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MAJOR ELEMENTS OF PROJECT EXECUTION PLANNING FOR CONSTRUCTION OF BUILDINGS

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Abstract – ***Project Execution Planning is more than a chart showing timescales. It is a process describing how, when and by whom a specific target or set of goal is to be achieved. In this paper, the major nine elements of project execution planning were derived. Project execution planning creates a safe, productive, collaborative & highly motivated work culture in construction projects. Recent research has shown that development of project execution plan is the best control document for completing projects within stipulated time frame with customer satisfaction. The purpose of manage execution plan is to manage every aspect of the Project Plan as work being done to make certain the project is a success. This process is performed concurrently with the manage CSSQ (Cost, Scope, Schedule, and Quality) and Monitor and Control Risks process. The task in this process is performed repeatedly as various aspects of the product of the project are constructed, tested and accepted.***

Key Words: *Execution Planning, Elements, Scheduling, Risks.*

1. INTODUCTION

The project execution plan (PEP) may be a development of the business case and the strategic brief. The project execution plan sets out the strategy for managing the project, describes the policies, procedures and priorities that will be adopted. It may also define strategies in relation to items outside of the scope of the main contract (as the client's overall project might include multiple contracts for the supply of goods and services, both from external organizations and from within the client organization itself such as operational and maintenance contracts, the supply of equipment and so on). It is prepared by the project director (senior responsible owner (SRO) in the public sector), although it is often developed on their behalf by a project manager (or on a construction management contract or a management contract it may be taken on and developed by the construction manager or management contractor). The progress of the project should be assessed against the project execution plan throughout the project and the project execution plan should be amended and developed as necessary. Project Execution Planning is typically the part of the lifecycle of a project when the majority of the actual work to produce the product is performed and the majority of the Project Budget is expended.

According to Allen, there are many reasons why projects fail to meet their objectives. Some external events may render a project unneeded. Internal events may cause a project to be delayed or cost more than expected. Almost all events that bear on project success can be anticipated and plans can be made accordingly. Projects do not succeed only because of a project execution plan but their potential success is ensured if there is an appropriate plan, effectively utilized. The project plan is a roadmap to how the project will progress through all project phases. According to the Project Management Institute the project execution plan is used to: [1]

- Guide the execution of the project document the assumptions, constraints, and alternatives.
- Provide a tool to communicate with stakeholders.
- Establish project milestones and deliverables.
- Set scope, cost and schedule baselines for progress measurement and control.

Research has revealed numerous barriers to effective strategy execution; including the following (discussions on overcoming those barriers can be found in the sections listed in parentheses): [3]

- Inflexible processes and organizational structures – leads to difficulty in adapting to rapidly changing business environments.
- Inadequate performance measurement tools – leads to poor improvement practices.

- Poor communication of strategy and performance – leads to strategic misalignment.
- No strategy-execution focus – leads to poor delivery of results.
- Poor change management practices – leads to execution failure.
- No execution roadmap – leads to inefficiencies and wasted effort.
- No understanding by employees of their contribution to execution outcomes – leads to lack of motivation to succeed.
- Poor resource allocation – leads to inefficiencies and lost opportunities.
- Unclear strategy management policies – leads to confusion and poor decision making.

While strategy execution can be difficult, it is not impossible to achieve. A carefully planned approach to execution is needed to overcome these barriers to attain organizational strategic goals and objectives.

2. ELEMENTS OF PROJECT EXECUTION PLANNING

It is the primary document process that defines how the project will be undertaken. It details the specific activities in the project, the resources applied to the project, and the organization of the project. There are nine elements of project execution planning which need to be considered & understand while developing execution plan for construction of buildings as follows:

