Introducing the Project Execution Plan

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Introduction

Globally, skilled human capital is in short supply, thus impacting the quality, cost and schedules of projects. This applies in both operating and service companies alike as experienced personnel retire, while projects become ever more complex. In many cases, the result is the inability of projects to meet the delivery expectations as set out in the business case, which directly impacts on the financial and reputational health of the business concerned. It is therefore important to have the appropriate systems in place, with the supporting tools, processes and resources to protect against these increasing levels of risk and thereby assist in enhancing project performance.

Independent Project Analysis (IPA), a reputable project benchmarking company, state that project execution planning is the process of defining and documenting (via the Project Execution Plan) the approach to be followed in executing a capital project (Merrow, 2011). The Project Execution Plan must answer some basic questions, such as:

- What is the business need and what are the project objectives?

- Who will participate, when will they participate and what roles will they have?

- How will the project be contracted, sequenced, managed and controlled?

- When will stage transitions and specific activities take place?

- What monitoring, control and governance criteria need to be applied?

- Are there any extraordinary initiatives that may be required which need to be planned and budgeted for?

By answering these and other questions in a definitive manner, and committing it to paper in the project execution plan (PEP), substantial cost and schedule duration savings could be achieved, quality improved and scope changes reduced.

Merrow (2011) highlights the fact that one of the most important drivers of project success during the Implementation phase of a project lies in developing a sound and

well thought through PEP during the early stages of the project. A well-defined and communicated PEP is a key driver of cost and schedule reduction, with as much as 10% to 15% saving in schedule slip and cost. Other noteworthy findings were that a well-defined PEP correlated with improved start-up duration, early operational performance, the amount of contingency required in the estimate as well as the number of design changes during execution. These findings confirm the results of a 2006 study by the Construction Industry Institute (CII, 2006).

The Project Execution Plan is used by the project team and management to assure, firstly, that the right aspects for project implementation are considered and secondly, that the project has been described in such a way that during each stage of front-end loading (FEL) it is clear and concise as to what needs to be done.

Setting the scene

A section of the OTC Stage-Gate Model is shown in Figure 1. It depicts the Initiation phase where the business will prepare the initial idea, the Front-end Loading (FEL) phase consisting of 3 stages where the project team will develop the business idea further, the Implementation phase including Delivery and Commissioning followed by a sustainable Operation phase and eventual Closure. This is not to say that this is the only model to be followed, but it is important that the model being followed is at least similar to the model below and has a gated approach to delivering on projects.
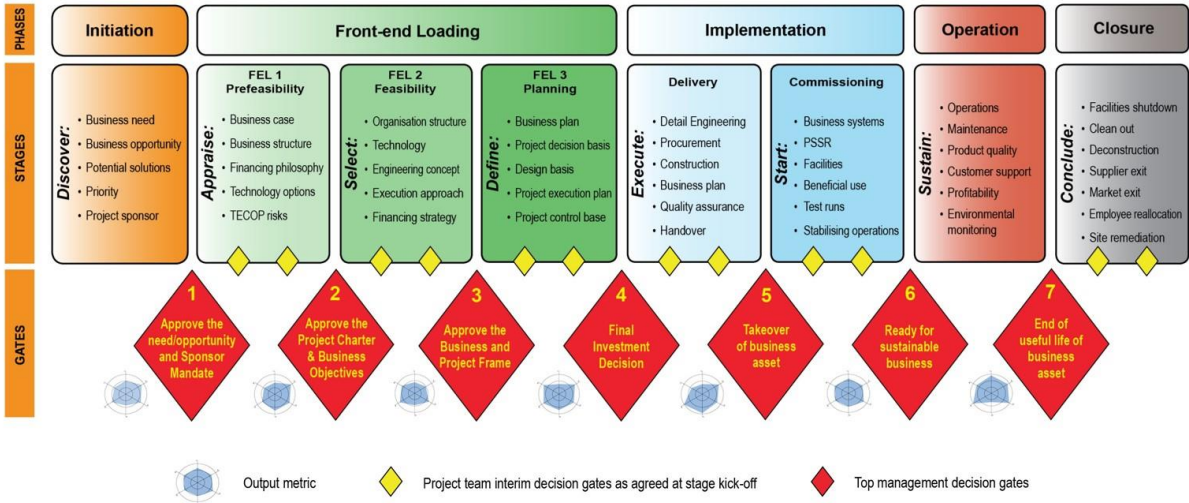

Figure 1: Section of the OTC Stage-Gate Model

The PEP goes through a cyclical process of updates during each of the FEL stages until the end of FEL 3 is reached. At the start of the project (FEL 1) there is only preliminary information available and what is known is written up in the PEP. As the project develops further, more clarity is gained and this is then captured in the PEP until the project is sufficiently defined to implement.

