

Managing Software Development Projects, The Project Management Process

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Abstract: *Software development projects are logically divided into phases that are composing the project life cycle. The name and number of these phases are industry dependent, so they are completely different from one field of activity to another. Typically, the phases are scheduled sequentially but in some cases a project may take clear advantages by running the phases concurrently.*

Keywords: *project life cycle, project management methodology, project management process.*

The Project Management Process

According to **PMI** (*Project Management Institute*), the publisher of **PMBOK Guide** (*A Guide to the Project Management Body of Knowledge*), **a project is a temporary endeavor undertaken to create a unique product, service or result.**

Any project has its own *life cycle*, a progression (generally sequential) of phases that are industry dependent, so projects from various fields will implement different stages. By using these phases, a project is

actually divided into smaller logical parts/subsets that can be better managed, planned and controlled.

The life cycle is usually applied together with a *project management methodology/process* which includes, from a **PMI's** point of view, the five *Project Management Process Groups* – *Initiating, Planning, Executing, Monitoring and Controlling, Closing*, as detailed into Figure 1. The *Project Management Process Groups* are industry independent and totally different than the project phases.

A project usually starts with the **Initiating Process Group** where it is decided if the project will be selected and accepted based on high-level planning efforts performed at this stage. Small projects are using a single set of project management process groups, while large projects are implementing one set of process groups for each phase.

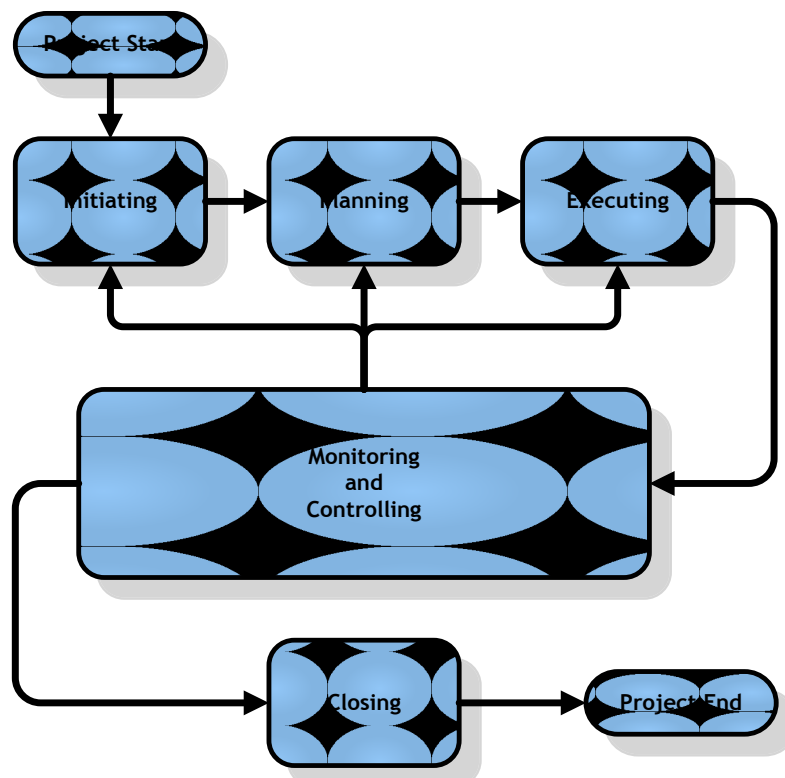


Figure 1 – Project Management Process Groups

The initiating process can happen by one of the following reasons (Figure 2):

- a new project just started
- a new phase is about to begin
- there are critical issues that demand the project to be completely reevaluated