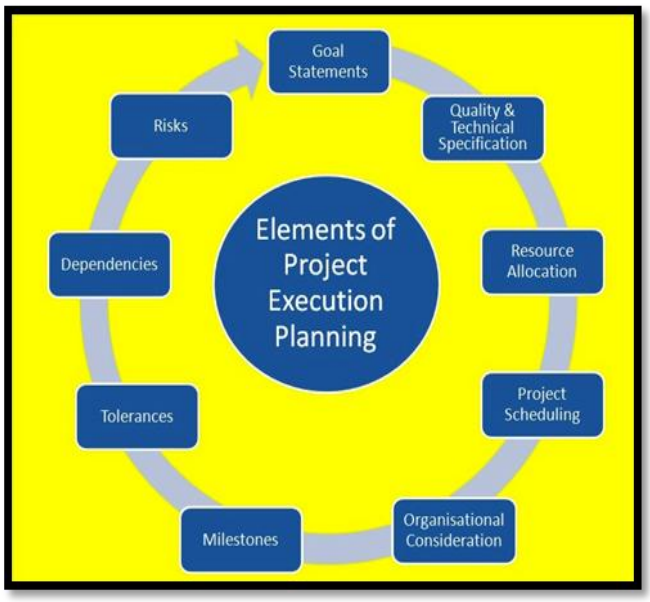

Fig -1: Elements of Project Execution Planning

- Goal statements
- Quality and technical specifications
- Resource allocation
- Project scheduling
- Organizational considerations
- Milestones
- Tolerances
- Dependencies
- Risks

2.1 Goal Statements

The statement of goals lists out specific project requirements such as key project deliverables, milestones, and the project life cycle. The goal statement also explains:

- Why the project is carried out, the purpose served by the project, and the expected benefits from the project.
- The unique challenges that the project overcomes.
- The risks associated with the project and how the project plan will overcome such risks.

2.2 Quality & Technical Specifications

While the project scope and statement of goals make clear the output of the project, one important element that needs inclusion in the project execution plan is quality or technical specifications of the work processes and output. Quality control plan is need to established for provide all the necessary inspection, testing and documentations of the contract in order to ensure that all work that is accomplished, materials utilized and equipment supplied are in accordance with the plans and specifications applicable to the work as prescribed in the quality control provisions of the plan and specifications. This quality control plan includes all the requirements under the contract such as raw material selection, selection of vendors, procurement, equipment, and identification of non-conforming products and control of documents.

The quality control plan is designed to be both preventative and corrective in nature.

2.3 Resource Allocation

Resources include staff/labour with knowledge or skills sets, money to buy equipments, and time

considerations. One of the biggest problems small contractors have is managing multiple projects at the same time. It is rare to have all the resources you need on every project. Continual changes, complexity of projects, demands from clients and cash flow requirements mean we are constantly forced to do more with less. Project Management methodologies can be used as a better way to manage multiple projects. If we use program management for the company as a whole, we can deliver more benefits to our clients than if each project were managed in a standalone manner. Through program management, it is easier to optimize resources and productivity and resolve conflicts between projects that affect our ability to deliver client satisfaction.

2.4 Project Scheduling

Scheduling the project is a very important element in a project execution plan. The best approach is to divide the project into small units or chunks and set time bound milestones of achievements, mutually acceptable to all stakeholders. The best examples of preparing a project schedule are Gantt Charts that list what will happen and when. Of the various project scheduling techniques, the Critical Path Method (CPM) and PERT charts are two of the best techniques. One important consideration with project scheduling is the need to be ready for exceptions.

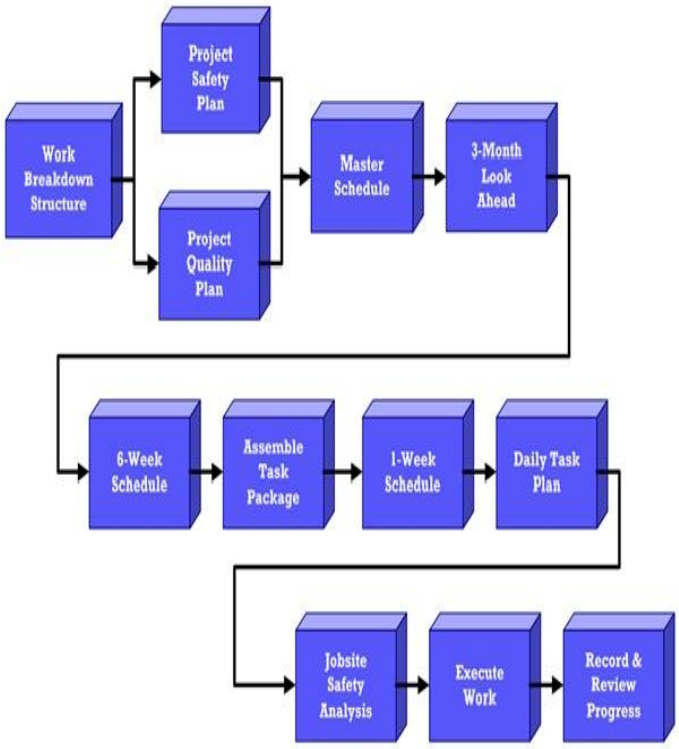

Chart -1: Flow Chart of Project Schedule

2.5 Organizational Considerations

One important but often overlooked element of the project execution plan is organizational considerations. A properly crafted project execution plan is the foundation to a successful project. This entails:

- Details of the project manager and other key personnel responsible for different aspects of the project, with their duties and responsibilities.
- Decision making authority for specific components of the project.
- The reporting relationships of the project team members.
- The general approach of undertaking the project, whether the project gets a dedicated team, whether a matrix type of organizational structure is adopted, or any other model.
- Method of coordination and reporting.
- Method of project monitoring and status updates.

