

Managing a project across the project life span

Mounir A. Ajam



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Project Management III

Managing a project across the project life span



Project Management III: Managing a project across the project life span

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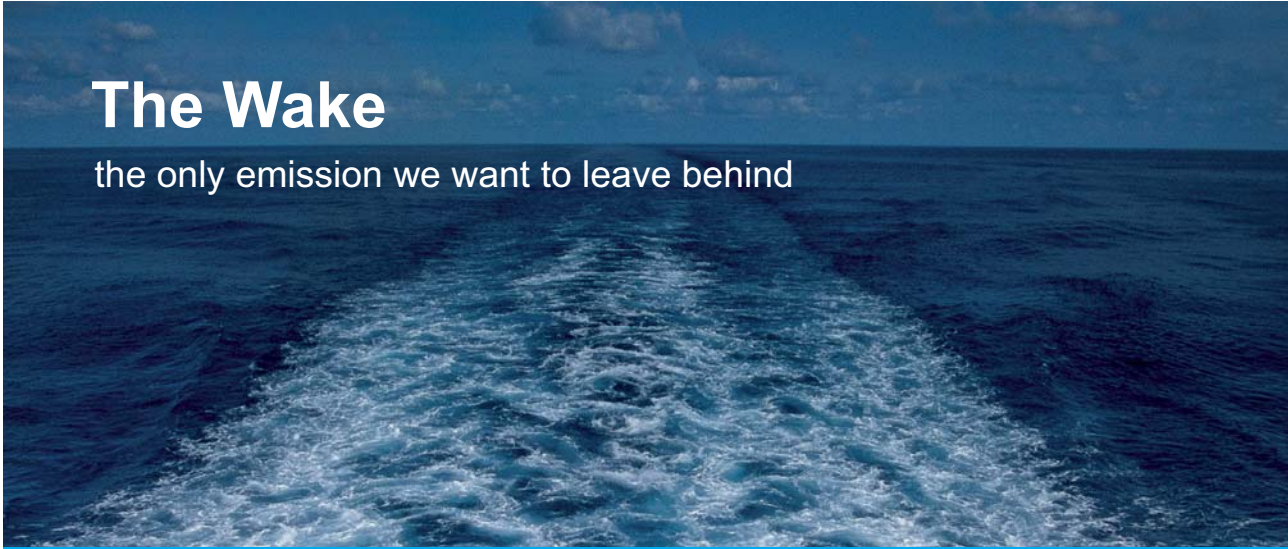
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Acknowledgements

As this is a lengthy chapter, it has been placed in Part I. Specifically for this Part, I would like to emphasize the contributions of Youssef Saad, Nada Chaban, Theofanis Giotis, and our numerous clients and participants in SUKAD courses and workshops. Most of these chapters were not in the first and second drafts. We added them either in response to reviewers' comments, or to clarify questions from our classes.

Significant Contributor

The author acknowledges the significant contribution of Mr. Mark Jones who performed an initial edit on Part I and III of this Series. In addition, Mark challenged us and offered numerous suggestions for improvement, and we incorporated most of them in this Series.

Mark Jones is an experienced project manager with over 30 years of improving business operations with computing solutions. In addition, he is a published author (*Project Management Competence – a Pragmatic Guide to Assessment for Project Managers*, and *Why You Need to Employ More People With Disabilities*). His expertise is built on leading large projects and programs for IBM's clients in public sector, retail, utility and telecommunications segments.

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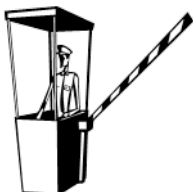
The following are icons that we use in various sections of this work.



This icon represents a ‘deliverable’. A deliverable in project management is a defined work item (scope) that when finished, is **delivered** to management or a client. The deliverable could be a report, a design package, a software tool, or even a physical facility, like a factory. The deliverable can be small and require hours or days to deliver or could be substantial requiring weeks or months to finish. The deliverables discussed in this Series are typically the main stage deliverables, which a project team completes with each stage or sub-stage.



The second icon represents ‘further reading’. We use this whenever we encourage the reader to refer to other sources. This way, the author can maintain focus on the new content in this Series and avoid too much detail on topics that other references may cover better. The reader can find a partial list of resources in Appendix D and may want to explore these topics using search or other reference tools.



This icon represents a ‘stage gate’ or a control point, which is a fundamental concept in the stage gate approach, which we describe in this Series. Stage gates are key elements of governance and control to ensure alignment and flow of the project in alignment with established objectives. They are applied along the project life span from idea to closure.



This icon represents case studies. In this Series, we share many stories and case studies to illustrate points in each Part. In order not to disturb comprehension of the main points, we typically place the case studies in text boxes so the reader can skip them for review later. The author has direct experience with most of the case studies that we present in this Series.



We use this last icon when we aim to persuade the reader to ponder the open questions that we address. Some of these questions could be provocative, controversial, or challenge conventional wisdom. Notwithstanding the author’s particular views, he understands that managers legitimately have differing views of the same circumstances; we expect the readers to develop their own opinions, and respect that such opinions might contradict what the author presents.

The Project Management Series

1 Introduction

Part I contains the full introduction of the methodology and the eBook Series, and should be reviewed prior to this Part III since that introductory Part forms the foundation for the detailed concepts below. Appendix C includes the summary outlines for all four Parts.



The advertisement features a circular logo on the left with three stylized human figures in the center, surrounded by gears and four arrows pointing clockwise. To the right, the text reads: **UNLEASHING CHANGE MANAGEMENT**, **OCTOBER 18 & 19, 2018**, and **DE RODE HOED AMSTERDAM**. At the bottom, there is a silhouette of the Amsterdam skyline including a windmill, a bridge, and various buildings. In the bottom left corner, the text 'Global Executive Events' is displayed. A hand cursor icon is positioned over a green oval at the bottom right of the ad, which contains the text 'Click on the ad to read more'.

2 The Series Four eBooks

A brief summary of the four parts is provided here for orientation and easy reference.

- Part I (eBook 1): This is the first Part and it is in two sections. Section 1 discusses the initial concepts along with project management challenges and opportunities. Section 2 offers a brief introduction of the project management model and reasons behind its development. This Part also includes alignment to international standards, most specifically the PMBOK® Guide¹.
- Part II (eBook 2): In this second Part, the reader will find an in-depth description of each stage of the model. The author elaborates the core concepts of each stage and explains the sequence of events, stage deliverables, and stage gates. Further, within each chapter, the author maps the PMBOK® Guide (Project Management Institute 2013) process groups to the appropriate stage and the overall project life span.
- Part III (eBook 3): This contains essential topics that are not limited to a project stage but relate to the full project life span, in an **‘across the project life span’** manner. These topics include project approvals, project control, risk management, measuring project success, stakeholders, and roles and responsibilities. Another section in Part III discusses the model’s customization and adaptation features, along with potential pitfalls.
- Part IV (eBook 4): This final Part shifts from the Series’ ‘what and why’ of the model into its ‘how to apply’ explanation. Most of this Part presents a complete sample project², supplemented by examples from workshops on tailoring the model to different application areas.

3 Preface to Part III

The focus of this Part is the project life span rather than individual stages as in Part II.

Section 1 consists of a single chapter, which discusses the project life span concept from various perspectives, such as owners and service providers. This is an important chapter and a crucial link between the previous two Parts and what follows.

In section 2, we address the selection of topics that our analysis and observation from classes have identified as the most relevant to managing a project across the project life span. The topics are project approvals, estimates, control, risk, stakeholders, and project success.



Section 3 discusses the CAM²P™ features for customizing and adapting the methodology. Ending the section is a review of some CAM²P™ related potential pitfalls that could affect the successful delivery of projects.

Point to Ponder

Most of what we present here in Part III applies to any methodology based on a project life span approach and is not limited to the CAM²P™ Model.

4 The Full Model

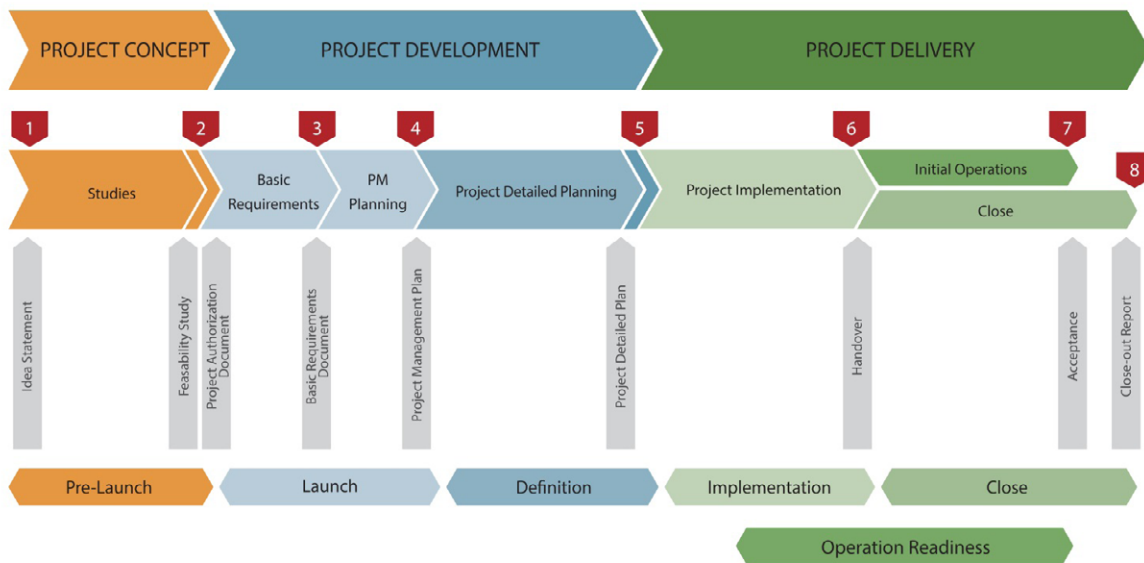


Figure 1: The Customizable and Adaptable Methodology for Managing Projects™ (CAM2P™)

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Section 1: Life Cycle Perspectives

1 Life Cycles 360°

1.1 Introduction

The two words 'Life Cycle' are used together so often and in different contexts, that confusion is a frequent result. Since *the Customizable and Adaptable Methodology for Managing Projects™* is based on a Project Life Cycle³, there is a need to explain what these words mean in specific contexts.

Some of the use of 'life cycle' includes product life cycle, project life cycle, project management life cycle, and life cycle costs.

1.2 Product Life Cycle

1.2.1 Product

Before explaining the term 'product life cycle', we will examine the word '**product**'.

Let us start with a question that introduces a scenario we will use throughout this chapter.

*The scenario is **a project to build a water bottling plant**. What is the product?*

There is a chance that your answer is: "water bottles."

However, we have presented you a trick question. Your deep knowledge of product and project management will lead you to seek clarification and respond:

"Not sure, are you talking about the product of the project or the product of the plant? If it is product of the plant then it is bottled water but if you mean the product of the project then it is the plant itself – the physical facility."

That is a great answer!

In this regard, the **product of the project** is the plant facility. This facility, once operational, will deliver the **consumer product**, which in the scenario will be the bottled water.

So with this understanding of the word '**product**', what is the 'product life cycle'?

1.2.2 Product Life Cycle

There are plenty of publications on this topic and we encourage you to seek them out for more in-depth knowledge.

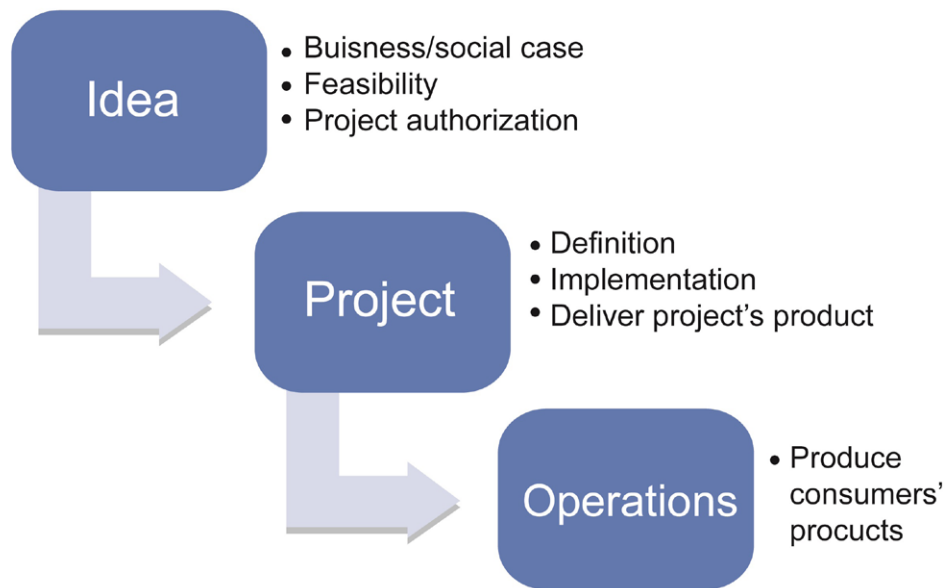



Figure 2: From Idea Statement to Project From Project to Producing Consumers' Products

The product life cycle extends across the whole life of the **product** regardless of what the product is. In this context, the product is the output that the project delivers to the organization. It can be a software application, a book, a new organizational system, or as in the scenario, a plant.

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The product life cycle is a time span from the moment when the idea for the product is identified until the dissolution of the product in one way or another, in other words, the end of its **useful life**. This useful life could be a few years for a software application or a car model or decades for physical facilities such as buildings and plants.

Throughout the duration of a useful life, there are shorter periods called phases of the **product life cycle**. These are product life phases and not project or CAM²P™ phases, as we will outline below.

“OK, English now please!”

A return to the water bottling plant scenario will assist in making this clear; follow these steps:

1. Say you are an investor and have an idea to build a water bottling plant. Your geographical area does not have one and you believe there is a market for it. This is the idea for the product, and it is the idea for the project. The starting point of the product life cycle and the project is here.
2. Your team would study the idea (feasibility) and assuming approval you go ahead with the project and progress through the project development and delivery phases, per CAM²P™. At completion of the project, the plant has been built, handed over to operations, and started normal operations.

So far, the product life cycle and project life span are essentially overlapping but they are not the same. With project acceptance (at the CAM²P™ stage gate 7), the project team closes the project ending the project life span while the product life continues.

In the context of the product life cycle, the ‘project’ is what we call the ‘acquisition phase’ of the product life cycle.

3. At the end of the product life cycle’s acquisition phase, operations will have to operate and maintain the facility for its useful life.

Based on the above, we can define, simplistically, that the product life cycle has two phases: acquisition and operations. The transition point between them is the product acceptance, although operations involvement starts pre-handover. A project, such as construction of a manufacturing plant, could last two to three years. However, operations can continue for 20 or 30 years.

1.2.3 Product Life Cycle: Textbook Perspective

In the previous topic, we split the product life cycle into two phases: acquisition phase and operation phase. This was an oversimplification. Most literature on product life cycle defines it as a cycle of five phases with the following common names applied to these phases:

1. **Development:** from idea/concept, acquisition, and even initial operations
2. **Introduction** of the new product to market
3. **Growth** of the product, enhanced operation of a facility
4. **Maturity:** good production system, product well known in the market
5. **Decline:** building/plant too old, costs more to operate maintain than would be justified, product losing its value...

Activities within and drivers for each of these phases will differ depending on the nature of the product. In general, an organization could deliver numerous projects during the product life cycle and its phases.

1.3 Project Life Cycle

1.3.1 Project Life Cycle Definition

Since this Series is about project management, it is time to return to that subject and we do so with another question: what is the 'project life cycle'?

The simple answer is, the 'project life cycle' is a span of time from start to end of a given project. However, where those starts and ends begin and finish is not as simple as it looks.

1.3.2 Whose perspective

Earlier in this eBook Series, we covered the components of the project life cycle extensively, since the whole Series is about the project life cycle of CAM²P™.

The question 'what is the project life cycle' cannot be fully answered until we know more about the situation. For example, who wants to know? From whose perspective is the question? What is the background of the person asking or what type of organization does he or she represent?

This is important since the word **project** and the phrase **project life cycle** can mean different things to different people; it all depends on how you relate to the scenario. In Section 2 of this eBook, the reader will discover that this is a similar situation to defining project success: how it is measured depends on who is asking.