Development of a Project Execution Plan

A PEP development model

The Project Execution Plan development is initiated at the start of the FEL 1 stage. Although there are many variations of a PEP available, the development of a PEP should be based on a similar model to that developed by OTC and shown in Figure 2. We normally find that several elements are missing or incomplete, e.g. close out and next stage planning, and that is why this comprehensive model was developed.
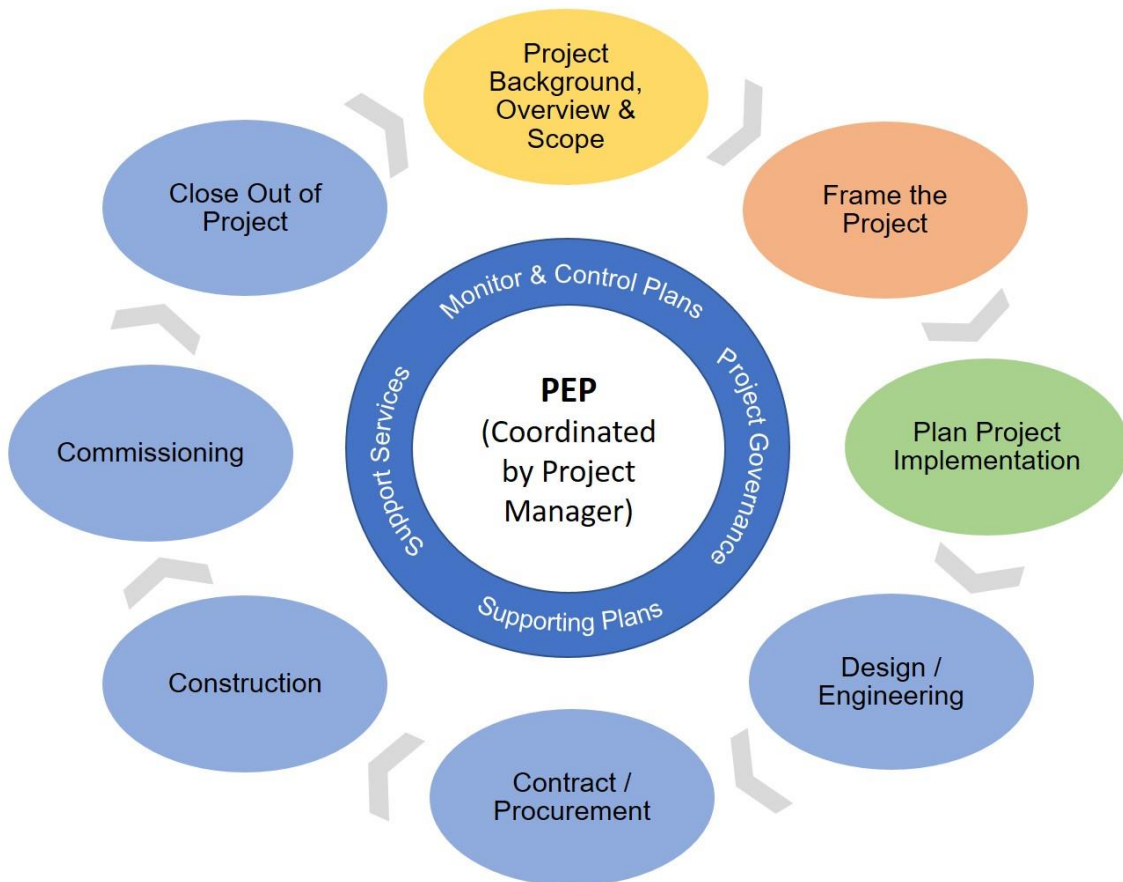
Figure 2: The PEP Development Model

The PEP is a document which is continually updated during each of the FEL stages until the end of FEL 3. Each of the major sections which form the construct of the PEP Development Model is described in more detail below:

Background, Overview & Scope

We start off with the yellow oval in the PEP Development Model. A vital part of any PEP is to describe the project by looking at the business objectives, the business value chain, the project scope, potential risks that could stop or delay the project, boundary conditions for the team and other critical elements of the project to align all parties.