2.6 Milestones

Milestones will break up the project. Unless it is very small, you don't want to have the entire project as one lump of work, with the only check on progress at the very end. Instead, it makes sense to break the project up into discrete chunks, where related tasks can be lumped together, with a sensible milestone at the end of them. Milestones are frequently used to monitor the progress, but there are limitations to their effectiveness. They usually show progress only on the critical path, and ignore non-critical activities. It is common for resources to be moved from non-critical activities to critical activities to ensure that milestones are met. This gives the impression that the project is on schedule when actually some activities are being ignored.

2.7 Tolerances

It is remarkably unlikely that a project will not deviate from its resource or quality targets. Setting tolerances allows you to be able to manage the project without continually seeking guidance from the project executive as to whether you should carry on. This is not to say that you should be happy with these deviations, and you should try to avoid them, and monitor them closely. That way you can build your understanding of the project for the future. Details that don't take allowed tolerances

into account don't work on the job. They can lead to improvisations that may, or may not, impair future performance. "May" is more likely. Good practice dictates that professionals should design enough leeway into the details to allow for acceptable tolerances. This will take some extra effort in design, but if a designer gets a reputation for buildable details, or if he does design-build work, the added effort should pay off in the long run.

2.8 Dependencies

These dependencies should include both those internal to the project (i.e. those under your control), and those external to it (i.e. those outside of your control). For example, you may need an accurate figure for the number of staff in the organisation. This needs to come from your HR department, and would be an external dependency.

2.9 Risks

The construction industry has a high rate of work accidents and a poor reputation for coping with problems, with many projects failing to meet deadlines, cost and quality targets. In extreme cases the risk of time and cost overruns can compromise the economic viability of the project, making a potentially profitable investment untenable. Compared to many other activities, construction is subject to more risks due to unique features such as long duration, complicated processes, unpredictable environment, financial intensity and dynamic organisation structures.

Construction project risks are interrelated and interdependent. The customary origins for project risks are the following:

- Performance, scope, quality, or technology issues;
- Environment, safety, and health concerns;
- Scope, cost, and schedule uncertainty;
- Political concerns.

3. CONCLUSION

The measurement of progress of engineering, procurement and construction has to be considered carefully, and the objectives and requirements of the client and the contract, as defined in the execution plan, must be recognized in ensuring that the needs of the project are met. The measurement of the planned progress and the costs of achieving it, together combine to form one of the most important aspects of project control – the integration of cost and time.

For the cost and schedule manager the project execution plan is the roadmap to preparing the cost estimates, schedules and controls for the project. If the project achieves its goals, the Project execution planning will have helped. If the project faces challenges, the project execution planning will guide the staff in efficiently handling the issues.

REFERENCES

[1] Allen C. Hamilton, "Project execution planning for cost and schedule managers", (18th ICEC World Congress, Cape Town, South Africa, in April 2004).

[2] Arumuga Raj A.P, "Optimize method of engineering execution Plan through multiple design centres", (International Journal of Latest Research in Science and Technology ISSN (Online):2278-5299 Vol.1, Issue 3: Page No.264-265, September-October 2012).

[3] James S. Pennypacker & Paul Ritchie, PMP, "The four Ps of strategy execution: Integrating Portfolio, Program, Project, & Performance Management", (Part of 2005 PMI Global Congress Proceedings – Toronto, Canada).

[4] Ahmad Abdelrazaq, S.E., Kyung Jun Kim and Jae Ho Kim, "Brief on the Construction Planning of the Burj Dubai Project, Dubai, UAE", (CTBUH 8th World Congress 2008).

[5] Robert Garner, "Project Execution Planning: The key to successful pharmaceutical project delivery", (The official technical magazine of ISPE March/April 2014, Vol.34, No.2).

[6] Connell Hatch, "Project Execution Plan for Major Civil Works", (BEE508-W-REP-002 Rev 0 June 2006).