



White Paper 2022-10

How to Prepare for Very Long Industrial Projects

Some industrial projects or programmes can span over very long periods of time for their development phase or even for their execution phase, much more than the typical 3-4 years cycle. Typical examples include nuclear power plants, or very large energy or infrastructure developments. Extreme examples of projects spanning over several decades include nuclear decommissioning or waste disposal facilities. Such long projects generally show a lower success ratio. Specific measures must be contemplated when setting up those projects to address the challenge of their expected duration. This White Paper exposes some of those challenges and how to prepare for them.

Introduction

There is a substantial and commercially measurable benefit of keeping industrial projects as short as possible to ensure their environment and field of constraints can remain as stable as possible, thus leading to minimum changes during their execution. Sometimes long durations are however unavoidable, but this will typically make projects more fragile, prone to disturbances and induce additional costs and delays.

In addition, project personnel will seek to develop their careers and thus typically expect to change position and evolve every 3-4 years. Therefore, projects that last very long durations need to account for personnel turnover or at least for the need to recognise explicitly that project contributors evolve in terms of experience and capabilities by having personnel individual responsibilities evolve.

The impact on performance of very long duration projects is primarily due to:

- Issues of project team and governance committee turn-over: for example, turnover of project manager and project sponsor are proven to be correlated to substantially lower project performance,
- The fact that the circumstances and environment of the project evolve and thus, the longer the project takes, the more pressure there will be to implement changes to scope and requirements,
- Information systems will become obsolete during the project lifecycle creating complexity linked to system architecture migration during actual project execution,
- Technical aspects related to infrastructure components such as possible obsolescence, arrival of new and better technology and preservation of items.

If possible, this situation is to be avoided, for example by splitting a full programme in successive coherent sub-projects that can each be implemented in less than 3-4 years – with the condition to maintain a full programme oversight to ensure that alignment with the strategic intent is maintained (refer to our White Paper [\[2022-07\] How to Manage Long Term Industrial Capex Programmes That Get Approved Piecemeal](#)). The intrinsic nature of the

infrastructure does not always make this approach possible.

Planning for long duration projects

It is essential to plan in advance for the additional complexity related to project duration to make sure that the project delivery organisation properly anticipates and responds to the additional challenges. This generally requires additional resources, processes and tools to be included in the planning and set up of the project, and the extra cost involved should be included as part of the project estimate. Particularly important additional processes include:

- Developing from the outset a manning plan that includes succession planning. Each critical position on the project should have an identified successor, ideally someone inside the team who can be given responsibilities and training or coaching within the project to prepare for a possible succession. Such succession planning can be explicit with planned succession dates to enable structured career development within the project team with preservation of project history and knowledge. Key employees can be identified for several successive positions within the project, being promoted inside the team. Proactive succession planning and people development within the project will provide resilient to sudden departures of key personnel. Specific strategies will depend on the extent of project activity within the organisation and whether project personnel can develop their career while executing the project.
- Specific team familiarisation and building effort should be implemented on an ongoing basis to properly integrate newcomers.
- Being particularly careful with the project sponsorship and governance. Continuity of support to the project is essential, as well as discipline to minimise change to the project scope while it is being implemented. This is not easy: regulations may change, economic conditions of the market will evolve leading to possible different facility operating points. Success will require significant organisational self-discipline and a strong governance.

Specific caution should be exercised when contemplating projects which development or execution phases exceeds 3 to 4 years because of the additional complexity involved

- Developing an explicit information system architecture and planning for its flexibility and evolution over time. This requires:
 - o Using information systems in an as standard possible configuration (no customisation) to easily benefit from editor upgrades,
 - o Maintaining information systems architecture, integration and implementation resources in the project to manage the necessary evolutions over time of the information systems architecture. Implementation of upgraded or new systems will be made more difficult than usual by the need to recover historical data and minimise disruption to ongoing project operations,
 - o Including a budget for upgrades, new systems implementation and migration in the project estimate,
 - o Ensuring that the entire project value chain including partners, supply-chain and contractors plans for a similar flexibility in their information systems and information management practices to ensure consistency across the entire project value chain. Therefore, changes to the project architecture will require change management across the value chain, inasmuch as systems tend to be increasingly integrated across the value chain through the use of Product Lifecycle Management and shared 3D design systems.
- Developing a plan regarding preservation and management of obsolescence of infrastructure components themselves, due to the long duration between procurement of components to putting them into service.

- Developing a plan for maintenance of equipment that has been installed and commissioned up until the actual start-up of the facility.

Implement a specific position within the project team

Because of the far-reaching consequences of project duration, we believe that to ensure a sufficient focus and strategic view on the issue, it is worth designating a direct report to the project director to be overall in charge of all those issues in a transverse role. It can often be justified to have a full-time role devoted to the strategic planning and coordination of those aspects, and it has to have sufficient authority to force implementation of changes to ways of working across the entire project value chain if needed. This role should typically be close to Project

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Control and Supply Chain to ensure maximum effectiveness.

Summary

Specific caution should be exercised when contemplating projects which development or execution phases exceeds 3 to 4 years because of the additional complexity involved. Measures must be planned and included in the estimate to cater for the major impacts in terms of human resources, governance, preservation and maintenance, and information systems, that can be sometimes significant both in terms of project resources and budget. In addition, the challenges will easily span across the entire supply chain requiring extensive coordination of all contributors. Because of the importance and reach of the actions needed we believe that a specific executive position should be designated within the project organisation with sufficient overview and authority to address such challenges in a proactive manner.

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