It is important that this section is well written as it sets the scene (and the scope) for the remainder of the project and provides the basis around which further development, and eventually implementation, of the project takes place. The business charter (what the business expects from the project team) is also included here.

Frame the Project

This section starts with a comprehensive business chain development workshop (called a Framing & Alignment meeting) and includes an overview of the scope, some high-level milestones and a first pass cost estimate. This is shown in the pink/orange coloured oval above.

Of key importance here is, inter alia, confirming the project execution outcomes, understanding the Work Breakdown Structure and capital cost estimate, the key project milestones and schedule assumptions, key project stakeholders, the high-level implementation strategy, as well as requirements for integration management (normally required on larger projects).

Planning Project Implementation

Here one would describe the project team and systems required to prepare the project for executing the various FEL stages as well as for final project implementation. This is the green oval shown below.

The grouping of blue ovals describes the various plans required for the implementation of the project. This is when all the plans come together and specifically addresses design/engineering, contract/procurement plans, construction, commissioning and close out of the project. It is very important to plan for project close out as this activity is typically not done due to time, resource or budget constraints.

Turning to the dark blue central circle of the PEP model we find four categories of plans listed, namely monitor and control plans, supporting plans, support services and project governance plans. We discuss each in turn.

Monitor and Control Plans

It is understood that if there is no control, you are flying blind and you will end up in unexpected places with less than desired results. The various plans which are required for control and monitor activities during the project are described here. Typical plans will be the project controls plans, safety, health & environmental plans, risk management plans, change management plans, quality plans, and others.

Supporting Plans

Every project invariably needs support services which are traditionally available within the business and its structures. Typical support areas are project accounting, human resources, document management, lessons learnt and industrial relations. These

should be listed and included in the PEP to support the project to achieve its objectives successfully.

An area usually neglected by project teams is ensuring excellent communication to stakeholders and shareholders via a communication and engagement plan. It is also important for budgeting purposes that these items are identified and included in the overall PEP.

Support Services

Described in this section is a list of generic services which may or not be required for the project.

It is important that the various services required during the project are described as resources and budgets will need to be sought. These could be items such as project benchmarking, team effectiveness surveys, corporate social responsibility programmes or other initiatives to assist the project.

Project governance

For any good project to be implemented successfully, certain key decisions need to be made at various junctures along the project time line. In order to support or guide these decisions, certain governance activities are either mandatory or negotiable. Gate reviews are mandatory as are certain procedures or approval limits. Negotiable items could include exceptions to the corporate approved vendor database or spending approval levels depending on the unique nature of the project. They need to be documented and agreed, however.

A governance structure consisting of reporting requirements, boards, steering committees and other steering and/or approval forums is also a prerequisite for this section.

Additional requirements

The sections above describe the PEP in broad outline. Not shown on the model in Figure 2 are two important items that should be included in a PEP, namely:

- **Next Stage Plan:** Whilst the sections above are related to the generic project, this section requires that a certain amount of preparation work be done to ensure the activities and deliverables required in the next stage are addressed. As an example, the work to be done during FEL 3 must be planned during FEL 2.

- **References:** Certain documents are critical inputs to a PEP but are normally too lengthy to include in the PEP. An example is the Business Plan or Project Information Memorandum. Critical information is gleaned from these documents, but they are very comprehensive documents and do not fit well within a PEP. Rather

extract the required information and refer the reader back to the source documents that can also be attached as an addendum to the PEP.

The various sections described above are then translated into a typical table of contents for the PEP. This is by no means a definitive list, but is a very good starting point for most projects. By following this model, a generic PEP can be a useful way to ensure a consistent approach is used.   It also provides a useful framework for communicating and aligning with all role players.