Before answering the life cycle question, a key distinction needs to be determined: is the questioner a Service Provider or a Project Owner?

1.3.3 CAM2P™ Perspective

CAM2P™ adopts the view of the project life span from the perspective of the **Client, Idea Owner, or Project Developer**. These terms do not refer to a particular person, such as the one who came up with the idea. The terms refer to the organization that is developing and will own the project. In this context, we will use the term ‘Project Owner’.

“Is this always the case?”

No, this is only one perspective. However, unless otherwise noted, whenever we use the term project life span in the Series it is from the perspective of the Project Owner.

“I am a Service Provider, why are you only viewing this from the perspective of the Project Owner? How does my perspective fit in?”

Please do not rush since we are visiting you soon. Further, who said that the above does not have you in mind? If you consider yourself a ‘provider’, of services or goods, we ask you to have two hats handy:

- *The first hat: regardless of who you are and what your organization does, you have your own internal projects. In those cases (internal projects), you are the project owner. Everything we have written in this Series so far applies to you, do not you agree?*



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- *The second hat: this second hat is the hat you wear when you are working to deliver a service to a client, the Project Owner. We cover this perspective later in this chapter.*

1.4 Project Owner Perspective

With this topic, we do touch on the service provider perspective but only as it relates to the project owner's project life span.

Let us go back to our scenario, the water bottling plant, and consider other perspectives.

You are a senior manager in an investment company in the food and beverage business and you want to build a water bottling plant. Let us also say, that your company has expertise in these types of projects. What would your project life cycle be like? Let us follow the CAM²P™ stages.

1.4.1 Pre-Launch Stage – Idea to Project Authorization Document

It would be safe to say that your company has the necessary expertise to carry out all of this work internally.

1.4.2 Launch Stage – Basic Requirements to Project Management Plan

If the company has the required capabilities in-house, then it is likely that the company has the necessary expertise to handle this stage as well.

If they do not have this expertise, then the company may need to outsource some of the work to define the required facilities but company personnel are likely to develop the project management plan.

As an alternate, let us say the project owner company (your organization) does not have any expertise in-house to define the requirements or to develop the project management plan. Then you will need to hire a specialized service provider for this service.

- Regardless of which alternative you select, from the perspective of the 'Project Owner' this is only the project launch stage, on the owner project life span.
- However, for your service provider – who will provide you with these services – then this 'project owner stage' is the provider full project. The provider's project output is delivering the basic requirements document!

1.4.3 Definition Stage – Project Management Plan to Project Detailed Plan

It is likely that owners' organizations do not have the internal expertise to develop the project detailed plan and will likely utilize the services of specialized service providers who have the necessary expertise for the given industry.⁴

- From the perspective of the project owner, this is only the definition stage.
- From the perspective of the service provider, then this owner stage is the project with the project output being the project detailed plan; that is it!

1.4.4 Implementation Stage – Project Approval to Handover



For an industrial plant, we split the stage into two stages:⁵ a detailed engineering stage and a construction stage. Each of these functions may require a separate provider. Alternatively, we can utilize a design/build contract, which means one company will design and build the plant.

- As with the previous stage, from the perspective of the ‘Project Owner’ this is only the implementation stage, which consists of two stages (sub-stages), the design and construction stages.
- However, for the service provider (assuming one provider), then this owner stage is the full project. The project output is initially the engineering design and later the construction!

1.4.5 Operation Readiness Stage

A similar approach applies for the operation readiness stage, although this stage is likely to be owner effort since the focus is on operating the facility after the service provider demobilizes.

1.4.6 Close Stage

Similar to the operation readiness stage, this stage is likely to be owner effort since the focus is on closing the project from the operating organization’s perspective.

1.5 Service Provider Perspective

In response to the previous section, a colleague offered a challenging question (refer to the Reviewer Question box) and since we know that many will have a similar question, we offer the answer here.⁶

Based on the intent of CAM²P™ and on our ability to customize and adapt the methodology, we assert that service providers **can** and **should** follow this systematic approach but not necessarily every stage and every gate. Let us discuss in detail.

Reviewer Question

“Consider the water bottling plant scenario. The owner outsources a service; why can’t we consider that the contractor or service provider also applies the same project life cycle model.

This way the model applies equally well to all parties?”

1.5.1 The Discussion Basis

*Mr. Provider, keep in mind the following is from your side of the fence when you wear the **service provider hat!***

Readers, in the text below we are using the design/build contract for the water bottling plant scenario. What we discuss here is the Project Owner's implementation stage.

1.5.2 How Many Stages


From the perspective of the service provider,



- Is this a one-stage project?
- Is it two, design and construction?
- Are there more than two stages?

In other words, how many stages do we have here?

It must be clear by now that from the owner perspective this is only one stage.



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From the service provider perspective, it is a project. Since this is a project then it has its own project life span...like all projects.

“How could this be, a project life span within a project stage?”

Why not?

The explanation below demonstrates this from the service provider’s perspective.

1.5.3 Pre-Launch Stage

The CAM²P™ concept phase sequence is Idea → SG1 → Feasibility → SG2 → PAD.

Let us translate it to the example at hand.

As a provider of a service, the idea is simply an external request for proposal (RFP) from the client (Project Owner); in other words, the idea source is external to the provider organization.

Per CAM²P™, the idea must pass through stage gate one (SG1), in this case, SG1 of the provider’s organization. Yes, providers should have a gate since they can reject work. At this provider gate, the provider management decides whether to accept this project or decline it for whatever business reasons they have.

With a yes at SG1, then the provider should do its own feasibility study. Otherwise, the provider might accept a project beyond what they are capable of handling.

Once the study is complete, it is time for the second gate: the final decision on whether the provider will respond to the RFP or not.

All is smooth so far and matches the logic of CAM²P™. Now the trick question: after stage gate two (SG2); *can the Service Provider issue a project authorization document?*

The answer is:

- For the overall project, the project by the Project Owner, the answer is no. There is one project authorization document per project, written from the perspective of a given organization.
- In other words, the Project Owner has its own PAD that is independent of any Service Provider.

- *“OK, we hear you, but I am not the Project Owner, I am the Service Provider, do I not have my own authorization document?”*
- *Of course!* At the end of stage gate two (SG2) and if the service provider’s management decides to respond to the RFP, then the provider executive management must issue a PAD for its own organization.
- *“But – how can we authorize the project where we do not have a contract yet?”*
- As far as the Service Provider is concerned, the PAD is necessary to authorize the commercial and/or technical teams to start working on a response to the RFP. In other words, the project is being launched within the provider organization and we do not need a contract for that since this is work ‘at own risk.’

Other possible names for this stage are pre-sales, prospect stage, or anything else that fits the type of project. Regardless of what you call it, it is in total alignment with the pre-launch stage as prescribed by CAM²P™ in this Series.

1.5.4 Launch Stage

The project launch stage calls for defining the basic requirements → SG3 → project management plan → SG4.

“OK – relate this to the example; what are the steps?”

1. Understand the Service Provider role as an essential part of the big picture – the big picture being the project from the perspective of the client.
2. Then understand the output of the project: what the Project Owner wants.
3. Learn about needs and expectations, define the requirements, and ensure alignment with the client (Project Owner).
4. Develop the basic requirement document and project management plan for the proposal activities.

“When we are done with the basic requirements and project management plan, then we have a proposal.”

No – not yet.

“What do you mean not yet, you already said that we have project management plan, cost...”

Yes, the BRD and PM Plan that you just did is for your organization to develop the proposal – remember ‘how to define, manage, and control’...? So far, your focus has been on how to manage the development of the proposal, the actual proposal development takes place in the definition stage.

1.5.5 Definition Stage

The project definition stage calls for developing the project detailed plan → approval → SG5.

From the Service Provider perspective, the project definition stage contains the necessary detailed planning activities leading up to submitting the proposal. It may be the case that for large or complex projects, the development of a 'solution' is required as part of the proposal. To do this, the Service Provider will have to go through this stage and develop the detailed scope, schedule, cost estimate, human resource requirements, risk management, subcontracting strategy, and other functions.

Based on all of the above, the Service Provider will determine its cost and decide on the offer price for the proposal as a final step before submission.

Once the proposal is in the hands of the client (Project Owner), there is the evaluation and possibly negotiation period – which we will call the approval period. If at SG5 there is an approval – award – then the provider will have the opportunity to move into implementation. If not – the opportunity is lost – then the provider will move to project closure without passing through the implementation stage.

1.5.6 Implementation Stage

Generically, once the client awards a contract to the Service Provider, the provider will proceed and implement the scope of the contract – whatever that scope is.



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In the scenario, design and build are the scope items for the plant implementation stage. Further, implementation is split into two sub-stages for design and construction and each sub-stage has its own deliverables and gates.

1.5.7 Operation Readiness Stage

As mentioned earlier, operation readiness is likely led by the Project Owner directly, with support from the Service Provider if necessary. In other words, the Service Provider will not have an operation readiness stage since for them there is nothing to operate.

1.5.8 Project Close Stage

The Service Provider will perform its own project close stage, independent of the Project Owner project closure.

1.6 General Observations

1.6.1 CAM2P™ Works for Both Perspectives

The readers may have noticed that the Service Provider’s perspective of its own project life span is quite similar to the Project Owner and in some cases, they move together in parallel. This is a demonstration that CAM2P™ works across different perspectives. Further, in the design/build contract case, the implementation stage for both the Owner and the Provider are essentially the same but inevitably differ in some respects, so each entity will look out for its own interests.

1.6.2 Two Projects or Two Phases

Another observation you may have is that from the Service Provider’s perspective, ‘the whole thing’ from RFP to closure can be viewed as one project with two phases. In other situations, the provider might split ‘the whole thing’ into two projects: the business development project and the service delivery project *instead* of two projects.

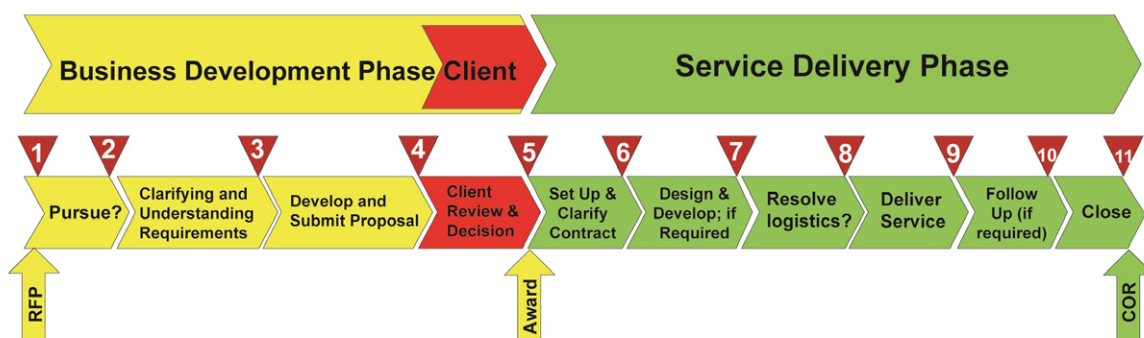


Figure 3: Project Life Span: Service Provider Perspective

Figure 3 shows the first option, one project for ‘the whole thing’. In this perspective, the Service Provider considers business development and service delivery as two phases within this project, separated by the contract award. In turn, each of these phases has its own stages and gates.

On the other hand, we can also view this as two separate projects and here again, each project will have a number of stages (Figure 4).

“Does it really matter which approach you take?”

Not really, the relevance may be influenced by organizational record requirements or how a Provider may choose to handle the financial aspects of their work.

Which approach will you take? You get to decide! The author prefers the first option since both sides of contract awards are interrelated.

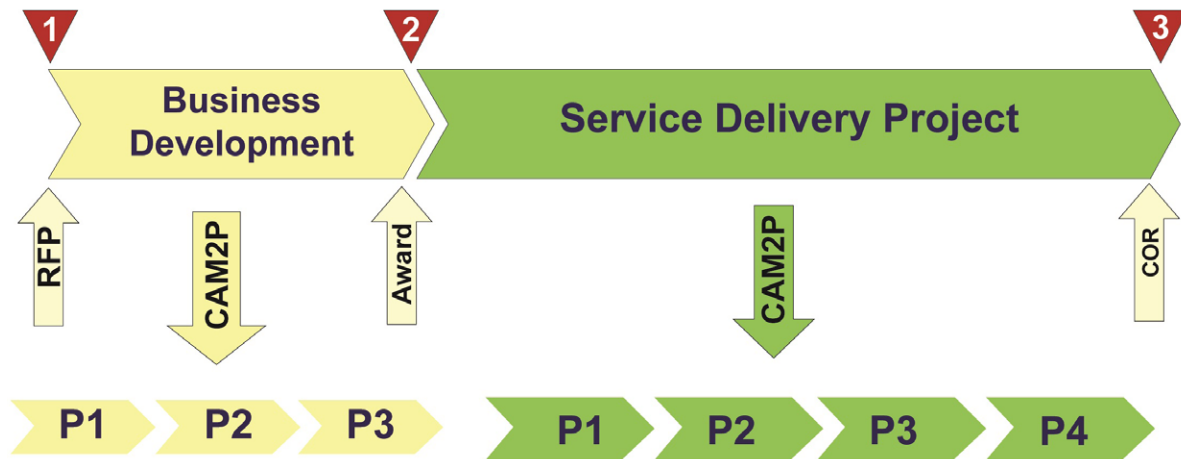


Figure 4: One or Two Projects: Provider Perspectives

Section 2: Across the Project Life Span

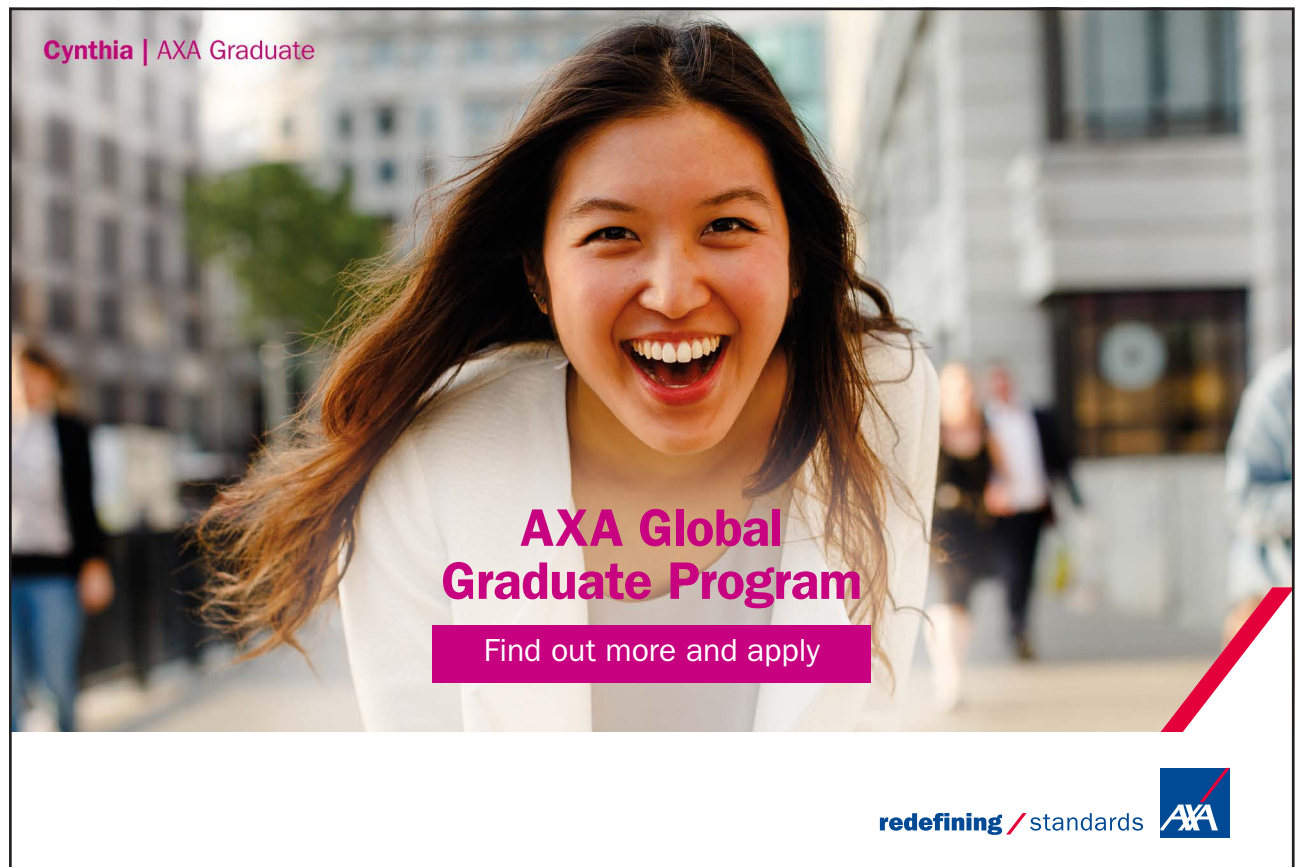
2 Project Approvals

2.1 Approval Points

2.1.1 Stage Gates Refresher

We will start with a summary of the eight gates and their roles as context for explaining the various approvals.