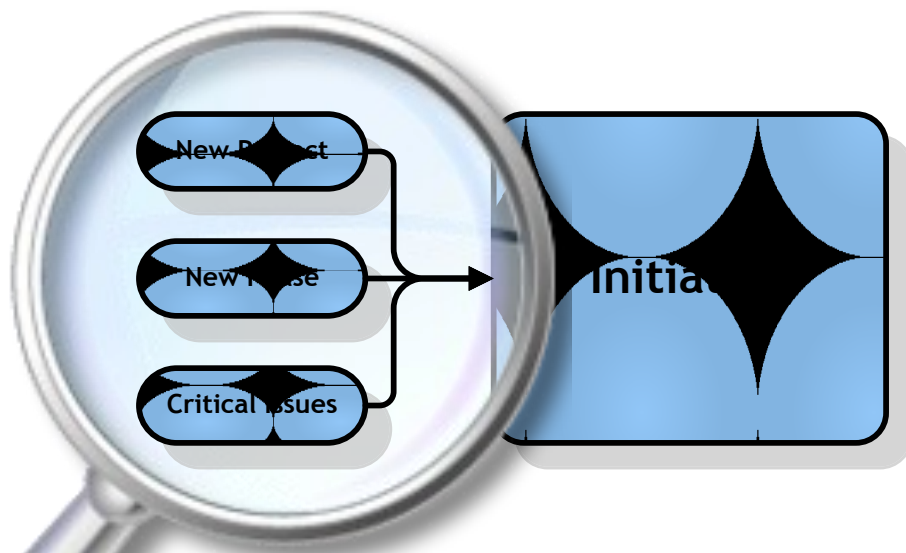


Figure 2 – Initiating Process Group

If the project is approved, it will move forward to the **Planning Process Group**, so detailed **Project Management Plans** are prepared. The planning process group occurs in one of the following situations (Figure 3):

- initiating process group is completed
- there are major issues that need the project to be replanned

- the ICC Board (Integrated Change Control Board) approved significant modifications that are affecting the initial plans

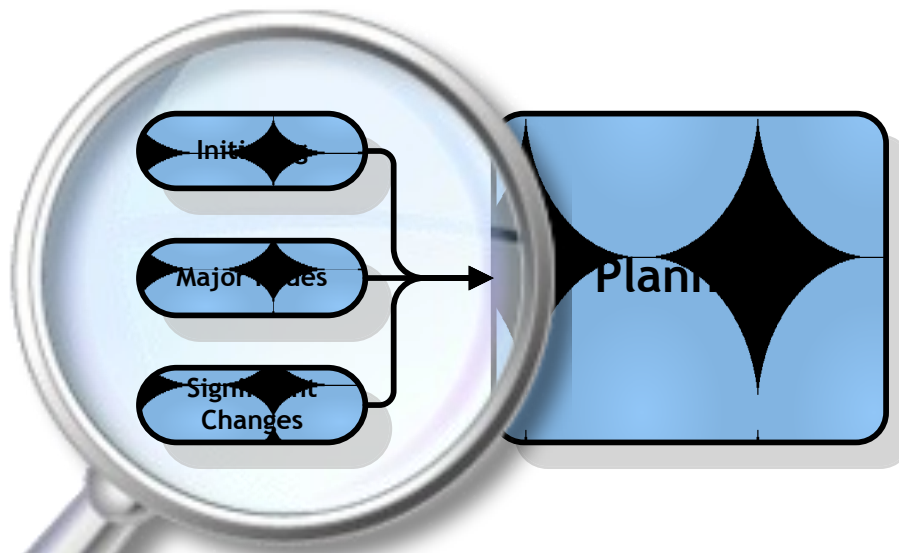


Figure 3 – Planning Process Group

The **Executing Process Group** will follow right after, so the work will be completed according to the plans. Executing can be started by one of the following reasons (Figure 4):

- planning process group finished
- there are non critical issues that do not need replanning

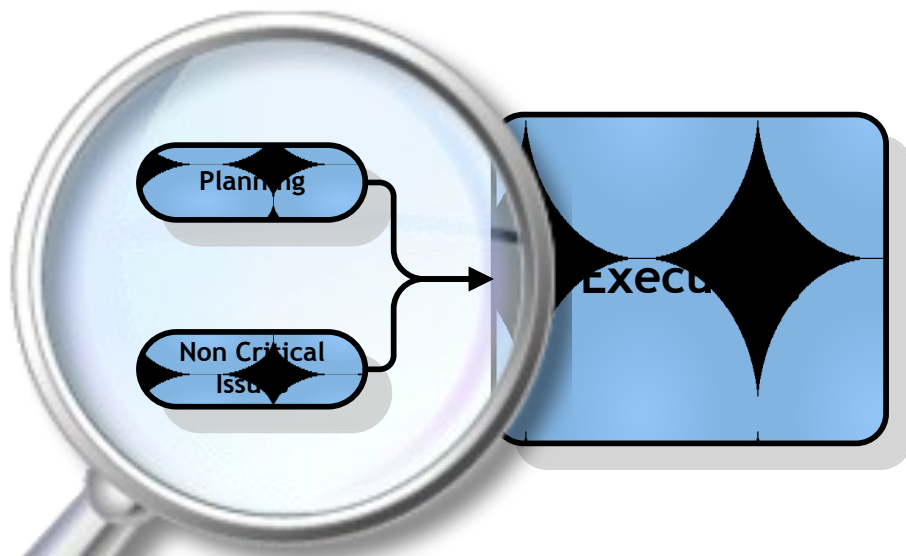


Figure 4 – Executing Process Group

The results of the executing will be supplied to the **Monitoring and Controlling Process Group** that will make sure the project is on the track in terms of scope, time, cost, risk and quality. The reasons to start the monitoring and controlling process group are presented into the Figure 5:

