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A Unified Model for Describing a Project Plan

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Introduction

How do you describe a project plan to someone who is new to the profession of project management? Ask a dozen practicing project managers (PMs) this question, and they will each give you a different definition, based on their unique analytical approaches to project work. When asked to describe a plan, they will respond with descriptions of their planning outputs or actions.

Are all project plans different or are they the same? Are different things being planned for each project or are the same things being planned?

Is there a way to describe projects that is independent of the analyst? Can a plan be considered as something more general (or more specific, depending on how you perceive it) than the planning that supports it?

In this paper I will propose a unifying model for project plans. A distinction will be made between the outputs of project planning and the project plan itself. The significance of this distinction is to allow projects of all types to be described at a high level, in a common language, regardless of the type of analysis used to develop the plan.

This unified definition of a project plan helps PMs communicate strategy and objectives to stakeholders by separating the big picture from the myriad details. It allows discussion to take place at a strategic level, rather than getting bogged down by analytical details.

What Is a Project Plan?

Plans of all kinds, from vacations to construction projects, are predictions of the future. Plans relate to the efforts that will be made to achieve future outcomes. They are forecasts of the effort and events that are required to achieve the desired outcomes, given in terms of what needs to be done, by whom, when, and how.

Plans vary from one another in the types of activities involved and the degree of detail included in the analysis. They also vary in the uncertainty of the predictions of outcomes, because of the skill and knowledge of the analysts and the complexity of achieving the outcomes of the plan.

A project's plan is its execution strategy. The plan is the documented description of a chosen execution strategy for the project, written in terms of the work that will be done, how, when, and at what cost.

What Is Planning?

Planning is the act of analysis and prediction. It is through planning that an execution strategy is developed.

The term planning refers to the activities and efforts undertaken by the project manager and project team that lead up to the development of an execution strategy for the project. Planning is the act of developing and maintaining a strategy for executing a project.

What Are the Objectives of Planning?

The objective of planning is the development of an execution strategy that balances the considerations of the work that must be accomplished (scope), the schedule for its accomplishment (time), the resources that will be consumed (cost), and the uncertainty (risk) involved in the predictions of scope, time, and cost.

Planning produces plans or planning documents of various sorts, such as schedule diagrams, work flow studies, cost breakdowns, and spreadsheets of resource utilization, to name but a few of the possibilities.

What Is the Outcome of Planning?

The outcome of planning is a plan (a documented execution strategy) that is supported by myriad of planning documents.

It is through planning that confidence is developed in the predictions contained in a project's plan. The skill, expertise and rigor of analysis determine the uncertainty (risk) that remains with regards to the plan's predicted outcomes.

Project Plan Example

Below is an example of the project plan for the invasion of Normandy by Allied forces during World War II (an event commonly referred to as D-Day). (History buffs: please do not be offended if details have been missed or understated. I am merely trying to illustrate a point.)

You will notice that there are no planning details in this plan. A plan is complete without them. The plan provides an overview of the high-level strategy. Additional details are not necessary in order for the project's execution strategy to be understood by a wide audience.

The D-Day project plan illustrates the critical role of what I am referring to as a "project plan." This role is the illustration of an execution strategy at a high level; one that allows for an informed discussion about objectives and outcomes rather than efforts and actions.

The D-Day project plan provided is similar to what might have been shown to political leaders of the Allied countries prior to the invasion. This was all the information they would need in order to understand the execution strategy for the invasion. Unquestionably, there was a huge amount of analysis that supported the D-Day

project plan and that created a basis for the belief that the plan was achievable. But the plan itself could be summarized like the example below. The plan was the strategy.

Allied Invasion of Normandy on D-Day – Project Plan

Description

The Normandy landings, codenamed Operation Neptune, are the landing operations of the Allied invasion of Normandy. The landings will commence on Tuesday, 6 June 1944 (D-Day), beginning at 6:30 am.

Objectives

To secure one or more beachheads on the continent. The beachheads will then be used as supply points for the support and buildup of conventional ground forces in the war for the Allied control of Europe.