1. SG1 is about the project's alignment to strategic objectives, and deciding whether to proceed with a feasibility study or stop the project.
2. SG2 is about reviewing the results of the feasibility study, and if the project is viable and a priority, then authorizing the project.
3. SG3 is about ensuring the alignment of the various stakeholders to the project's basic requirements, and once there is agreement, the team will proceed to project management planning.
4. SG4 is for executive management to review the project management plan. If they agree with the approach, they will authorize the project to the next stage. *This gate has another significant role, which we address later in this chapter.*



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5. SG5 is what we call ‘the point of no return’, since once the stakeholders agree to the project detailed plan, they are likely to grant the final approval along with committing the necessary funds to complete the project. Since full funds are committed, it is unlikely that the organization will cancel the project after this point, hence ‘point of no return’.
6. SG6 is to verify that implementation is complete per the plan, and that the operation team is ready to accept control of the project’s product from the project management team.
7. SG7 is the project’s final acceptance from the client, which takes place after handover. The timing of acceptance is typically dependent on the project’s industry (domain).
8. SG8 is the final gate reflecting that all deliverables, up to and including the closeout report, are complete, and the project is officially closed!

2.1.2 Various Approvals

In a stage gate process, as in CAM²P™, it is necessary to have several approval points along the project life span instead of just one; these are the stage gates. In the context of this chapter, the term ‘approval points’ refers to major approvals, typically approval of funds.

Some might argue that having multiple approval points is bureaucratic; we choose to differ on that point. We addressed the question of bureaucracy in earlier Parts, but we will restate the explanation briefly here. If an organization is highly bureaucratic, then it is only natural that project management will be as well, even if there is only one gate. In these situations, the issue of bureaucracy is an inherent problem that project management cannot fix. In a mature organization, passing through the various gates is designed to be efficient, increasing the chance of project success.

2.1.3 Timing of Approvals

“OK, eight gates, and we’re still not clear on when the money is approved; when do we get approval for the project budget?”

Well, for some projects we are not sure either.

Here are some scenarios:

- In some organizations, the question of budget may not be clear or explicitly stated. The organization may have a dysfunctional project prioritization or approval process. Alternatively, they possibly treat projects as part of day-to-day operations without allocating a specific budget to a given project.
- In other organizations, management may keep the project budget confidential and not share it with the performing team.
- Some other organizations do not budget for their internal resources and budget only contracted work and external resources.

- In other situations, executive management may have a predefined and constrained budget – from the pre-launch stage. In this scenario, the team is required to deliver the project within that set budget constraint.

However, if we shift our focus to organizations that have more structure and a formal or semi-formal project management system, a project budget's formal funds approval is at one of the eight gates.

“Which one?”

Common practice places it from stage gate 2 to stage gate 5.

“Is this the best practice?”

Maybe it is for small and internal projects, although we believe that any approval of budget prior to stage gate 4 in the CAM²P™ model is premature.

“How about if the model has been adapted to consist of four gates?”

Good point; stage gate 4 in the standard model comes between the end of project management planning and the beginning of detailed planning. This means if your project life span is only a four-gate process, then gate 4 in the generic CAM²P™ is possibly gate 2 or 3 of your adapted model. What we stress here, what is important is the work leading to the stage gate and not its number. In other words, what should the team accomplish prior to seeking and obtaining final approval?

2.2 Common Practices

One common practice is a pre-set budget at the time of project authorization.

Some organizations, particularly governments, follow this approach. However, there are risks with such an approach since the figures (both cost and time) that the team establishes at this early stage of the project are not highly accurate due to the low level of project scope definition. As a result, the risk of missing the time and cost targets is high.

Another common practice is for the organization not to budget the early project stages, treating it as part of their overheads (operating expenses), and only budget for the external costs and contracts. The threat with this approach is that the organization will have only a high-level idea about project budget until the work progresses enough to seek quotations or proposals. If the price is much higher than expected, the project could be cancelled and the effort that went into it is sunk.

One more common practice is management establishing a constraint on the time or budget. If time or cost is a **constraint**, then the team has a different challenge and in this case, the project scope or quality will likely have to be adjusted to conform.

Although the above are not ideal situations, they are common practices that might be mandated due to organizational cultures or government procurement regulations.

2.3 Leading Practices

2.3.1 Is There a Best Practice

We are not sure if there is a best practice. Please refer to box on “Common vs. Leading Practices.”

There are leading practices for projects within industries and business sectors (projects’ domains).

Common vs. Leading Practices

Further, we would rather use the terms common practice and leading practice. Common practices are what many organizations use as part of normal practices but typically achieve common or average performance. Leading practices are practices that not many organizations have adopted and are believed to lead to a higher level of performance.

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2.3.2 What Is the Leading Practice

The leading practice is related to a principle we suggested early in this Series and is one of the characteristics of a project life span approach and a stage gate process.

The stages and stage gates have an important function, which is to provide proper discipline coupled with proper governance, so that the team cannot spend time and money on projects and stages that are not yet authorized. The team develops and delivers the project one step (stage) at a time to avoid overspending in a given stage. When management believes the project continues to make business sense and they intend to continue with it, they authorize further work. In other words, in each stage, the team must do only what is necessary for that stage to meet the criteria for the upcoming stage gate.

With the above principle stressed, we propose at least two main funds approval points and three budgeting steps, which we will explain in the remainder of this chapter. This is the leading practice in capital-intensive industries. These are at stage gate 2, stage gate 4, and stage gate 5 in the standard CAM²P™ model.

One point of view is that there is a fund approval point at every stage gate. This would be partially correct, since approvals at the earlier gates (SG1, SG2, SG3) are typically authorizing work, and work is effort that has associated costs. However, at these earlier gates the authorization is limited to the costs of the stage work. Some organizations consider the costs of the early stages as overhead cost and not formal project capital funds.⁷

The allocation of operating and capital funds against projects is normally determined by previously defined accounting rules and confirmed by the authorized level of management. Capital funds typically require top executive management or even board of director approvals.

2.4 Three Budget Approvals

2.4.1 First Budget Approval

The first budget approval is at stage gate 2. This approval is different from the next two approvals as we explain here. At SG2, the management decision (intent) is to authorize the project to proceed to completion but in reality, they are only authorizing the team to continue on to the next stage and until the next stage gate. In practice, they are not allocating any funds for capital investment at this time. The funds for the upcoming stage will come from an operating expenses budget.

If no money – capital investment – is allocated, then what is the significance of this first budget approval and why do we even use the term budget?

In organizations with good financial control system and project budgeting process, they use annual operating plans or a business plans that covers three to five years ahead. Therefore, when an organization approves the project at SG2, they add the project with its expected costs to the operating plan or business plan, whichever is appropriate. In other words, they allocate funds for business planning but these funds have not been authorized yet. This estimated amount is part of the project authorization document.

One potential pitfall: some organizations use this budget for the project as the only approved budget (refer to common practices earlier in this chapter). The pitfall is the fact that this “budget” is only order of magnitude and with a wide range.

2.4.2 Second Budget Approval

The second budget approval point might not be required for some projects but is necessary for capital investment projects. If it is required, then it is common to approve funds for the team use, from outside the operating expenses; these would be capital investment funds dedicated to the project independent of day-to-day operations.

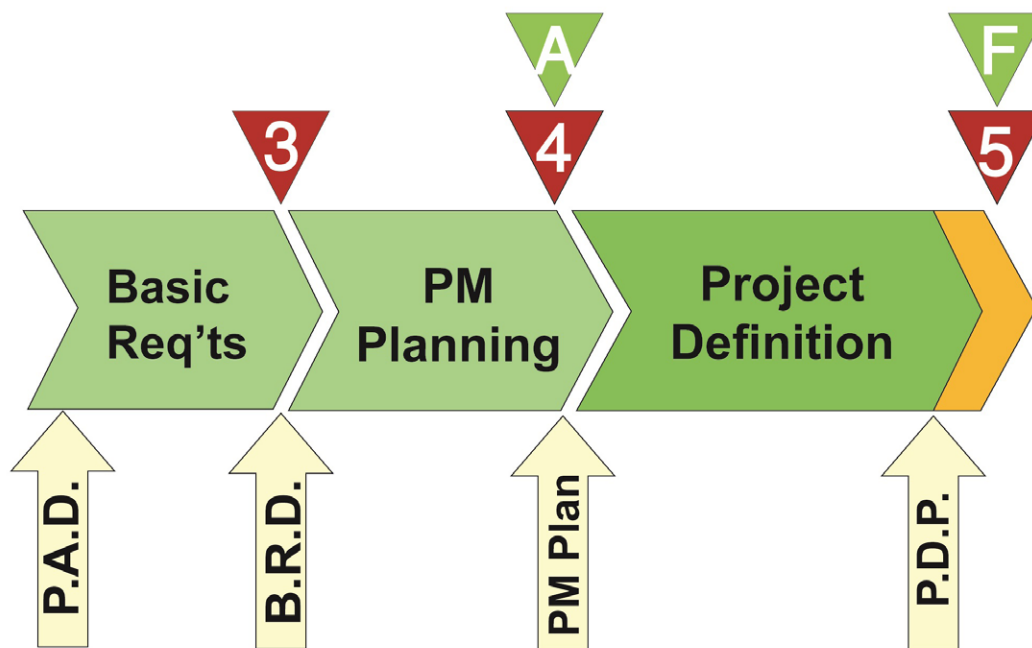


Figure 5: Funds Approval

Figure 5 represents the relevant portion of the CAM²P™ standard model for capital projects. Note that at stage gate four (SG4) there is a green triangle with the letter 'A'. This indicates that the team needs to obtain 'Advance Funding' from management to carry out the project definition.

“Why is it called ‘advance funding’?”

Because per this approach, this approval is not the final funding!

For capital projects, the level of detail gathered up to this point is not substantial enough to allow for the development of a proper plan with detailed cost and schedule estimates. As a result, executive management will not yet be prepared to make the final commitment.

It is worth noting that up to this point the amount of money spent on the project in relation to the total expected cost should be negligible, less than one or two percent. In the event the organization cancels the project, this low expenditure become sunk cost and is absorbed into the overhead of the organization. In contrast, project definition is the first stage at which expenditures start to increase, thereby increasing project risk. One of the reasons for the increase is to the increased level of resources and because it is likely that the Project Owner will outsource the definition work to a Service Provider.

“If this is not the final approval, at this point what exactly is the team getting?”

The team is getting funds **to cover** the project definition stage. A typical advance funding allocation is about two to five percent of the total estimated cost of the project, sometimes even more.⁸

“What is required prior to this approval?”



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The project management plan, including updated cost and time estimates.

2.4.3 Third Budget Approval

Figure 5 also shows another triangle with the letter ‘F’, representing ‘Final approval’. In other words, final funding normally takes place at stage gate five (SG5). To obtain this funding, the ‘project detailed plan’ is a key input.

“What is the significance of the project detailed plan?”

Organizations with capital investment projects require a detailed plan as the basis (input) for estimating, to produce accurate estimates and reduce uncertainty. These cost and time estimates are accurate enough to allow a major decision to cross the point of no return, at SG5.

Cost engineering references shows that at this point, the estimate is actually a range of plus or minus five or ten percent, in other words, the final (actual) project cost could be as low as 90% or up to 110% of the budget approved at stage gate five (SG5). From a risk management perspective, organizations typically consider this range – 90% to 110% – as an acceptable risk.⁹

Since this approval is a crucial decision point, the request for final approval could take time in some organizations, hence the use of the narrow chevron placed immediately after project definition and before implementation.

3 Project Estimates

3.1 Introduction

In the previous chapter, we identified two major funds approval and three budgeting points. We also stated that an input to the decision making process at each stage gate is an updated estimate of cost and time. This leads to the question: what are the leading practices for how many estimates are required for a project?

Across the project life span, do we need one, two, or three estimates? What about four or five?

We are sure that a reader from banking, information technology or marketing is now thinking that the author has completely lost it!

The Association for the Advancement of Cost Engineers, International defines five different and distinct estimates classes for the life span of the project (AACE® International n.d.)¹⁰.

For some domains and in certain situations, the use of five estimate classes per AACE® is appropriate. We must stress, however, that not every project will require five estimates. Even in capital-intensive industries, the leading practice is three estimates.

3.2 Proposed Approach

What are the three estimates classes that we have just introduced?

We propose the following as a leading practice in application of CAM²P™, even on small projects. These are similar to, but not complying with AACE guidelines.

3.2.1 Class 1 Estimate

We call this first estimate the ‘rough order of magnitude’ (ROM) estimate, although conceptual or study estimates are also common names.

This estimate is necessarily at a high level since not enough project detail has been developed during the concept phase (see Figure 6). Therefore, it is the least accurate of the three proposed classes.

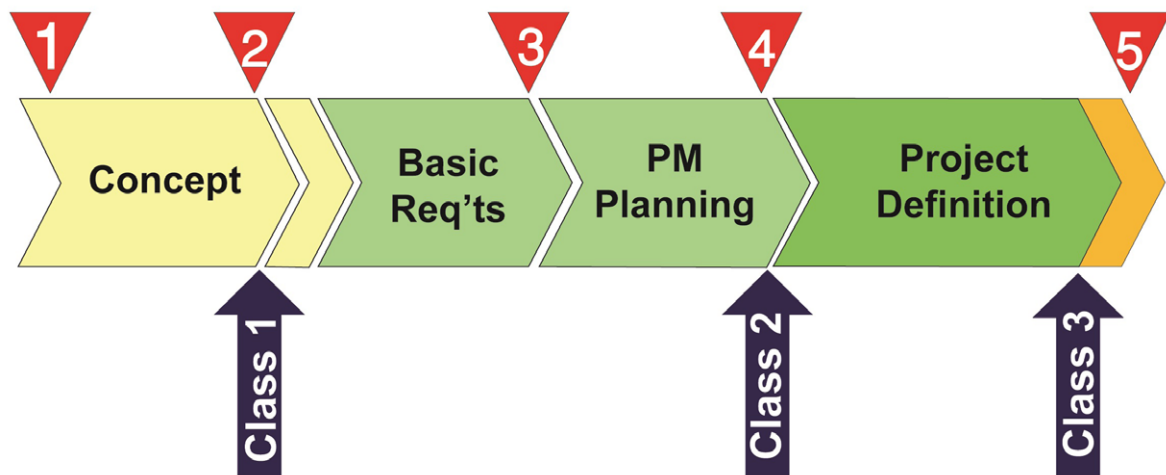


Figure 6: Proposed Estimates & Project Life Span

The primary use of this class is for the feasibility study, in which the team documents the project’s financial evaluations. For commercial projects, the team focuses on financial return and for social or governmental projects, on justifying the expenditures in comparison to social or community benefits.

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In either case, we use this Class 1 Estimate to make the decision at SG2 on whether to authorize the project, issue the PAD, and give the go decision to proceed on to the next stage of project. Further, as mentioned in the previous chapter, approval at SG2 leads to the first budget approval and inclusion of the project in the organization business plan.

To develop this estimate, project teams typically use historical data from previous projects. Such historical data will typically be at the project level and contain minimal details. In the absence of this information, teams depend on expert judgment and possible quotations from third parties such as vendors and service providers, although this is not always practical or appropriate for a given project.

