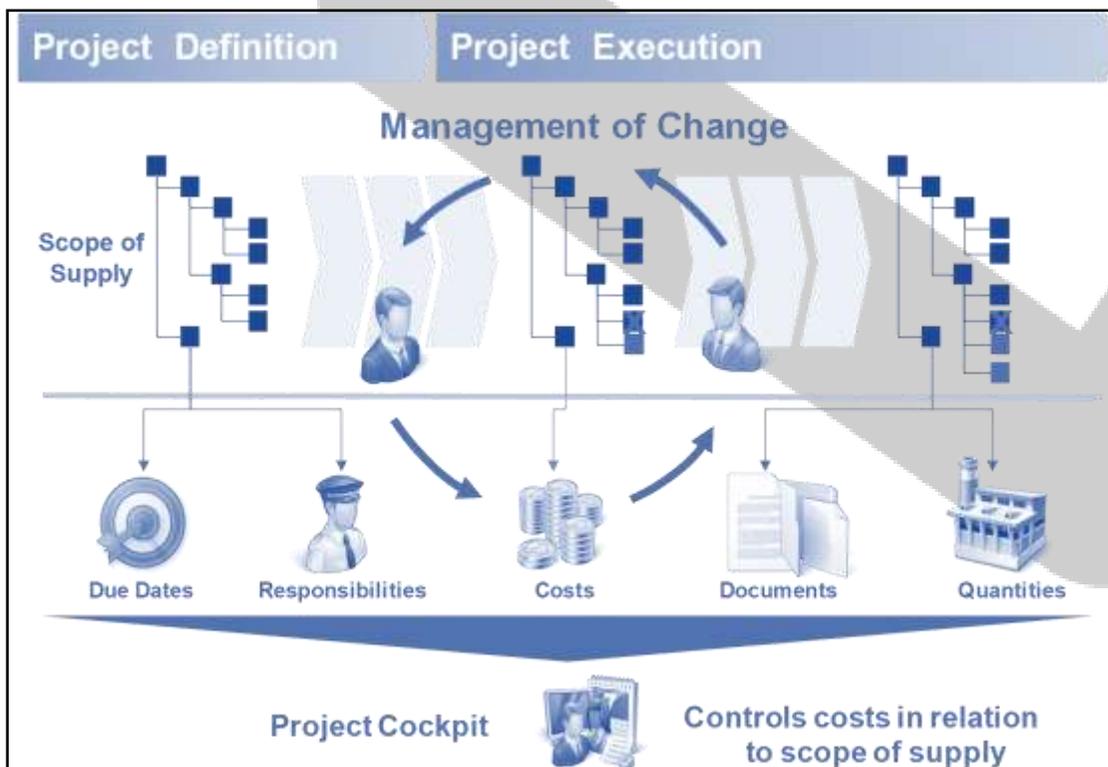
The deliverables of a project consist of data & documents, material, and work. All of them need to be synchronised with each other to assure and monitor real progress.

Measuring progress includes both cost and time. In most cases different teams are responsible for data, documentation, material, work, cost and schedule. Additionally, information is often housed in different systems.

Inherently, this leads to numerous incompatible structures. Potentially, differences occur not only inside one company but also across the different partners, suppliers and contractors – which is adding an additional level of complexity.

The approach is to first create a common view across the different structures. Early structuring of scope of supply & work, based on standards and industry best practices is key. Responsibility for each work package is set and the “*Who will deliver What?*” is answered.

The standardization and configuration of the scope allows to establish multi project environments, individually tailored for each stakeholder in the framework of the common project structures.



How it works

The first step is to build the framework for collaboration and communication by defining the scope of work and deliverables. One important aspect in this is to identify interfaces between the scope elements. The division of work in those interface areas is critical to achieve a seamless execution and clear definition of accountability.

Subsequently costs are allocated to the individual scope positions. This provides not only transparency regarding the individual budgets but also allows tracing, monitoring, and controlling the actual, planned and expected cost as well as the related responsibility.