The PEP Development Cycle

It is extremely important to remember that the development of a PEP is an iterative process from FEL 1 to the end of FEL 3 where the level of information for each section of the PEP becomes progressively more detailed as more knowledge and insight is gained about the project. At the end of FEL 3, the PEP becomes the definitive plan for project implementation. It also describes/prescribes the role and governance requirements of engineering and other contractors as part of their work in contributing to the success of the project. The development of a PEP starts during the FEL 1 or prefeasibility stage as shown in Figure 3.
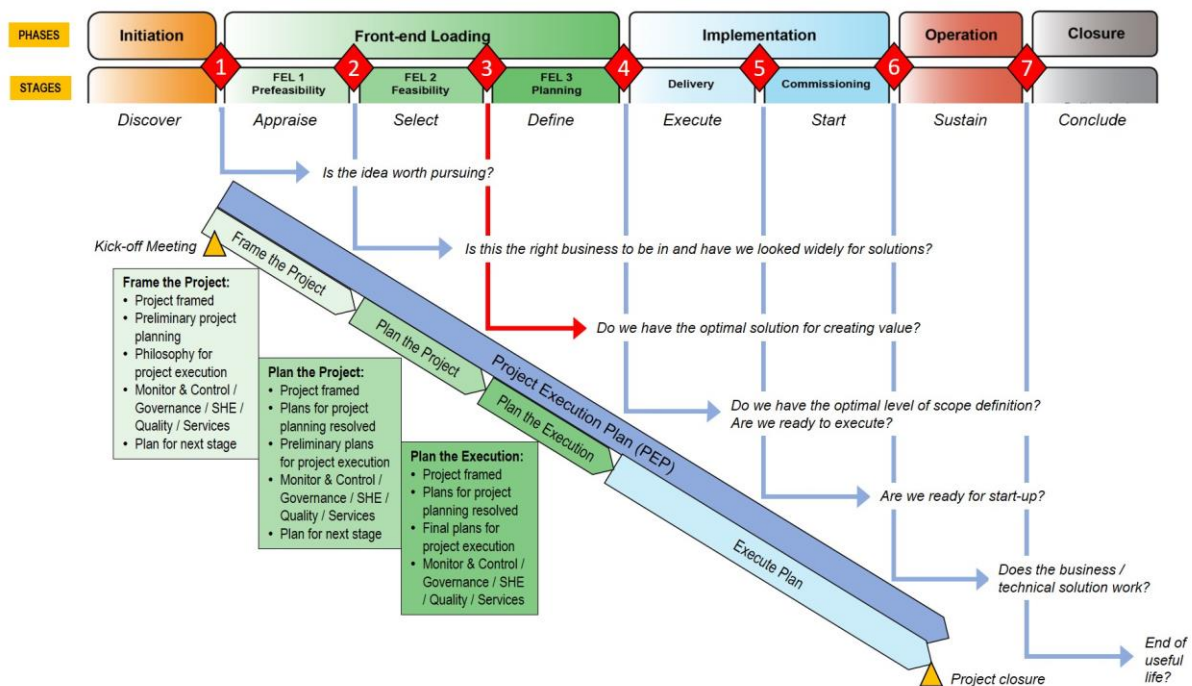

Figure 3: The PEP Development Cycle

The input required to start the development of the PEP is the sponsor mandate and a project kick-off meeting. The project charter and business objectives also provide inputs that need to be considered in developing the PEP. By following the model shown in Figure 3, one gets a good idea of the level of definition the PEP requires during each

of the stages. These range from philosophy statements to preliminary plans to definitive plans by the end of FEL 3.

PEP development is not the responsibility of the project manager on his own, but every team lead needs to understand the PEP and provide his or her input into the sections that they are responsible for. The items covered in the PEP however remain consistent throughout the project life-cycle, but the level of detail increases through FEL 1, 2 and 3 as demonstrated above.

At the end of FEL1 and FEL 2, the PEP contains an overall view of the total project life-cycle and implementation plan, as well as the detailed plan for the next stage. At the end of FEL 3 the PEP contains the full Implementation phase plan, covering project delivery and commissioning, and will therefore form the definitive basis for the Project Control Base against which all progress, performance payments and changes will be measured and reported.

Closing remarks

Front-end planning has long been recognised as an important process that increases the likelihood of project success (Hansen, Too & Le, 2018). CII (2006) state that front-end planning and the development of a PEP is a process of developing enough strategic information with which owners can address project and business risk and decide to commit resources to a project.

The PEP is a vital component of the project manager's and project team's armoury. It sets out the scope, mandate, plans, etc. of what the project is going to deliver. It acts as an extremely important communication tool and should not be treated lightly. Many project teams seem to think that once the plan is updated that is the end. On small projects you may get away with it, but on large projects you do so at your peril.

References

CII (Construction Industry Institute), 2006, *RS213-1 - Front End Planning: Break the Rules, Pay the Price.* Austin, Texas: Construction Industry Institute, The University of Texas at Austin.

Hansen, S., Too, E. & Le, T., 2018, *Retrospective look on front-end planning in the construction industry: A literature review of 30 years of research*. International Journal of Construction Supply Chain Management Vol. 8, No. 1.

Merrow, E.W., 2011, *Industrial megaprojects: concepts, strategies, and practices for success.*, John Wiley & Sons, Inc., Hoboken, New Jersey.