Keep in mind that the term 'estimate' refers to both cost and time, even though cost is what is most frequently referenced. In this Series context, unless we specifically mention cost or time, the use of estimate is for both. Therefore, the Class 1 Estimate is an estimate of the approximate project cost and expected project duration.

3.2.2 Class 2 Estimate

This is an update to the Class 1 Estimate and is called the 'planning estimate' in CAM²P™; 'budgetary estimate' is also a common term. We develop this estimate during the project launch stage, with project management planning.

The accuracy of this estimate is better than the ROM estimate it is based on but it is still not suitable for project detailed control since it does not yet contain enough detail.

The main purpose of this estimate is the enhancement of management's understanding of the project estimate, to determine if it is still in line with expectations. Further, if advance funding is required, the organization will require this estimate to request its approval at stage gate four (SG4).

To develop this estimate, the project team typically uses a blend of historical data from previous projects and other estimating techniques. This varies within industries and companies and is a function of the project management maturity in the organization. We discuss estimate accuracy in relation to project management maturity at the end of this chapter.

3.2.3 Class 3 Estimate

This is a crucial estimate, which the project team develops during the project definition stage. This estimate is called the 'detailed estimate' in CAM²P™; 'semi-definitive estimate' and 'funding estimate' are also common terms.

You may also encounter the term 'control estimate', since this estimate is used after approval to develop the performance management baseline. The project team then uses this for project control purposes during the implementation stage.

The project team uses the information from the project definition stage and the project planning information, including the detailed work breakdown structure, to develop the Class 3 Estimate. With this level of detail, the estimate is sufficiently accurate (+/- 10%, as mentioned earlier) and is suitable as the basis for the final project approval at stage gate five.

3.2.4 Summary of the Three Estimates

In summary:



- Each estimate has a different purpose
- The purpose is appropriate to a related stage in the project life span
- Each estimate is an input to a stage gate
- The level of estimating details and estimate accuracy is a function of the project stage
- As a result, the uncertainty of the estimates is reduced with the subsequent estimates
- Reducing uncertainty leads to reducing risk to an acceptable range
- This then reduces threats and enhances the chance of project success
- Finally, accurate estimate provides proper and realistic control baselines

3.3 Are Three Estimates Too Many?

Maybe, maybe not!

In Part I of the Series we presented data from a 2009 Standish Group report that reveals that 44% of technology projects and another 24% are complete failures. (The Standish Group n.d.)

Why such a poor record?

Imagine such a record on mega capital projects, each costing billions of dollars. If 24% of such projects were to fail, what are the consequences?

We are not claiming that poor estimating causes failed and challenged projects but would it be fair to ask 'is estimating a factor?'

We think it is appropriate to expand the discussion from estimating to the use of these estimates in making project decisions. Our model links estimating, directly to the stage gates in a project life span. So we pose the question again but in a different way, did these failed or challenged projects follow a disciplined approach, using techniques and controls such as project life span and stage gates?

The issue here is if an organization's management wants to approve projects with less detailed estimates, and earlier in the project life span, say using Class 1 Estimate as the only basis for funds approval, then they must expect a higher risk of project delays and budget variances. This is because, as we already explained, the level of detail for the Class 1 is low and the accuracy is the least of the three estimates. In other words, there is a tradeoff between earlier decision-making and higher risk. If this tradeoff is acceptable, then great, no issues. If not? Then think twice about this approach and consider adopting our leading practice.

To close this topic, we say you decide!

3.4 Estimating and Project Management Maturity

We mentioned earlier in this chapter that there is a link between proper estimating and project management maturity. In general, the link is not limited to estimating since all project management processes, particularly planning, are a function of an organization's project management maturity. Since this Series is not about project management maturity, we will not explain the links in details but we will touch on key points.

The most important factors that contribute to a higher level of project management maturity are components of a formal project management organizational system, such as methodology, governance, processes, lessons learned, historical data, and project records. The historical data and project records have a direct input on estimating and estimate accuracy since the estimating effort will use proper records and actual data instead of guesswork or vendor quotations. Further, vendor quotations may not be possible during the early stages of the projects since vendors need detailed design or specifications.

A non-existent or weak organizational system, lack of historical data for cost and time, and the absence of lessons learned will all contribute to poor planning, unreliable project detailed plans, and funding decisions based on questionable estimates. Moving on to implementation, poor planning will lead to numerous variances and unanticipated risks, which in turn result in the project management team spending too much time reacting to problem instead of proactive management. In these situations, the outcome is almost certain – failed or challenged projects.

4 Project Control: Moving Baselines

4.1 Introduction

The concept of baselines is an established concept in project management; however, in this chapter we will offer a slightly different perspective on this concept.

The common definition of a baseline is *a line of reference, the basis against which we compare project performance*. In other words, the baseline is essential for project control since it reflects the ‘approved plan’ and in project control we want to compare actual performance versus approved plans.

We accept this definition and we utilize it in CAM²P™. Where we deviate is that our approach is not limited to what is normally accepted or understood. In CAM²P™, we go further and ask *where exactly is this line of reference? What plan should we use for control?*

4.2 Traditional View

Repeating what we said earlier, the traditional view, or common practice, is that project control is about comparing where we are, actual performance, versus ‘the plan’. ‘The plan’ is typically the one used to obtain



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Therefore, the traditional view is that we perform project control against the project baselines that the organization approved at stage gate five (SG5).

4.3 CAM²P™ Perspective

We believe that most organizations use one form or another of the concept that we present here, but possibly implicitly, not explicitly. The proposed approach is that we have ‘moving’ baselines, as we present here and graphically in Figure 7. The moving baselines, or what CAM²P™ calls *control reference points*, start with the idea statement.

4.3.1 Can We Control Against The Idea?

Yes, we can, although we realize control against the idea is qualitative and conceptual, not quantitative.

The phrasing of the idea statement is critical, and a slight variation can mean different projects. For example:

- Scenario 1: project purpose is “*to get drinkable water from city A to city B*”
- Scenario 2: project purpose is “*to build a pipeline to get drinkable water from city A to city B*”

Clearly, scenario 2 is more specific and you would expect that the project manager will work on building the pipeline, whereas in scenario 1, a good project manager will look at all options for moving water and choose the optimal one.

To build on the above, if the project manager in Scenario 2 starts considering options, then she is deviating from the project mandate. On other hand, in Scenario 1 if the project manager is not evaluating options, then she would not be performing her duties properly.

What we are proposing is that the highest-level control on the project is delivering on the idea statement during the pre-launch stage. In other words, this initial control is to ensure that the feasibility study is developed in accordance with the idea statement and does not deviate.

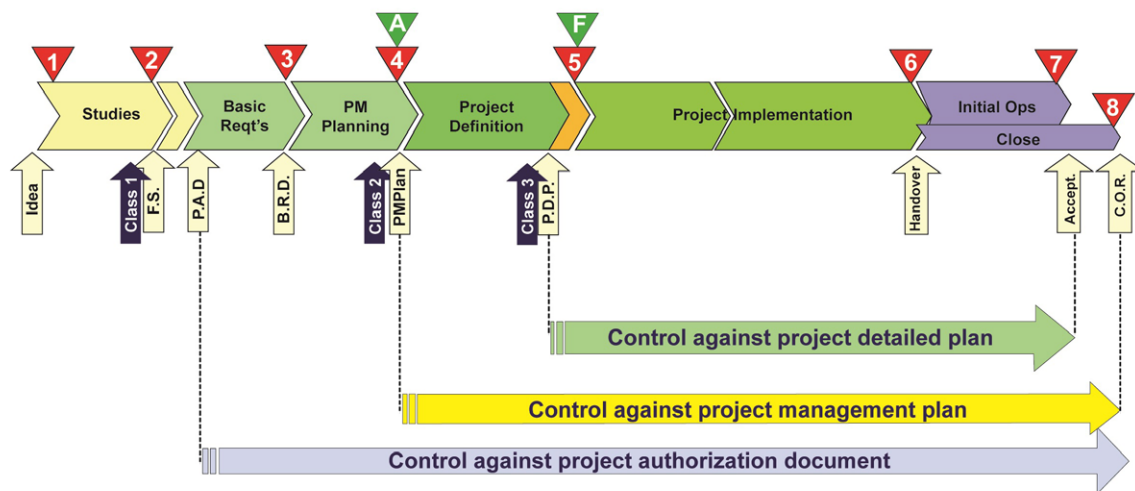


Figure 7: Project Control Points: The Moving Baselines

Although we do not show this point of control in the figure, it is implicit. However, organizations can choose to make this explicit and formalize in their organizational processes.

4.3.2 Second Control Reference Point

Control is an ongoing effort that starts with the idea statement, as we already stated. In other words, the idea statement was our first control reference point.

The next control reference point is control in comparison to the project authorization document, which is what we show in the bottom arrow of Figure 7.

For some, this is given and a standard practice. For others, this is a new concept since, as we discussed earlier, various project management approaches stress control against the plan, and the plan is not complete until the end of the planning processes, which some might confuse as stage gate 5.

You may ask, “How can we control against a brief, high level document such as the PAD?”

The question could continue, “There is not enough information to control against at this level; we do not have a baseline yet”.

Our response:

We do have enough to exercise control! We have the project description, justification, and objectives, all part of the project authorization document, and they are the ultimate control points.

“Aren’t these items vague?”

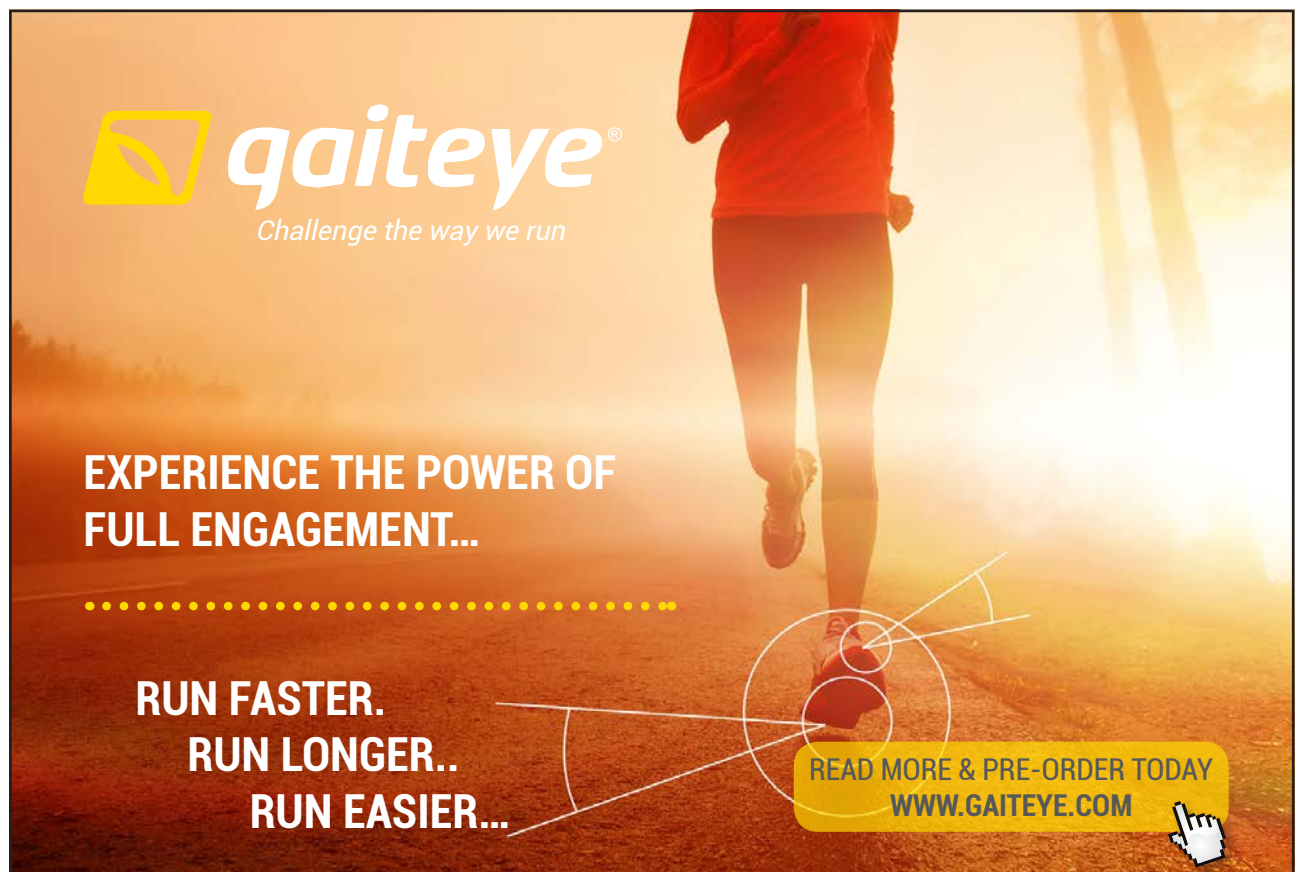
We agree that they do lack details but if the PAD's brief contents cannot clearly define the project objectives for us, then it has a deficiency and we have an issue that is likely to impact our project performance. Therefore, control must start as soon as the Sponsor issues the project authorization document.

We do recognize that we might not be able to use the full, earned value management approach at this point, since we do not have quantifiable means for control of the full project, but that is perfectly acceptable. Our main concern during the project development phase is to ensure that we are developing the project in accordance with the project objectives as defined in the PAD.

“What happen if there is a need to change the objectives?”

We can do so via two mechanisms:

- 1. Sponsors can amend the PAD, or*
- 2. The organization should have a project change control system that includes the policy and guidelines on how to initiate and approve changes to the PAD. We call these project objective changes. This would be the recommended approach.*



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One final thought: in the previous chapter, we define the various estimates' classes, and we placed the Class 1 Estimate as a key requirement for the feasibility study. We also included the project order of magnitude cost and milestone schedule in the project authorization document. As a result, this second control reference point has scope, time, and cost components and can be essentially a preliminary baseline appropriate for the level of detail of the project authorization document.

4.3.3 Third Control Reference Point

“Where is the third control reference point?”

“How about the project detailed plan?”

Not yet – before the PDP we have the project management plan.

After the PAD, the project manager and team start working on the basic requirements in accordance with the project objectives. We outline the basic requirements in the basic requirements document (BRD). Subsequently the team develops the project management plan (PM Plan).

Throughout the project launch stage, the project manager must use the PAD as her guiding reference; she cannot deviate from it without the formal approval of the sponsor. Once we have the project management plan, which includes the updated estimate, the Class 2, we have our third control reference point or baseline. This baseline aligns to the project management plan.

Once again, we know that this is not yet the commonly understood baseline.

The project management plan includes various project management elements, such as procurement strategy, project life span, updated schedule, cost estimate, among other factors. These are more than enough to allow us to exercise control during the project definition stage. To enhance the chance of project success, we must monitor and control for any change or variations from the project management plan.

“How do we do that?”

As for changes to the PAD, the organizational change control system must include policies and guidelines for these changes. Yet it has been our observation from close to thirty years of professional experience that a large percent of organizations do not manage change prior to final funding, or even worse, they do not manage change unless they have a contract with a service provider. We think this is one of the most significant gaps in project management today for Project Owners' organizations. *We will touch on this in more details under the Scope Creep section of this chapter.*

4.3.4 Fourth Control Reference Point

“What is the fourth control reference point?”

This is easy! It is the traditional set of control baselines that we discussed earlier and mostly in Part II of this Series. These are the baselines established with the project detailed plan, which the team will use extensively during the project delivery phase.

4.3.5 Why Four Points

We need to note here that we are not necessarily, and concurrently, controlling against these control reference points. In practice, these control reference points will supersede each other. This is why we used the term **cascading baselines**, since with each new document that supersedes prior work, such as PAD, PM Plan and PDP, the new baseline supersedes the previous one.

“Why do we need four points of control?”

“Is this approach important?”

“Is not enough to control against the ‘baselines’, the one we defined per the project detailed plan?”

To answer these questions, we take a step back and reverse the question, *why one point only?*

One reason that the traditional and common view of control starts with the project detailed plan is its linkage to project funding at final approval. Some practitioners think that unless there is an approved budget there is no need for control. In other words, they link control to the money in an approved budget.