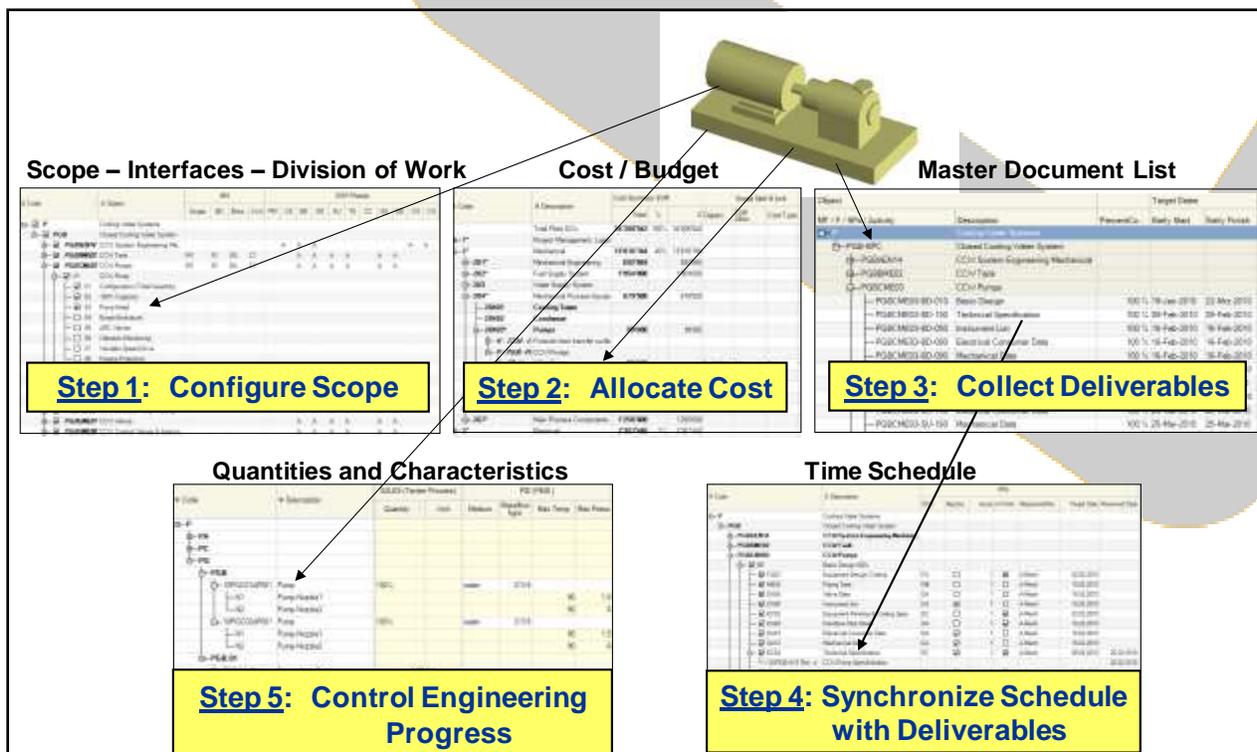
Next is to define the break-down of deliverables in form of data and documents is added to the structure. The documentation is specified in the Master Document List (MDL). The MDL is created from predefined templates of document packages. Due to the allocation of the packages to specific scope positions, the MDL is automatically available once the scope is elaborated.

The link to the project schedule provides the due dates for the data & documents to be delivered during the project.

The MDL serves as steering mechanism to control suppliers' deliverables in form of data & documents. It is common that payment of suppliers and contractors is coupled to the delivery of documentation. Since it is transparent at any time: *"When should What be delivered by Whom against Which budget"*, payments (and penalties) will be based on actual progress.

At the start of a facility project the exact material requirements are not known, and estimations are the basis for decisions. In course of time, as engineering processes, these estimates are replaced with the actual specifications and amounts. Therefore, scope positions are linked with the hierarchical structure of engineering data. This allows to continuously manage the evolution of design.

Below an example of the installation of a pump. Since the pump is uniquely identified in all environments, all information from the different sources can be collected and combined into a consistent picture.