- executing process group just finished
- approved changes arrived – corrective/preventive actions or defect fixing

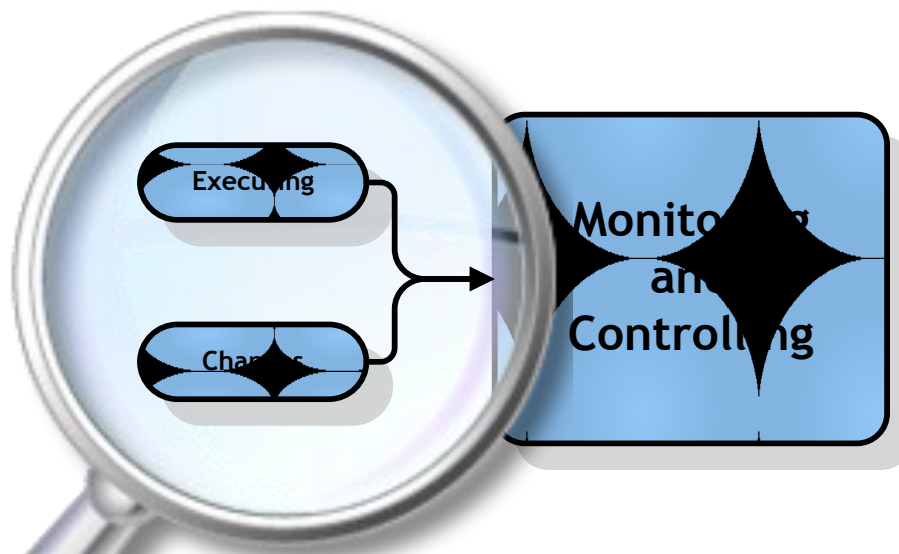


Figure 5 – Monitoring and Controlling Process Group

In the case when variations to the plan are encountered, depending on the severity of the identified issues the project will return back to one of the following process groups (Figure 1):

- *Initiating* – when the issues are critical so a decision point is needed in order to find out if the project would continue or not
- *Planning* – if major issues are discovered or significant changes are approved
- *Executing* – when there are no baselines affected by the changes

A project can enter into the **Closing** project group in one of the following situations (Figure 6):

- project or phase is complete
- project is cancelled before the work is finished

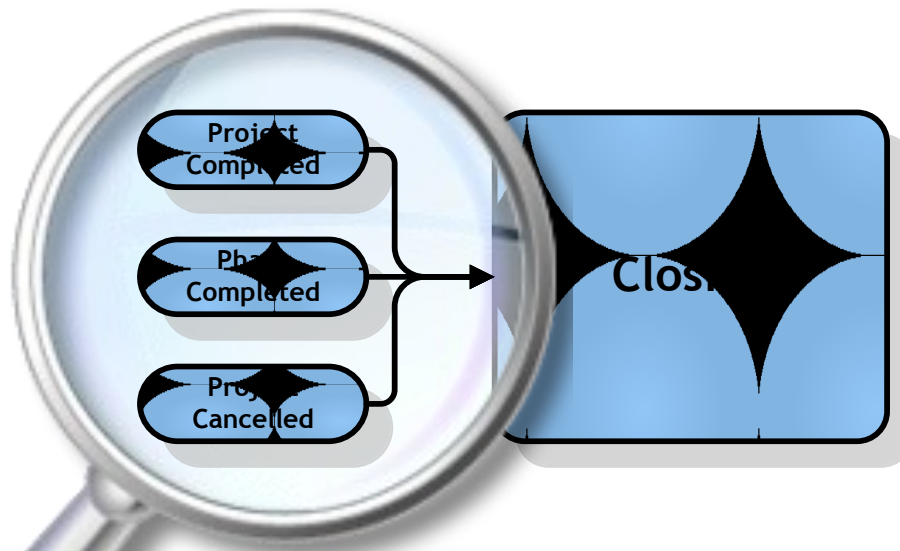


Figure 6 – Closing Process Group

Project closing is assisting the project manager to make sure all the work is completed according to the plans and the project met the objectives stated into the charter and project management plans.

Conclusions

As stated at the beginning of this paper, any project can be logically divided into several phases that can be better managed, planned and controlled. Typically, these phases are scheduled sequentially but in some cases a project may take clear advantages by running the phases concurrently.

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