In other cases, there is no formal control or change management unless there is a contract for services, since the view is that internal changes are part of development and so are not true changes; changes only exist in the context of a contractual relationship.

Project control is not only about money or contracts, it is about:

- Variations from the plan
- Any variations including scope, time, cost, quality, human resources...
- Changes to the plan
- Any change, whether there is a contract or not.

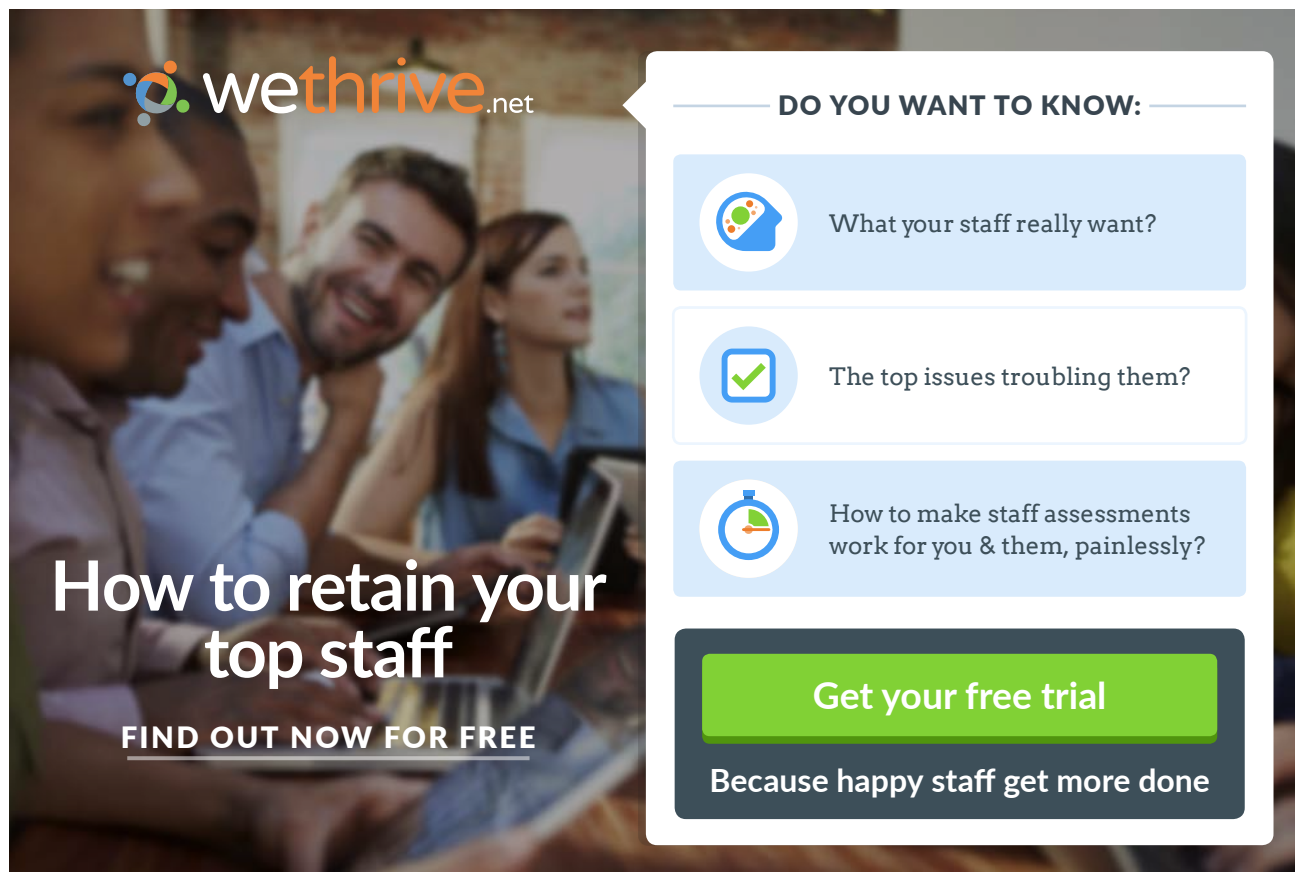
Notice we continue to use the word ‘plan’ and not ‘project detailed plan’ since the plan that we refer to here is any official reference that we can compare against, such as the PDP, PM Plan, and even the PAD. Therefore, we want to monitor for variations and changes throughout the project, depending on where we are on the project life span. Remember, earlier we mentioned we must treat changes to project objectives as formal changes.

4.4 Project Management Maturity and Control

“OK clear, but still, what is the significance of project control during the project development stage, would not the PDP absorb all of these variations and changes and become the document that supersedes all before it?”

Well yes, but is that enough? Let us put on the organizational maturity hat.

By ‘absorbing’ these variations and changes in the PDP without a formal project control and approval mechanism we are essentially burying or hiding these changes in the project details. If these variations and changes are due to poor planning, lack of experience, or an inadequate project management system, then how do we know, how can we learn, and seek continual improvements? Alternatively, the changes could be due to environmental factors, changing economic conditions, or numerous other factors. It does not matter what the reasons for variations and changes are; we need to know them, we need to understand them, and we need to document them, in order for us to learn from them and build toward higher levels of project management maturity.



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4.5 Scope Creep



Another major justification for these control reference points is ‘Scope Creep’; yes creep as in sneak in, creepy, sinister...or whatever other term the reader prefers to use.

Why does scope creep happen on projects?

- The PAD is quite high level, lacks details, and therefore leaves room for interpretation.
- Even the basic requirements document and project management plan do not have the same level of detail as the project detailed plan.
- We also know that in project management as the project progresses the level of detail increases.

Due to the above factors, it is often difficult to decide what is a natural variation, a conscious change, or a normal expansion of the project details due to progressive elaboration. Although it is difficult, we know that with proper due diligence it is usually possible to tell the difference between a variation, a change, and design growth.

Time for an example. The example focuses on the air conditioning system for a villa.

4.5.1 Pre-Launch Stage

Let us say we want to build a nice large villa, with a three-car garage and a garden, among other features. The house will have air conditioning and heating but the garage will not. The project is feasible and management authorizes it.

4.5.2 Launch Stage

During this stage, the architect/engineer works on the concept design and determines the approximate size of the air conditioning unit, at this point, a ‘10’¹¹. Its cost is included in the Class 2 Estimate that we develop in this stage.

4.5.3 Definition Stage



As the project move into detailed planning, the team will have a better idea about the house size, details, windows, and insulation. The team must revisit the air conditioning size and determines that it should be a size 11, a 10% growth.

This is normal design growth due to progressive elaboration.

Based on the detailed design, we put enough for a size 11 system in the budget.

When the team investigates availability in the market, they find out that there are only sizes 10, 12, and larger. What do we do? Whether we undersize to 10 or oversize to 12, ***we do have a variation from plan. This is a market driven variance.***

So far, we have:

- 10% growth due to design development, and
- About 10% growth due to market conditions.

These are normal and expected in any project and if we keep records from past projects then we might even have expected them and included them in our estimate. To be clear, we might not have known the exact variations or magnitude but we know these things happen.

Let us continue.

As the work progresses and *while we are still in definition stage*, let us say that the owner decides to air condition the garage, resulting in an increase in the unit size to 15. ***This would be a change to the objective***, or at least to the project management plan.

In this case, the market variance is not relevant anymore and the growth due to the change is from size 11 to size 15.

Notice that if we have adopted the traditional view of control, which is control against the detailed plan, then the air conditioning unit would be size 15 in the PDP. Since we have size 15 in the PDP then the Class 3 Estimate needs to include a budget allocation for this larger size. This is a 50% growth over the Class 2 Estimate.

If we had not kept records and imposed a project change management system during project definition, we would have missed this change. In other words, we hid the growth and the change into the project detailed plan.

No big deal!

It is a big deal.

The air conditioning unit increased in size from 10 to 15, a fifty percent (50%) growth and only ten percent of that was due to normal progression of design (from 10 to 11). This growth in size had a corresponding growth in cost, and possibly schedule or risk, among other factors. In other words, the actual magnitude of the change would have gone unnoticed if we had not implemented multiple control points.

4.6 Closing Comments

In the previous example, we had:

- Natural growth due to design development (progressive elaboration)
- Growth due to market conditions, which became irrelevant later
- Growth due to changing requirements.

This information is crucial for learning about what happens on a project and is included in the reconciliation during the project close. This is also important for organizational project management maturity, as we have discussed more than once.

Although this is a simplistic example, it is a reality. Time and time again, we hear about projects that went up in cost 10, 20, 30% or even more between the Class 2 and Class 3 Estimates and management is asking why?

“It is the market conditions!” is what we hear as the common answer.

Well, maybe it is the market conditions. However, the market conditions in normal times do vary so if something goes up usually something else goes down and balances it.

We leave you with a few points to ponder:



1. Do you see a need for project control during the project development stage?
2. Can you reflect on your own projects and think about potential changes and scope creep that affected your project outcome?
3. Could you have avoided a cost or schedule over-run if you had applied these principles?

5 Project Risk Management

5.1 Introduction



Project risk management, as a general topic, is outside the scope of this work. For further reading on this subject, there are many publications from ISO, PMI, Dr. David Hillson, and other organizations and individuals.

The inclusion of this chapter here is to highlight potential gaps in the practice of project risk management, particularly gaps related to managing risks across the project life span.

5.2 Risks: Threats or Threats and Opportunities

One of the gaps in the practice of project risk management, not related to the project life span but relevant here, is specific to the concept of risk perception.

There are two schools of thought on risks. One considers risks as threats to the project. As a result, this school of thought uses the term risk management to refer to the management of project threats.

An advertisement for the CMO Inspired Conference. The top section features a green speech bubble logo with 'CMO' and the text 'INSPIRED CONFERENCE' followed by '25 OCTOBER | DE VERE BEAUMONT ESTATE | OLD WINDSOR UK'. Below this is a photograph of a large, white, classical-style building with a fountain in the foreground. The bottom section is a collage of images showing conference attendees, speakers, and a presentation slide. At the bottom of the collage, it says 'Join Over 100 Chief Marketing Officers & Digital Innovators'.



The other school of thought considers risks as threats and opportunities, meaning the risk could have positive or negative consequences. The author subscribes to the latter school of thought: a risk could be a threat or an opportunity and risk management is about managing risks by minimizing the threats and maximizing the opportunities.

5.3 How Often Do We Perform Risk Assessment

We frequently ask practitioners, “*How often, do you perform risk assessment on projects?*”

They usually respond, “*We do risk assessment once during planning but we monitor throughout the project.*”

Although this is a common practice, is not a leading practice. Further, it is actually a gap, which relates to the confusion between process groups and project life span.¹²

The main challenge is the following.

Some practitioners think that the PMBOK® Guide’s planning process group is a **project stage, the planning stage**. Since they think planning is a stage, then risk management assessment, which is part of the planning processes, takes place only in this stage. However, since the process groups and their planning processes repeat in every stage, then risk assessments and their corresponding risk response planning must also repeat in every stage throughout the project.

Please note that the above is different from risk monitoring and controlling. By risk assessment, we mean risk identification, analysis, and prioritization. All of these activities lead to taking the necessary actions to deal with high priority risks and respond to risks.

In closure, risk assessments and response planning take place during the planning processes of every stage and during the execution of the stage, we apply the monitor and control process. Further, when is stage is complete, we go on to the next stage and repeat the process.

5.4 Stage versus Project Risks

The earlier section brings in another challenge.

With every project, there are different types of risks, such as business, marketing, safety, planning, and many more. However, in the context of a project life span, we divide risks into two categories.

- The first category of risks is the set of risks that are specific to a stage, meaning they are no longer relevant when the stage is complete. Therefore, we must treat these risks during the given stage, or we lose the opportunity for effective risk management. For example, risks that could affect the development of the project feasibility study are no longer relevant once the study is completed and accepted. The same is true for the other stages.
- The second category is the set of **project** risks, and these are risks that affect the project's overall objectives and not specific to a stage activities.

5.5 Risk Management across the Stages

As early as the feasibility study, risk is a topic to address and frequently revisit.

5.5.1 Project Pre-Launch Stage

5.5.1.1 The Project as an Opportunity

Let us look at a project from risk management viewpoint.

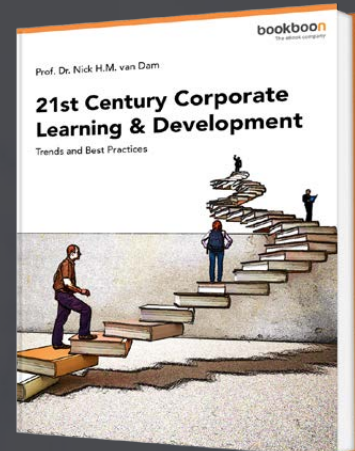
What is a project?

A project is an opportunity that the organization is considering.

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In other words, it is a **positive risk** (an opportunity) since if the organization delivers the project successfully then it will realize benefits – positive consequences. If we fail in delivering, the results would be negative consequences.

With the above context, the feasibility study is a form of risk analysis in which the organization assesses the risk event (the project / opportunity) and determines if the benefits justify the risk and expenditures. Through the feasibility study, the organization decides whether to exploit the opportunity presented to them, which is the project idea and business case for the project.

5.5.1.2 Project Risks

During the pre-launch stage, particularly during the feasibility study, the focus is on commercial risks, market risks, financing risks, among other high-level, project-wide risks. If management considers that the threats from these various risks are significant, the organization would likely decide not to exploit the opportunity and discontinue the project.

However, when at stage gate two (SG2), executive management decides to go ahead with the project, they are indicating that those risks (threats and opportunities) are manageable, and the team has considered those risks as part of the project economic calculations. In other words, they have accepted the risks. Alternatively, they could have accepted them at the time of authorization, on the condition that the team treats those risks when appropriate in the upcoming stage(s).

5.5.1.3 Stage Risks

As mentioned earlier, we also have stage-specific risks that must be dealt with during the planning for a given stage or they may affect the product of the given stage.

Some of these risks can be people-related such as human resource availability and expertise. Other risks can be time related – not enough time to do a proper study. Other risks can be lack of organizational systems and standards, poor planning, known distractions during execution, among many other potential risks. Since these are risks that only affect a proper stage or feasibility study development, once the stage is over these risks are gone, whether they materialized or not.

How do we manage these risks – like any other risk, we identify them, analyze them, and respond to them. If the reader does not have experience in this topic, once again we suggest researching this topic or use of one of the available standards, such as ISO 31000.

5.5.2 Other Project Stages

For each stage, we face:

- Project risks that we carried over from the prior stage
- Project risks that we identify in the given stage
- Stage risks for the given stage.

Regardless of a risk's categorization, we need to manage them all.



As we move ahead with the project and develop the project authorization document, project management plan, and subsequent deliverables, we start to have different types of project risks. These are the project development and project delivery risks. Here again, some risks may be specific to a stage, and we must deal with them during the current stage, whereas other risks may affect subsequent stages. This cycle repeats until the project is complete.

It is important to note that from the organizational perspective, there are risks even during the project close stage, although these risks will not affect the specific project since it is complete but will impact organizational learning, specifically for project and risk management.

5.6 Timing for Managing Risks

Just to be clear and avoid misunderstanding, what we presented here does not mean it is acceptable to move risks from one stage to another.

We must pay attention not to defer risks' treatment into future stages if we can address them during the stage where the team identified them. The project team must have the proper discipline and due diligence not to defer risk treatment. What we are proposing is that for some – rare – risks that we may identify early, we might not have enough information to deal with them at that time. In that case, we defer their management to the first upcoming stage in which the team is able to manage them effectively.

6 Project Stakeholders

6.1 Who Are The Various Players Along The Project Life Span?

This varies from one project to another and one domain to another.

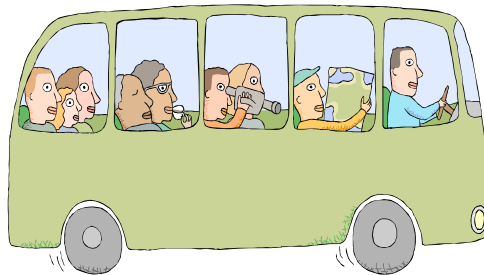
Since it is not practical to address every type of project here, we can only offer a general view that would be common across projects and industries.