The Landings

Phase One: Airborne assault

- Landing of 24,000 British, American, and Canadian airborne troops shortly after midnight.
- Objectives are to disrupt German defenses and hinder response to amphibious assault.

Phase Two: Amphibious Landing

- Landing of infantry and armoured divisions on the coast of France starting at 6:30 a.m.
- 160,000 soldiers in 7,000+ vessels and with an additional 195,000 naval personnel.
- Landings to take place along a 50-mile (80-km) stretch of the Normandy coast divided into five sectors: Utah, Omaha, Gold, Juno, and Sword.
- A 12,000-plane airborne assault and naval fire support prior to landing will be used to disrupt defenses at the landing sites.

Element of Surprise:

German defenses will not be concentrated around the landing points because of a deception plan implemented months before the landings.

1. Operation Bodyguard will be implemented to distract German attention from the possibility of landings in Normandy.
2. Decoy operations taking place simultaneously with the landings under the codenames Operation Glimmer and Operation Taxable will distract the German forces from the real landing areas.

Figure 1. Hypothetical project plan for the invasion of Normandy on D-Day

Why Is There Confusion About What a Project Plan Is?

The reason that there is confusion about what constitutes a project plan is because there is confusion between the act of planning and the outcome of planning. The plan is the summation of planning efforts. The plan is supported by various planning documents. The plan is the balance that has been achieved between the constraints. Planning is the act. The plan is the outcome.

When asked what a project plan is, the answer should be: "A project plan is an execution strategy that balances the constraints imposed on a project."

How Should Project Execution Strategies Be Described?

Project plans can all be described using the same terminology. Below is an illustration of the elements of a plan: scope, time, cost, and risk. This one-page project plan summarizes the important planning considerations in an easily understood format.

Project Plan		
Scope	Time	Cost
	0	\$ -
Risk		
Budgets	0	\$ -

Figure 2. Example of a one-page project plan

Quadruple Constraints Model

The elements of a project plan are the quadruple constraints: scope, time, cost and risk.

For anyone not familiar with the quadruple constraints model, it is relatively simple. The components are:

- **Scope:** All of the work required to fulfill the stakeholders' expectations
- **Time:** The schedule for meeting stakeholders' expectations
- **Cost:** The funds and resources that will be consumed to complete the work (i.e., the money and resources available for the project)
- **Risk:** The uncertainty associated with predicting future outcomes relating to the scope, time and cost

Scope

The scope of a project determines the extent of the work to be done by the project. It refers to all expectations imposed on the project by key stakeholders, other than schedule and cost expectations.

Scope is anything that has the potential to consume time or result in a cost. Scope is work. It includes the building of deliverables, but also such things as quality management, security, secrecy, procurement, and contract management. A project's scope is its responsibilities.

A project's scope completely encompasses the project objectives. In this context, the term scope refers both to the things that will be delivered and to management responsibilities that will affect how easy or how difficult it is to deliver them. Scope includes everything of importance to the stakeholders. It refers to all aspects of stakeholder expectations.

The scope of a project is all of the work that must be done to complete the project.

Time

Obviously, projects must be done within a limited time frame. Time, therefore, refers to the project's schedule—the time frame within which the stakeholders want specific deliverables or the entire project completed.

Cost

Cost refers to the consumption of funds and resources (staff and equipment). The quantity of funds and resources available to a project determine how much work can be accomplished. Their availability determines a project's capacity to do work.

The term cost refers to the consumption of capacity. Each project can only "spend" a limited amount of funds and resources; the project can only consume so much money and resources because there is a limit to the project's capacity to do work.

Risk

Risk refers to uncertainty. Uncertainty is an inevitable element of the attempt to predict future outcomes. There is uncertainty as to what will actually get done, when, and at what cost.

When project execution strategies are developed, they are created without perfect knowledge of what will happen in the future. The experts who create them may know a lot about what to expect, but they cannot predict the future with absolute certainty. Every plan is a prediction.