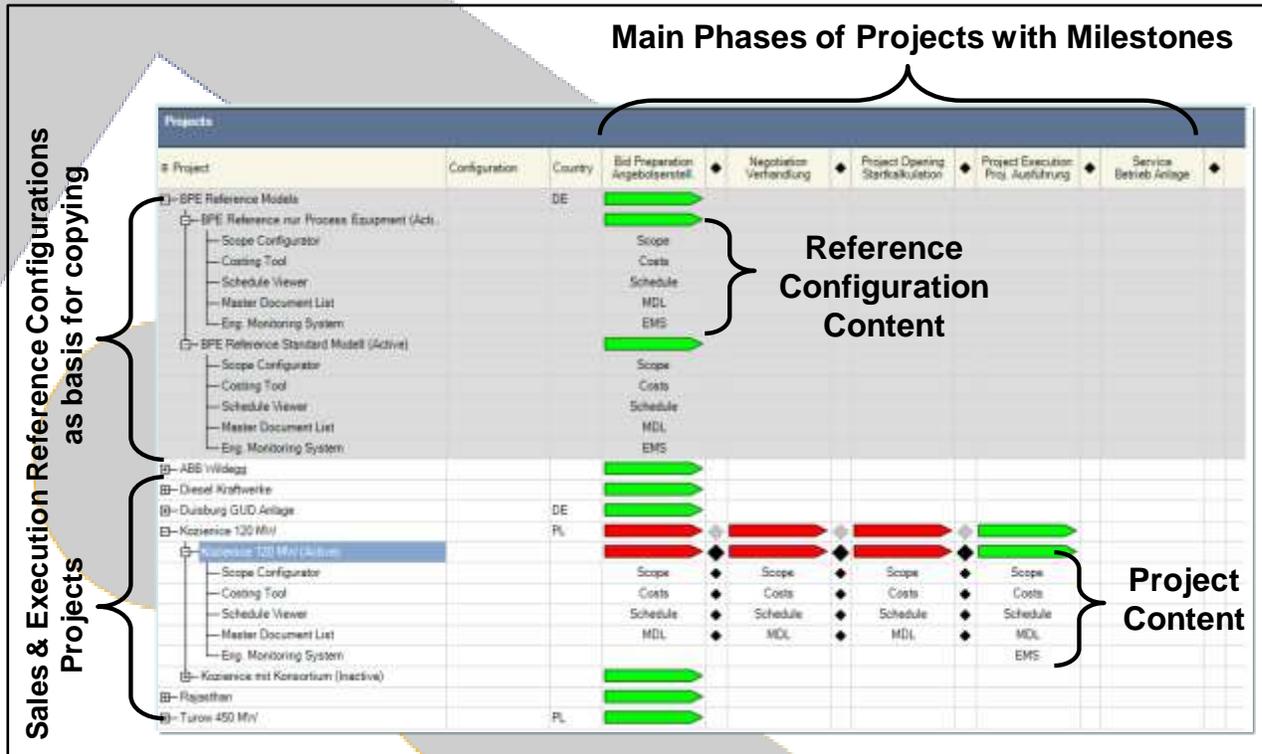


Application

The methodology is supported by PCT - a software solution to configure the scope of supply, including the responsibilities, of projects.

Re-use across projects is supported by pre-defined reference configurations. They can be fine-tuned and adjusted to individual project requirements.

In the document management module of the application, the deliverables are defined and controlled via the MDL. This is including the aforementioned standardised data & document packages. The document structure is aligned with the scope structure and contains all data and documents to be delivered.



Direct Costs (i.e. project related) are defined for the respective project variants in the Cost & Budget Module. These settings can be re-used as a starting point for other projects. Further, more detailed cost calculations and pricing is managed in the ERP (Enterprise Resource Management) system. PCT allows communication between ERP and Project Cost & Budget Module.

Scope, cost and time structures are synchronised. The same applies to engineering when material characteristics and quantities are defined.

In summary a PCT implementation achieves:

- It clearly defines scope of supply and work including responsibilities
- It applies industry best practices and standards
- It provides transparency of the cost over time
- It shows progress at the projects milestones
- It specifies KPIs according to business priorities
- It defines reports according to project standards
- It manages change of scope or deliverables
- It provides control over the complete project documentation
- It embeds the solution into your existing system architecture

Conclusion

The methodology has been proven on numerous projects from small to large in the process and power industry. The results are to mitigate risks and improved margins.