In the write-up below, we focus on those stakeholders who are involved with the project. There are other stakeholders, those who are affected by the project, but it is not practical to include them in this discussion since how they are affected is highly sensitive to the project domain.

6.2 The Bus Trip Analogy

A good way to explain the key roles is to imagine a bus, with the stakeholders on the bus taking a trip, the trip representing the project.

The driver of the bus might not be the ultimate decision maker but let us agree that whoever is driving the bus has full authority, or at least the necessary authority to make some decisions.



Please join us on this trip!

- A project start with an idea, therefore, there must be an idea originator.
- The idea originator proposes the idea to management. If management accepts the idea, management appoints a sponsor. In other words, if management accepts the idea, the organization hires a bus and puts the sponsor behind the wheel.
- We propose to have the project manager at this time, or at least a representative of project management.

Sponsor and Sponsorship

"Sponsorship is a commitment by management to define, defend, and support major activities from the start to the end...project [and] is an active role during the project life cycle.

The project sponsor has a relationship with all project stakeholders but even more frequently with the project manager." (Englund 2006) Pages 8 to 9

- The sponsor will start to invite people on the bus. At the starting point, we have the sponsor, the project manager, and possibly the idea originator.
- The focus of the first stage is to validate the idea; i.e. perform a feasibility study and for this effort, we invite the feasibility team to join us on the bus.
- The driver is still the sponsor, with the support of the project manager. Alternatively, we could have the project manager driving with the sponsor supervising.
- If the idea is feasible and management authorizes the project, the sponsor will hand over the wheel, i.e. control, to the project manager. The sponsor provides the project manager with the instructions on where to go and what to achieve in each trip segment (stages). The sponsor and project manager also agree on the mandatory stops along this journey (the stage gates).
- The sponsor must stay on the bus but the feasibility team gets off the bus.



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- The project manager starts to take on more passengers – the project management team. This team will help manage the development of the project. The first activity is to plan the stage and decide on who do we need for development of the work (the execution team).
- Since this is likely to be a long trip, the project manager needs to stop every once in a while, for refueling, to conference with the sponsor, or even to ask for direction from people along the way (representing stakeholders who are not on the bus). During these stops, some people may get off the bus and others may board.
- The project manager will stay in the driver's seat throughout the project development and most of the project delivery phase, i.e. for the implementation and close out.
- During implementation, the sponsor may form another team in the back of the bus to start learning about the project destination. This team also plans what to do on arrival. The sponsor will appoint a leader for this team; let us call him Operation Representative.
- Once implementation is complete, the Operation Representative takes over driving the bus.
- At this time, most of the project management team's members leave the bus but the project manager (or another team lead) and a few others, may assemble at the back of the bus to provide the necessary support when required.



- While the Operation Representative and his team are working on moving the bus to the final destination, the project manager and her team work on closing the project, discussing lessons learned, and gathering their maps, as a way of reflecting the potential changes that took place along the way.
- Once the bus is fully at the location and the end users are happy, the project manager will complete the project closure and depart the bus.
- Trip Accomplished!

Personal Story

In the late 1990s, during a team building session that I was part of, the participants of the sessions had to give each other feedback, a positive point and an improvement point. At that time, I was not too patient and it seems that I always wanted to move fast even when some team members might not have been ready.

When it was my turn, a colleague, Wes Agnew, gave me his feedback, "*Mounir, you have to be careful, you might get to the bus fast but remember not to leave until everyone else is on the bus.*"

I took that feedback to heart and I recall it every time I am in a situation where I think we are ready to move but notice that not everyone is on the bus.

However, some people might take too long to get on the bus so what do we do?

The way I work with any team is that I will be at the bus explaining and sharing to get people to join the trip. I will wait for others but only for a while. I tell my team, "*let me know if you are not ready to board and I will do my best to ease the transition and explain why we need to be on the bus.*" However, if some hesitate too much or cannot make up their minds, then we leave without them!

7 Project Success

7.1 Setting the Scene

7.1.1 Introduction

In the previous chapters, we discussed points that are not specific to a project stage but apply 'Across the Project Life Span' as this Part is named.

We have discussed project approvals, estimating, control, risk management, and the project stakeholders. Following the same logic, we now cover our proposed practices for project success.

7.1.2 Gaps in Practice: Perspective

Gaps in common practice make this topic important.

Some project management practitioners view project success from a narrow angle, such as from the perspective of a Service Provider or a technical project manager but not from the perspective of the Project Owner, which is the reason the project exists in the first place. Even the fifth edition of the PMBOK® Guide, which includes a definition of project success, addresses this topic from a narrow perspective. Comparing CAM²P™ to PMBOK on this topic is a lengthy discussion and we refer the reader to a blog article by the author on this subject.¹³

7.1.3 Gaps in Practice: Success Criteria

Lack of success criteria is another gap in common practice.

During the authorization of the project, project and executive management should define and agree on the project success criteria in order to determine project success at the end.

It is common that some organizations ignore establishing success criteria, do not perform a proper definition of success, or do not communicate it to the project team. The threat here is with no criteria, how can an assessment of project success be done?

7.2 Perspectives

7.2.1 Strategic and Organizational Perspective

In Parts I and II of this eBook Series, we stated that through the Customizable and Adaptable Methodology for Managing Projects™, we take a strategic perspective for managing projects. For measuring project success, we also take a strategic approach at the organizational level.

What does this mean?

It means we do not limit our views to the project life span and we go beyond that, touching on the product life. In other words, we view the project as the business venture rather than the product that the project team produces before demobilizing.¹⁴

7.2.2 Project Owner Perspective

In line with the above, we must emphasize that we view projects from the perspective of the Project Owner, not the perspective of the Service Provider.

7.3 CAM²P™ Proposed Approach

In line with the above, CAM²P™ defines four dimensions (measures) of project success, which the project management team and organization can assess. This is in alignment with the concepts of approvals, estimating, and control, which we discussed in earlier chapters. For example, in the control chapter, we started from the idea statement and moved to the right along the project life span. In this chapter, we reverse the order of discussion and start from the product.

7.3.1 Product Delivery Success

This first dimension of success is to assess if the team delivered the product of the project successfully in accordance with the plan and specifications. In other words, did the team complete the work and deliver the product and did they deliver it in accordance with the standards and specifications?

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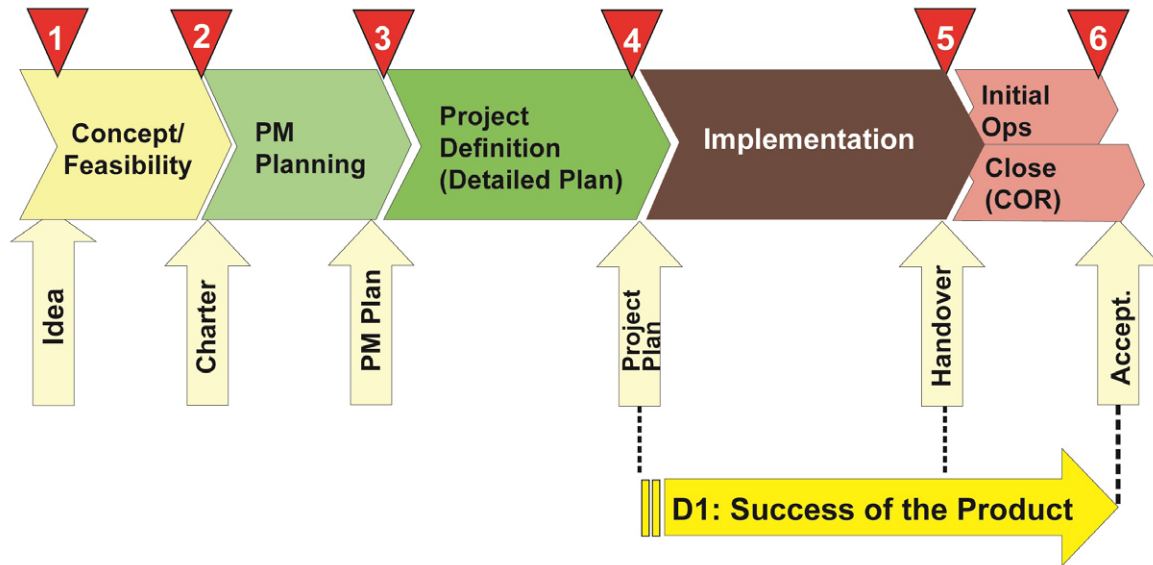


Figure 8: The First Dimension of Success: Product Success

The client (internal or external) works with the project management team to determine this success of the product delivery. Figure 8 presents this view.

We measure this dimension with a focus on quality and scope. We measure it against the PDP and perform this assessment at product final acceptance.¹⁵

7.3.2 Project Management Success

Figure 9 shows the project management success dimension.

This dimension assesses whether the project management team delivered the project successfully in accordance with the project management plan.

The focus here is primarily on time and cost in addition to any other compliance requirements. In other words, did we deliver the project in accordance with the organizational project management standards? Did we deliver it per the established performance metrics?

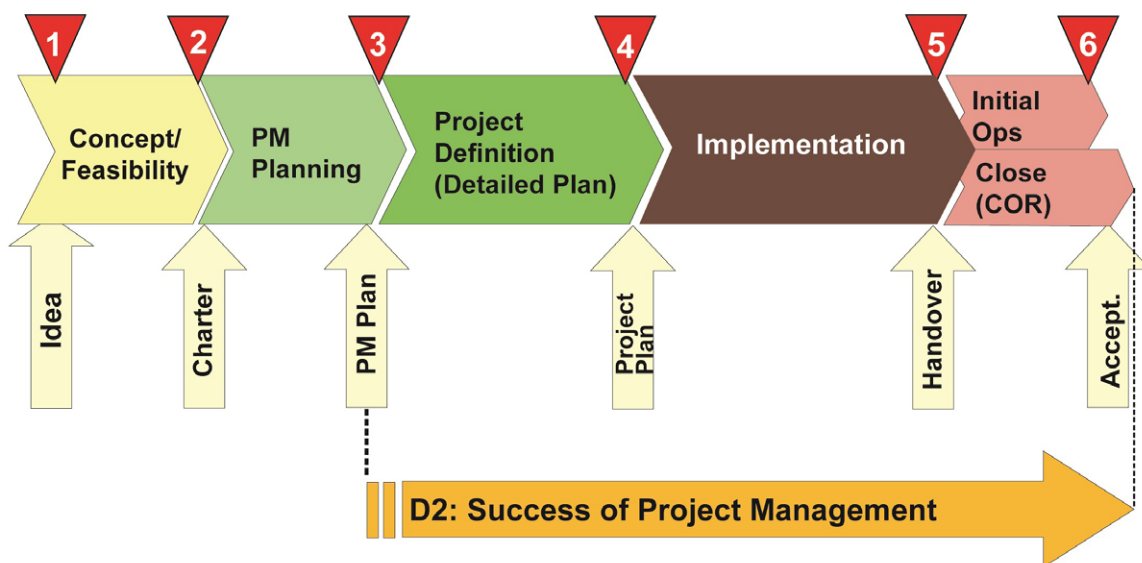


Figure 9: The Second Dimension of Success: Project Management Success

The client (internal or external) works with the project management team and project management office or department to determine this success.

We measure success on this dimension in comparison to the project management plan, and the measurement is performed during project close.

Note: since we can perform success measurement on dimensions 1 and 2 during or prior to the project close phase, we include the results as a part of the close out report.

7.3.3 Project Success

This third dimension is the most difficult to explain. In a way, it is between the first two dimensions and the last one.

The purpose is to assess if the team did deliver the project successfully in accordance with the various plans. These are specifically:

- Product delivery success per the project detailed plan
- Delivering the project per the project management plan
- In addition to achieving other factors specified in the project authorization document.

The first two bullets above refer to the first two dimensions, which are required input to this third dimension. Failing to deliver the project product per the project detailed plan or per the project management plan – is a project failure. Yes, if one of the dimensions was not met then we consider we consider project was not a success.

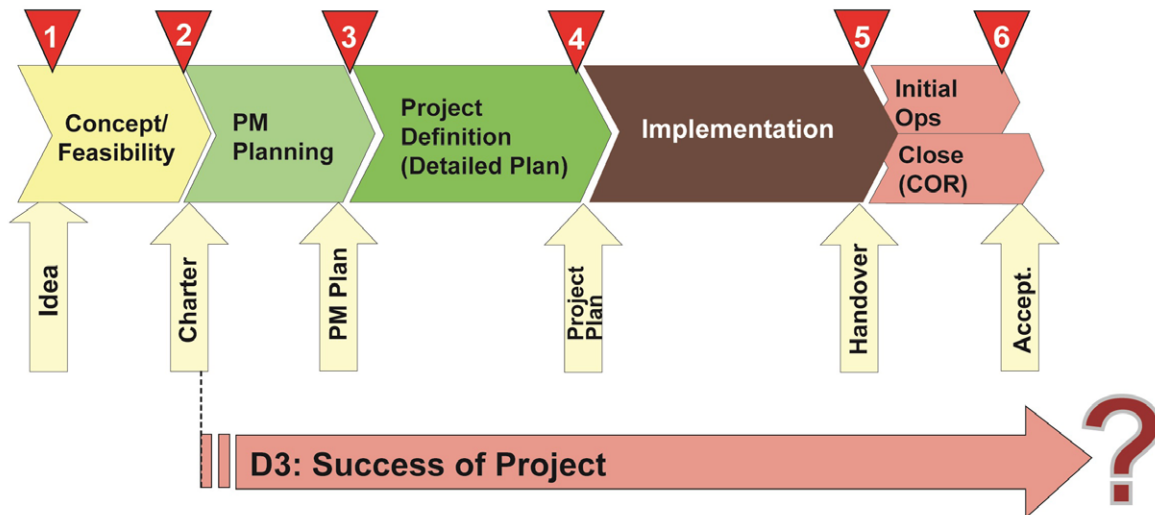


Figure 10: The Third Dimension of Success: Project Success

For certain projects, this third dimension might not be necessary. In those scenarios, we fall back on the first and second dimensions. However, for most projects there might be other factors for the organization to consider.

Now assuming the first two dimensions are in line with the criteria, the third bullet above refers to other factors. What are these other factors? These factors would be project or organization specific

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For examples

- In the case of an industrial plant, the success criteria can include, in addition to the first and second dimension, customer satisfaction, achieving plant capacity with 3 months of handover, no issues or gaps in the operating and maintenance procedures, among other factors.
- In an information system project, the additional criteria might be the end users feedback and satisfaction rating.
- In a marketing project, this third dimension can include good feedback on the marketing campaign and customer satisfaction.

When can we assess if we have project success?

It is possible that we can assess this dimension at project close, but it is not likely. For some projects, we might have to wait months or even years to be certain about this dimension¹⁶. We measure it in comparison to the project authorization document.

Some may say this is not the project manager's responsibility. We agree. However, remember earlier in this chapter we already said that we are not taking the project manager or project management perspective, we are taking the view of the organization, the Project Owner, and the strategic perspective. The person primary responsible for this dimension would be the project sponsor since he is the person the is responsible for the project authorization document.

7.3.4 Business Objective Success

The fourth and last dimension is the business objective success.

This dimension is to assess if the project outcome resulted in delivering the expected benefits that the organization outlined at the idea statement or when they approved the concept.

In other words, this dimension has a direct link to the concept of benefits realizations that we presented in the chapter on the project close stage in Part II. Some may argue that this is the same dimension as the project success. On some projects, this may be the case but not always.

Why?

This dimension is concerned with the expected benefits and the justification behind the project. The third dimension, by contrast, is in relation to the PAD. There is a possibility that the PAD was wrong and the sponsor did not develop the PAD properly to reflect the essence of the project. Therefore, the project team could deliver a good project according to the PAD but from the organization’s perspective, they delivered the wrong project.

If we refer back to the examples from the third dimension

- Industrial plant: in this case, the success criteria is achieving the return on investment
- In an information system project, the criteria can be reducing staff or increasing productivity
- In a marketing project, project success would be increasing leads by 40%.

Another perspective: management may accept and push for an idea, ‘an executive pet project’, and even intimidate the team, directly or indirectly, to take short cuts in the feasibility study. Here again, they could end up delivering the wrong project successfully.