A balanced plan must, therefore, include an allowance for the degree of uncertainty that is inherent in the prediction of future outcomes. It must include an allowance for actual project schedule and cost to be higher than the base estimates, or for scope to have been incorrectly analyzed.

Planning Model

The quadruple constraints model illustrates the balance that must be achieved in a project's plan. The illustration of the relationships between constraints in the form of a triangle is used to imply the rigid links between the three constraints on the outside of the triangle (scope, time, cost) and their combined relationship to risk (the area of the triangle enclosed by the three sides).

The message behind the model is that a project's execution strategy must have the four constraints in balance. The act of planning a project is the development of an execution strategy that has the constraints in balance – that is, a strategy wherein the constraints are present in reasonable proportions to each other.

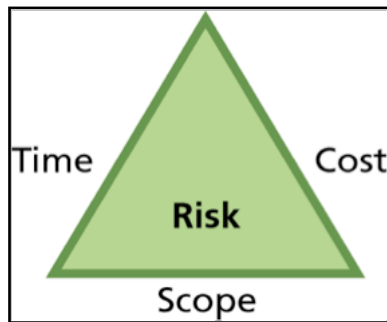


Figure 3: The quadruple project constraints model illustrates the relationships between the constraints. A balanced project plan is one in which the constraints are present in appropriate proportions to each other. The process of planning a project is the development of an execution strategy (a plan) that puts the constraints in balance.

A project plan is the balance that has been achieved between constraints. Figure 4 illustrates how a project plan portrays the relationships between the quadruple constraints.

Project Plan - Allied invasion of Normandy		
Scope	Time	Resources
Land		
Paratroopers	Midnight arrival	24000 troops
Sea		
Amphibious	6:30am arrival	160,000 troops
Bombardment	4:00am start	300 ships
Transport	Midnight start	7000 vessels, 195,000 personnel
Air		
Bombardment	5:00am start	6000 bombers
Transport	9:00pm start	5000 troop carriers
Reconnaissance	Continuous	1000 fighters
Secrecy		
Distractions	Continuous	
Decoy ops.	Simultaneous	
Risk	Weather delays	Mechanical failures, losses at sea or in air
Budgets	+/- 3 hours	175K troops, 175K navy, 6500, vessels, 11,000 aircraft

Figure 5: A one page version of the plan for invasion of Normandy converted into the quadruple constraints format

Conclusion

What is a project plan, you ask? It is a documented execution strategy that balances the limitations (constraints) imposed on a project.

How can a project plan be described? The plan can be either a jumble of various planning documents or in the form of a single, unifying description.

What is the advantage of using a collection of various planning documents to describe a project plan? Details are available, if necessary for discussion.

What are the disadvantages of using a collection of various planning documents to describe a project plan? Stakeholders will not necessarily be able to comprehend the big picture. Discussion and debate will center on details rather than on high-level objectives and outcomes. As a consequence, the original objectives and outcomes may become lost or blurred.

What is the advantage of using a unified model for describing project plans? The advantages of using a unified model include simplicity and clarity, streamlined communications, and that the emphasis of stakeholder communications remains focused on the project's objectives.

What is the disadvantage of using a unified model for describing project plans? It is something new that may not be part of a project manager's or organization's routine. It requires project managers to develop a more holistic view of their projects and how they communicate with stakeholders.

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About the Author

Brian Egan has 25 years of experience as a project manager, management consultant and entrepreneur. Brian has worked in the field of professional skills development and, in particular, in project management training, for the past 14 years.

As an entrepreneur, Brian has been involved in a number of diverse businesses, from commercial-scale salmon farming to catering, furniture manufacturing, and residential construction.

Brian is among Global Knowledge's most experienced and highly regarded training professionals. As such, he was chosen in 2010 to serve as the lead subject matter expert and principle author for the re-development of Global Knowledge's entire line of professional skills courses. He is the author of a textbook, *Foundations of Project Management*, as well as numerous training courses, webinars, and white papers.