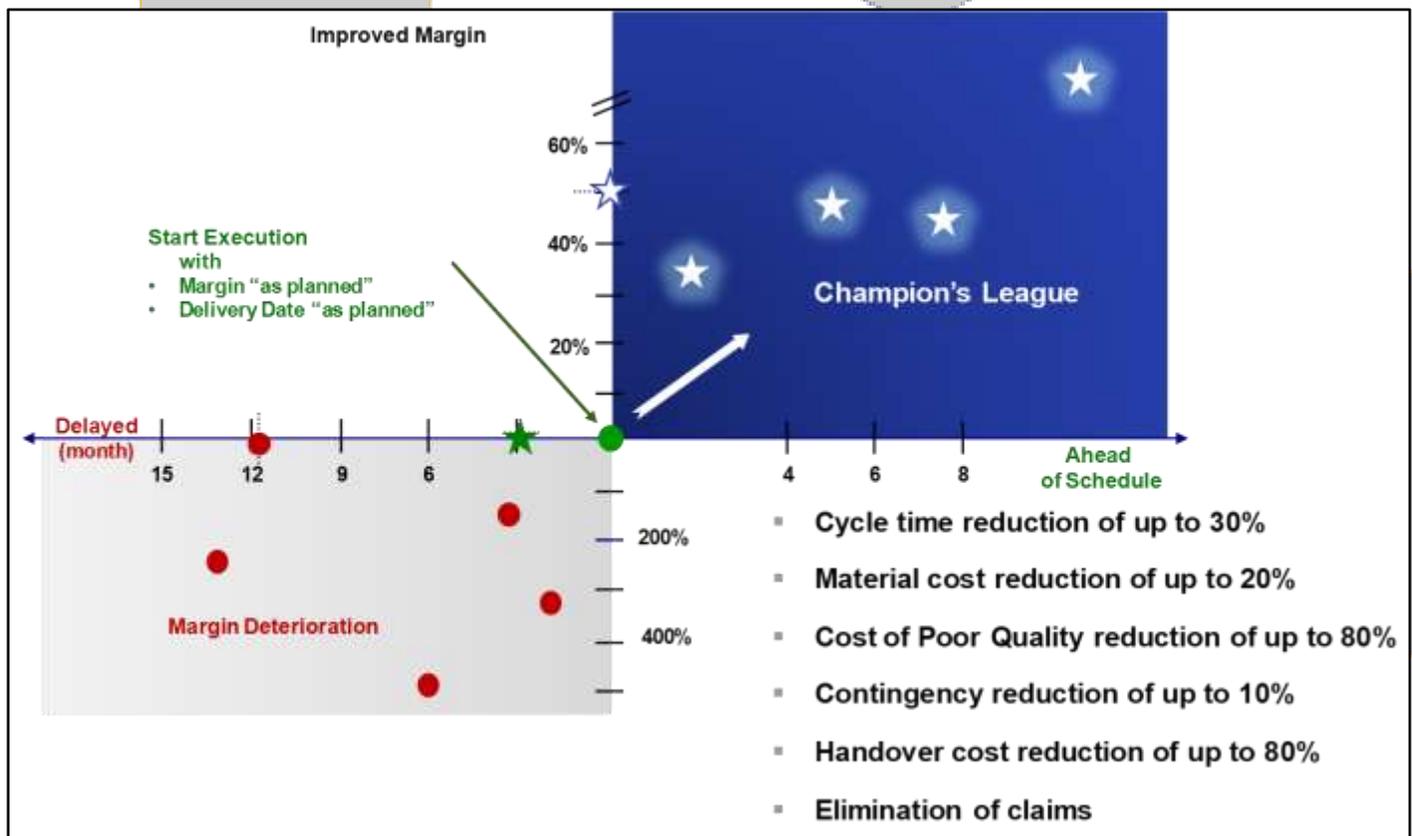
Experience has taught us that the necessary investments in technology and processes pay off within the first project. Through the availability and re-use of project information collected in previous projects, ROI are gained already in the planning or tendering phase of subsequent projects.

We believe that this methodology can be applied to any project dealing with a complex scope of supply and multiple stakeholders to be managed, monitored & controlled.

What is described in this White Paper solution is applicable to both greenfield (new plant) and brownfield (upgrade or reconstruction) projects in industries dealing with complex facilities and assets.

The concept of interrelating scope, cost, time, deliverables, and engineering data structures into one unified data & process model is both, unique and powerful.

By incorporating this approach in your organisation, you will run projects on time and budget. You will make a big difference to your bottom line and improve your market position.





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