If the sponsors or executives have not erred in authorizing the project and the project as conceived is good and justified, failure to deliver the desired outcome can still occur somewhere and the organization does not realize the benefits. The failure could be in the concept, development, or delivery phase.

The issues above are part of organizational governance and portfolio management. Although these topics are outside the scope of this Series, measuring project success is an essential topic here.

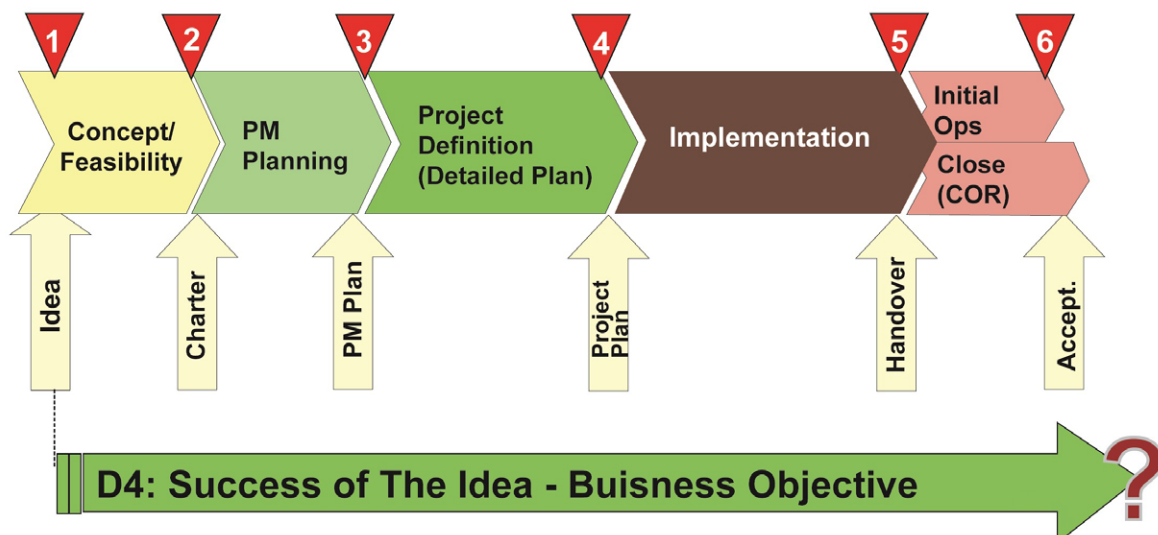


Figure 11: The Fourth Dimension of Success: Business Objective Success

Finally, due to the nature of this dimension, it is unlikely that we can measure it at project closure. We would only be able to measure after a long time, which could be as late as the end of the product life cycle.

7.4 Applying the Concept

7.4.1 Case Study

A client, an organization that sells valves and pipes for the petroleum industry, wanted to build a gymnasium (gym) at one of its warehouses (facility).

What is the project?

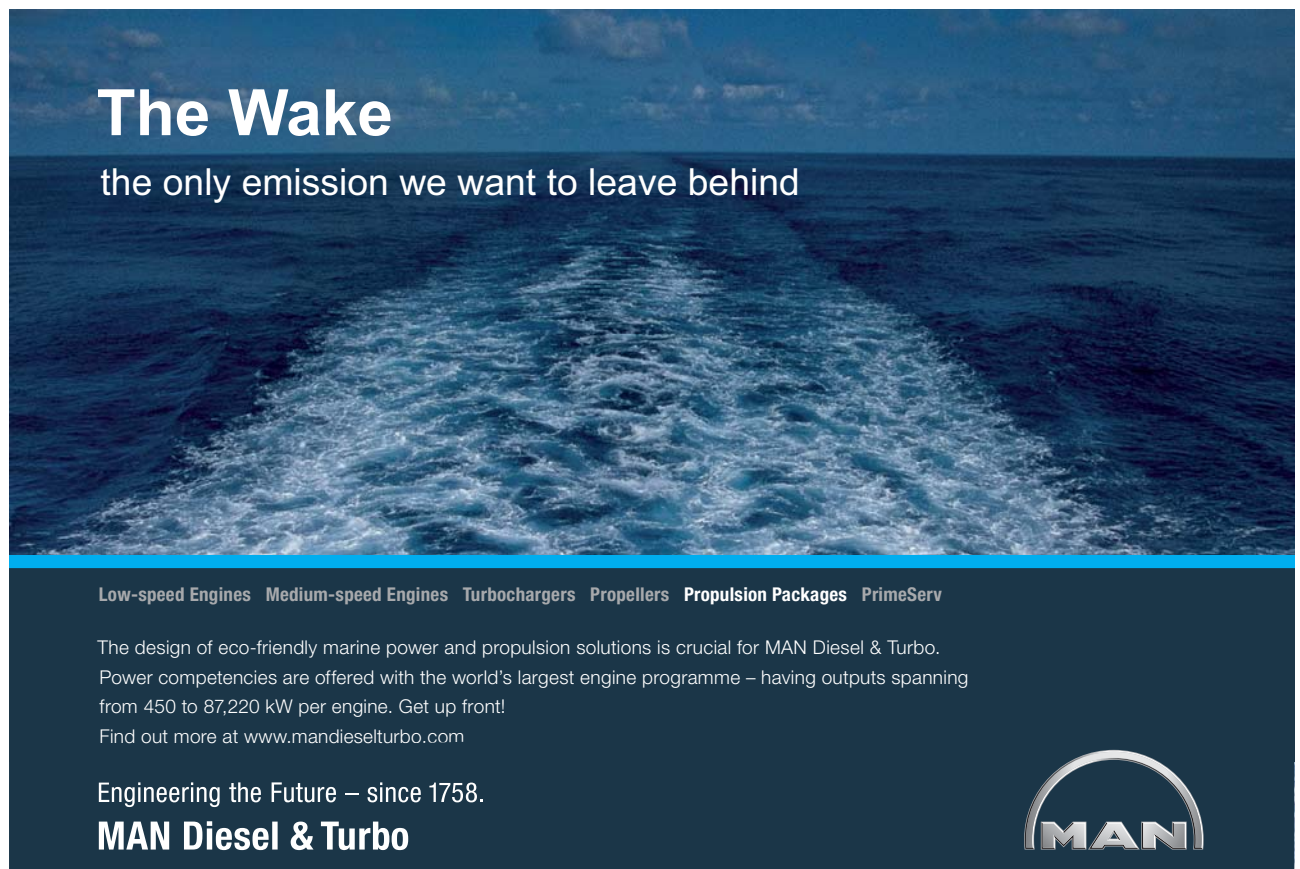
Most will say “the gymnasium.”

Is it?

Is the company in the business of building gymnasiums?

“No!”

OK – then what is the project?




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Maybe we should ask the question differently, what is the business objective for the project – the driver?

“Uh! Now we can say: Improve employee health.”

Great – now we know. So how we measure success?

1. **Product Success:** did we deliver the gymnasium in accordance with the project detailed plan, (PDP)? Meaning, did we deliver the building and equipment per given standards and requirements? If yes, good, first measure achieved.
2. **Project Management Success:** did we deliver the gymnasium in accordance with the project management plan, within the time, cost, and other metrics? If yes, wonderful, another measure achieved.
3. **Project Success:** did we deliver the gymnasium in according to the project authorization (PAD)? Another way we can consider this is ‘did we deliver an acceptable and good standard gymnasium?’ If yes – then good, the organization achieved the third measure.
We can expand on this dimension by asking, did the staff like the gymnasium, and demonstrate this by using it?
4. **Business Objective Success:** did the project contribute to improving employee health? We may be able to give a preliminary answer at project close after a period of initial operations. Proper measurement cannot take place until many months or even a couple of years after acceptance of the gymnasium.
In the following, we look at the same project from different angles.

7.4.2 Idea Statement and Project Success

Scenario 1

If you are a project manager and management mandates you to build a gymnasium, would you be thinking along the fourth aspect of success, which is improving employee health? Would your focus be on ‘building a gym project’? This means you will be focusing on the facility only. What do you think?

Scenario 2

Now let us ask the same question with a slightly different idea statement.

To improve employee health (without a mention of a gym), what will your project look like? It could include a gymnasium or not; it might include subsidized memberships to health clubs and it is likely to include awareness campaign about good health.

Scenario 3

We will try one more time and ask the same question differently. The idea statement is “improve employee health’ by building a gym at our warehouse”. This project will likely include elements from the two earlier scenarios. With this scenario, the chance of success (business objective success) is much higher.



As you can see from the above – changing the idea statement slightly – a few words can make a huge difference to a project. Can you relate this to our discussion in the control chapter about control against an idea?

Do not you think that achieving the business objective for this project would be more likely with Scenario 3 versus Scenario 2 or 1?

7.5 When Do We Define the Measures of Success

We repeat to emphasize!

When do we define the criteria for project success, along all four dimensions?

As early as the feasibility study but no later than basic requirements, at least for the third and fourth dimensions of success.

If we do not define success than we will fall into the trap of “completion = success”, which is not effective from an organizational perspective and which will not help the organization achieves higher level of project management maturity.

You decide!

7.6 Dimensions of Project Success and Project Life Span

CAM²P™ is a methodology for managing projects that is developed in relation to a project life span. The life span starts with the idea statement and ends with stage gate 8, with project close and after project acceptance by the client, internal or external. This project life span may include an initial operation period based on the type of the project. This operation period is likely led by operation personnel, not the project team, but again, this is a function of the project domain. What we are emphasizing here is what we have presented in the different chapters and parts of the Series.

Further, CAM²P™ stresses a strategic perspective in managing projects, which leads us to the next point. We have outlined in this chapter, that there are four different dimensions of project success. Two of those dimensions we can evaluate during the project life span, before final acceptance and before closure. However, the other two dimensions the organization cannot evaluate until after stage gate 8. Is not this a contradiction with the previous paragraph?

No, there is no contradiction but with an explanation.

The project life span includes the three phases of project concept, development, and delivery. This time span falls under the responsibility of the project sponsor, and the project manager. However, as far as the organization is concerned – this project life span is only the acquisition phase of the product life cycle. In other words, the acquisition project is over but the product life is continuing; refer to Chapter 1 in this eBook.

Who will handle the success measurements for the third and fourth dimension with the project sponsor and project manager re-assigned? It could be the PMO, project management department, strategic business development, operations, or whatever department owning this process.



The advertisement features a circular logo on the left with three stylized human figures in the center, surrounded by gears and four arrows pointing clockwise. To the right, the text reads: **UNLEASHING CHANGE MANAGEMENT**, **OCTOBER 18 & 19, 2018**, and **DE RODE HOED AMSTERDAM**. At the bottom, there is a silhouette of an Amsterdam skyline including a windmill, a bridge, and several buildings. In the bottom left corner, it says 'Global Executive Events'.

Section 3: Application Concepts

8 Applying the Model

8.1 Introduction

As noted several times in the Series, we believe that it is very important to have a model that you can customize to your and other industries, utilizing its common concepts but allowing for the specific requirements of these industries and project domains. You should also be able adapt the model to a project classification or an organizational unit.

We encourage you to apply the model to your specific circumstances. To get you started, here are some diverse examples to get you thinking.

8.2 Project Samples

8.2.1 Sample 1

The last Part of this eBook Series, Part IV, dedicates one Section (multiple chapters) to applying the methodology to a simple and limited resources project, writing a book.

The sample initially follows the project from the idea to detailed plan. Then it proceeds into implementation, which covers writing the book and incorporating the review of the book by internal and external resources. The completion of these leads to project closure with the close out report.

8.2.2 Sample 2

The author has also published an eBook, *Project Management for the Accidental Project Manager*. The central theme of the eBook is a social entrepreneurship project, a real project that is currently ongoing and is in the early stages. Although the real project is still in the early stages, in the eBook we cover the whole project from idea to closure. However, the coverage is in terms of explanations rather than descriptions of the actual deliverables, yet it still offers valuable learning.

The project is launching a not-for-profit organization, which is building a community center.

8.2.3 Sample 3

In this Series, we discussed several examples, including the water bottling plant in Chapter 1 of this eBook Part. We discussed that project from the Project Owner perspective and we also discussed the implementation stage as a project from the Service Provider Perspective.

8.2.4 Sample 4

In Part IV, we will also discuss how we can use CAM²P™ on an industrial project. This is not a complete project but provides how we can use the methodology on such a project.

8.3 Teasers – A Peek into Future Work

The author and a team of colleagues have conducted a few workshops in the United Arab Emirates on the methodology. We present the workshop results in Part IV, as samples in graphical format for the reader's review. These are not completed projects but sample project life spans from different industries and application areas.

The advertisement features the Bookboon.com logo at the top left. The main heading is 'Corporate eLibrary' in a large, bold, black font. Below it, the text 'See our Business Solutions for employee learning' is displayed. A prominent blue button with the text 'Click here' is centered. Below the button, a pyramid-shaped arrangement of ten colorful rectangular blocks lists various business solutions: Management (green), Time Management (orange), Problem solving (red), Self-Confidence (grey), Effectiveness (light green), Project Management (dark green), Goal setting (maroon), Motivation (yellow), and Coaching (pink). At the bottom right, a hand cursor icon points to a green oval containing the text 'Click on the ad to read more'. The page number '78' is centered at the bottom, and the footer text 'Download free eBooks at bookboon.com' is at the very bottom.

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9 Customizing the Model

9.1 Need to Customize

As we have explained in earlier Chapters and Parts, the concept of customizing the model to specific domains is highly valuable since *one size does not fit all*.

CAM²P™ is a methodology and a systematic approach for managing projects but for it to be effective for a wide variety of project domains and classifications, an organization must be able to customize it to its needs and requirements.

9.2 Common Concepts

In order to customize the model, we must first stress the key concepts that are common across domains and project classes.

1. Every project must have an idea that is documented, reviewed, and approved, to validate alignment with the organization's strategic objectives.
2. Every project should have a feasibility study, whether the project is commercially driven or not.
3. We strongly recommend that the organization assigns a project manager, or involve the project management function during early phase studies.
4. Once the organization authorizes a project, it must do so through a formal document, the 'project authorization document' in CAM²P™.
5. Every project must have the basic requirements defined and agreed to by the various stakeholders.
6. There is a need for an overall project management plan and a project detailed plan. In some cases, these two can be merged but we advise separation even for small and simple projects.
7. There is also a need for detailed stage plans for larger projects with a higher degree of complexity.

We can continue but we think it is already clear from the list above and as the reader can observe, we are repeating the steps of the model, the stages.

Why?

Because we truly believe that these steps – in this sequence – are applicable in almost all domains and applications although the names of the stages may differ.

9.3 What Is Customizable?

The most frequent types of customization follow.

1. It is an organization's choice to have both phases and stages, as we show in CAM²P™; the alternative is to use either phases or stages.
2. The name of the stages and phases are usually a function of the industry and established by common use.
3. The number of stages can be reduced only by 'merging' stages, not 'eliminating' them.
4. The operation readiness stage is the only stage that may not be required for certain projects and in that case, it can be removed.
5. We emphasize that a reduction in the number of stage gates is possible but only by merging the control aspects (the function/purpose) of an eliminated gate with the gate that follows.
6. The number of estimates can vary from what we present in the model. However, we emphasize not to use less than two estimates.
7. On some projects, you may need to split a stage into more stages or sub-stages.
8. Some organizations may treat some of the stage gates as informal gates. This may be acceptable but be cautious not to make the stage gates 'too loose' or 'too easy' or they will lose their effectiveness.
9. Instead of eliminating stages, we can increase their overlaps to fast track the projects. This may be necessary for projects where expedited delivery of projects is a critical success factor.
10. There may be other customization opportunities, such as merging operation readiness with implementation, or starting the operation readiness stage before implementation, or adding a pilot after handover, among other possibilities.

9.4 Customizing To a Project Domain (Industry)

Projects from the same domain, or industry, share similar project life spans. The stages to publish a book would be similar for most publishers. The stages for capital investment projects would also be similar. The same would apply for web development, marketing, information technology, and other domains.

In line with the above, an organization can search for models from similar domains before customizing CAM²P™ to their own situations. The current challenge with this scenario is finding enough published information from the various domains for organization to use as starting point.

Another key challenge here is the fact customization is not only about redrawing the standard model – this is easy – but all the intellectual property that is behind it is required, such as processes, forms, templates, criteria for gates, criteria for project success, and numerous others elements of the organizational system.

9.5 How to Customize

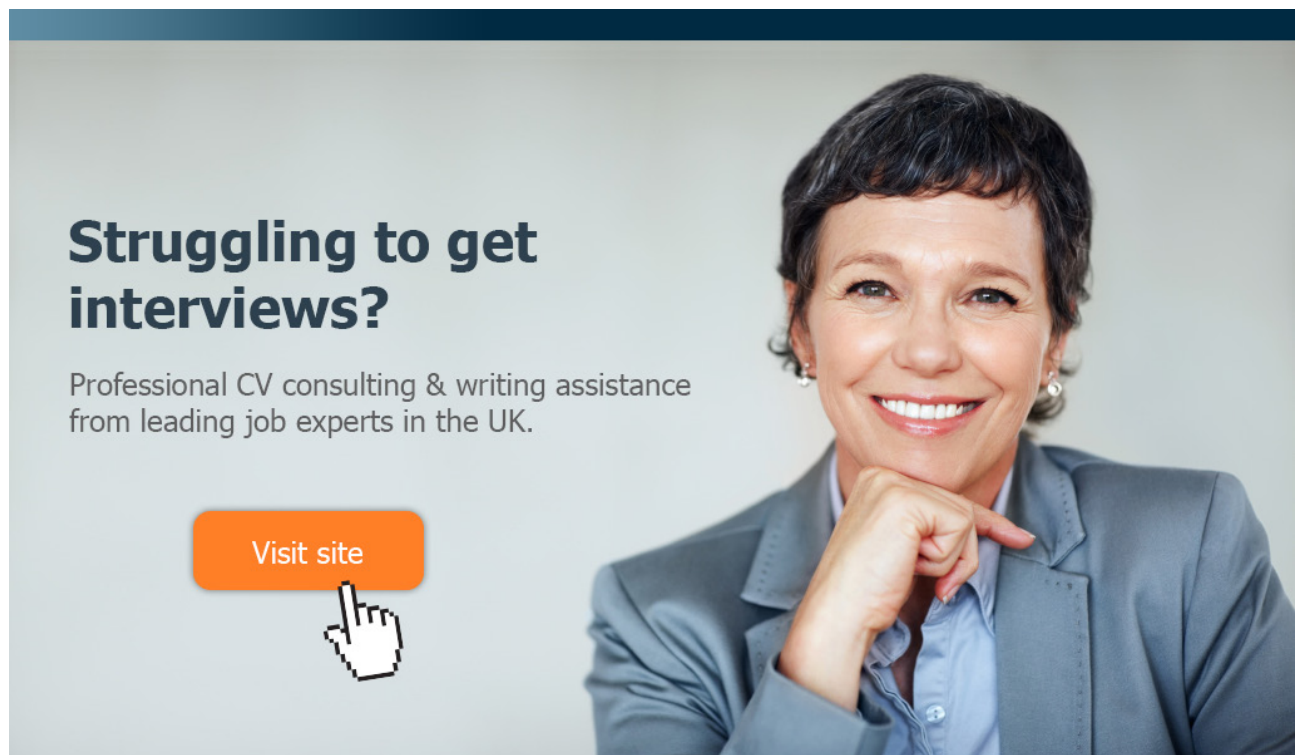
An organizational change initiative is the recommended approach to customize the model for an organization.

When an organization decides to implement a project management organizational system, including a methodology and related processes, is the time to initiate the project to adopt CAM²P™ and customize it for the organizational needs and requirements.

9.5.1 Similar Projects

If an organization's projects are all similar in nature, such as construction, engineering, marketing, training, business development, publishing, events, or any other type, then the leading practice is to modify the standard model to fit the types of projects that they work on.


Another leading practice is to adopt and customize the model then use it on one or two pilot projects, in order to capture learning, make modifications, then roll the enhanced model out across the organization. This way, the chance of success is improved.



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9.5.2 Different Projects

If the organization's projects are not similar, and the organization wants to deploy the model across different functions, the approach needs to be different and a two-step process is used.

Step 1 is agreement on the key elements that are necessary across the whole organization – the common elements. For example, use phases and stages or one of the two, need a stage gate at closure or not, is there a common point for project funding, and anything else that would apply for all projects.

Step 2 takes place at the functional unit level. Each functional unit continues the customization to fit its own project types. Alternatively, this step could be part of adapting the model to a given function.

9.5.3 Who Will Customize

If the organization has a project management department or function for the whole organization, an enterprise project management office, or something similar, it is the appropriate unit to lead this change initiative to implement a project management organizational system, including the methodology.

If such a unit does not exist, the organization may hire a consultancy to do so but we think this should be the last resort. It is better that the organization establishes its own project management unit and then has this new function take the lead. Consultants could be engaged to support and guide.

In either case, this same functional unit will own the methodology and handle future enhancements and updates.

In small organizations, this project management unit might be a single person functioning like an internal consultant.

9.6 Project Manager Authority

“When you say customization, does it mean every project manager customizes the model as he or she sees fit?”

No! This is one of the potential pitfalls, which we will emphasize in the last chapter in this eBook.

10 Adapting the Model

10.1 Customizable versus Adaptable

What is the difference between customizable and adaptable?

In the context of this Series and CAM²P™, the idea of customizing the methodology as outlined in the previous chapter is about developing a variation of the model for a given domain, and for an organization and its functional unit.

On the other hand, the question of adaptability is to adapt the model for different classes of projects within the same organization and its various functions.

Although we explain these as two separate concepts, they are quite interlinked. Therefore, one alternative is to combine the two concepts into one change initiative, where merging them makes sense.

What do we mean here?

10.2 Project Classifications

Earlier in this Series, we touched on project classifications and we will re-explain briefly.

A project classification is a system that organizations can use to categorize their projects based on set criteria. The criteria may include factors such as size, complexity, importance, and organizational impact, among other factors. This is necessary since managing projects from different classes requires different levels of effort, hence the need to adapt – tailor – the methodology.

10.3 Example to Differentiate

One of our clients in the petroleum industry follows a project life span approach for managing a project, and they had customized their own methodology for their capital projects. To adapt their methodology, they have a seven-gate model for major projects and a three-gate model for small projects. In both cases, these were capital (engineering and construction) projects but due to their differences in size and complexity, they needed to adapt the model. In other words, project size was the main classification that drove adaptation.

The same organization, the petroleum company, considered their information technology, marketing, finance, and other departments' needs for a methodology. Given their projects are quite different, it did not make sense simply to copy the model for capital projects. They used the same principles as that customized model and adapted it to their functions. It is possible, that these different functions could have already customized the model, as we described in the previous chapter. If they had done so, then only adaptation was required to reflect project classes.

We do not presume to judge for you if three gates are enough or if seven gates are appropriate. We say 'you decide' what works for your organization, as long as you remember that project management must follow a **disciplined approach!**

10.4 Why Should an Organization Customize and Adapt the Model

Let us say an organization has accepted project management as a strategically important capability and function within the organization and requires the use of the principles of project management to manage the organization's various projects, regardless of the functional unit.

For such an organization, it is likely that any change initiative, new idea, new human resource system implementation, or use of a new software tool is treated as a project, and is required to be managed in accordance with an established methodology. Then should every human resources project, software project, and even construction project follow the same standardized project life span and method?

No!

What this situation requires is not just a common approach for control and governance but also a customized and adapted approach appropriate to the types of project and their classification.



The advertisement features a central image of a smiling teacher leaning over a laptop to assist two young children, a boy and a girl. To the right, there are two smaller circular images: one showing three children looking at a book together, and another showing children working at computers in a classroom. The background is a vibrant yellow and orange swirl design.

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A refresher:

1. Project Management has proven its value across industries, organizations and functions.
2. Project Management must be a facilitating process, not a bureaucratic process.
3. Project Management must be flexible, yet not loose and without any control.
4. Project Management is about discipline: establish your system/process and follow it.
5. **One size fits all is not** for project management.

Then how to honor these important factors and cater for different divisions within an organization? By adapting the model! With the principles above as guidance, we invite organizations to:

1. Select a methodology.
2. If you do not choose the CAM²P™ model, then ensure the methodology you choose incorporates its most crucial principles.
3. Then customize the methodology to your own requirements.
4. Finally, adapt it to your various internal divisions.
5. Even within the same division, you may have to adapt it to different project classifications.
6. As a result, you will likely finish with a few ‘standard’ models, each for a given classification.
7. Once established, follow your models and we trust success will be yours.

10.5 One Sample

Figure 12 shows a potential model for a small project.

Notice that even in a small project, the sequence remains the same as do the number of phases and stages, but we were able to reduce the number of gates to seven from eight. This reduction is the result of combining the basic requirement document and project management plan, and their stage gates 3 and 4, respectively, from the standard model. SG3 in Figure 12 is the combined stage gate.

“Could we reduce the number of gates further?”

Yes – two possibilities:

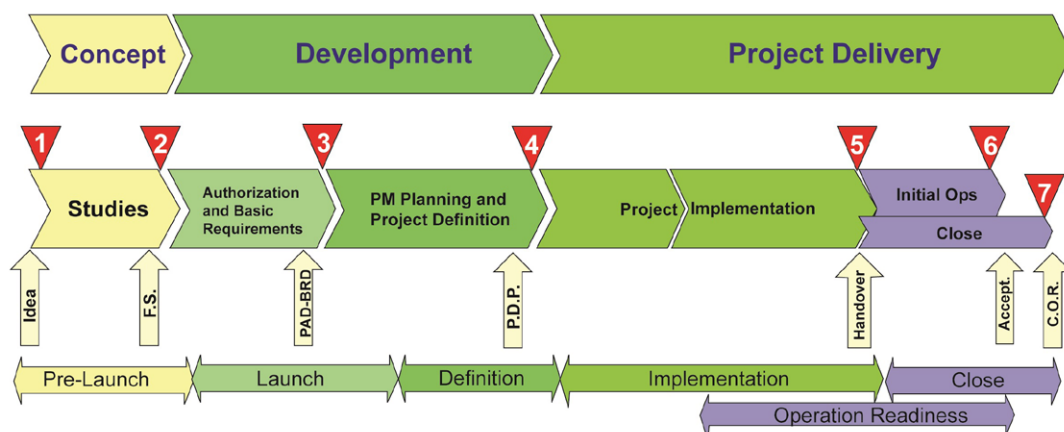


Figure 12: One Adapted Sample

1. If we combine the studies, authorization and basic requirements, we can eliminate one more stage gate (SG2 in Figure 12). However, this is only possible in very small projects that are straightforward or that may be repeat projects.
2. If the project does not require any operation readiness or initial operations then we can eliminate stage gate six (SG6) and the operation readiness stage.
3. If both of these scenarios apply to a given project, the result is something like Figure 13. In this case we are down to a basic five gate and four stage model with studies-authorization-requirements, project management planning and definition, implementation, and close.

10.6 A Reviewer Comment

One of our reviewers provided this comment on the name of the model, especially the concept of customization. His comments were *“Is not the whole concept of a project management methodology for it to be customized to organizational environment?”*

Absolutely!

We said before that one reason we do not hear about many published methodologies is the fact that methodologies should be custom-fit to organizational needs and requirements. However, the challenge we see is that a significant percentage of project management practitioners do not understand this fact. They even look at the PMBOK® Guide as a methodology even though it is not. Some practitioners keep asking for forms, templates, even written samples that *“must be applicable to my own area.”* Since such practitioners do not fully understand this concept, they overlook the need to customize standards to their own or their client’s environment, whether the standard is a methodology or a framework.

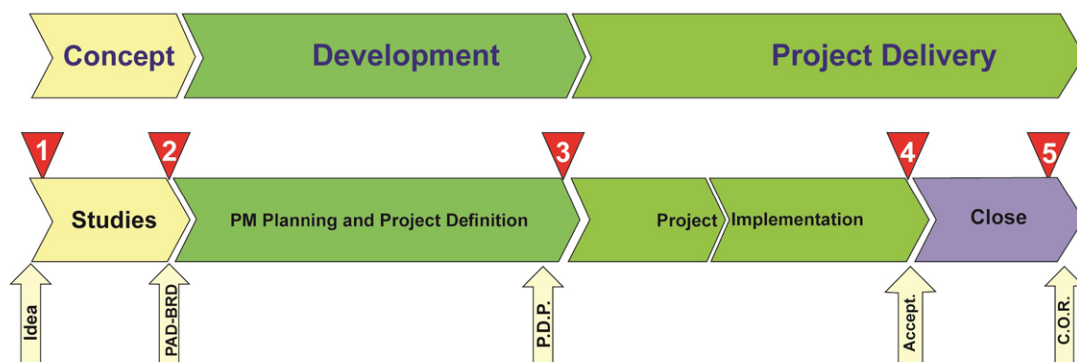


Figure 13: Another Adapted Sample

10.7 A Story Reflecting Current Reality



In the midst of editing this work, there was a post on a social media group where a consultant posted the following: “*where can I find a complete case study for PMP training...my students keep asking me to provide an actual case study...Thanks.*”

How can one provide a “complete case study”? Here was our response: Case study for what specifically?

- To study for the PMP or a case study for a project
- If a case study for a project, then from which industry
- From a service provider or project owner perspective
- Internal business project or a facility project
- Is the project to deliver a product, a service, or some other result?

We are not trying to complicate things but such a question comes from a project management mindset of *one size fits all*, which we clearly reject. Questions like this were the drivers behind the CAM²P™ model and this Series.



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11 Potential Pitfalls

11.1 Refresher

This chapter deals with the potential pitfalls if the model is not used properly.

We think we have probably mentioned the words ‘disciplined approach’ at least ten times and this is likely to be the last time. As a refresher, what do these words mean?

- Decide on a methodology that is applicable to your industry and circumstances and follow it.
- The customizable and adaptable approach is there for you to think about, in terms of applying the standard model to the various situations and classes of projects in your organization and then systematically establishing alternate models.
- Establish the above in the organizational project management system; in other words, institutionalize it.

11.2 The pitfalls

The following are some of the potential pitfalls, although this is not an exclusive list.

1. Because we advocate flexibility through customization and adaptability, users may be tempted to take these concepts too far and start to modify the model for their convenience, instead of what is appropriately rigorous.
2. Project managers must not deviate from the methodology from one project to another, just because ‘we prefer to’. If there are good reasons to deviate, organizations should have a process in place to do so, and not leave it up to individual project managers to decide. This is one of these things where the project manager **cannot** decide!
3. Skipping important functions: Some may misunderstand the concept of customizable and adaptable and think that it is okay simply to cut stages or gates.

As we mentioned in earlier chapters, it is okay to reduce the number of gates by combining gates but notice we are using the word ‘combine’ and not skip. In other words, defining the basic requirements for a project is a necessary step. Whether you have a gate at the end of this deliverable or combine that gate with the project management plan gate does not matter much. As long as you recognize that by not having a gate at the end of basic requirements, you risk misunderstanding some requirements, with the result that your project management plan might not be accurate and therefore require rework.

4. Loose Gates: often organizations adopt the stage-gates concept but allow the gates to be quite loose or permit project managers to approve their own gates.

For example, let us say we have developed the project detailed plan, which leads to the highly important final approval and funding gate. Here, the project manager can say that the PDP is complete, but is it truly complete and done in accordance with the organizational criteria for a proper project detailed plan?

Specifically, is the PDP done fully in accordance with documented requirements, such as schedule, cost, and other key components, so that the result is both a higher level of confidence in the PDP and reduced risk of problems in the next stage?

Based on the above, gates must be strong and have clear and unambiguous requirements on what it takes to go through them! To avoid such situations, some organizations have “a gate keeper” role, which is a position to ensure that the gate criteria are met before this deliverable is brought in front of the gate review committee.

5. Not having an owner for the methodology: It is quite important in any organization, whether they have a project/program management office or not, to have an owner for its processes. The ‘process owner’ is typically an organizational unit that is responsible for the project management methodology and its applications in the organization. This owner also documents any requirements for changing the model for different applications that the organization might not have considered before. It is also important for this owner to maintain a database of lessons learned from projects, as they relate to the model.

It is likely that there are other pitfalls related to the model or to project management in general. We have to watch for these pitfalls, if we are to advance project performance and consequently organizational performance.

Appendices

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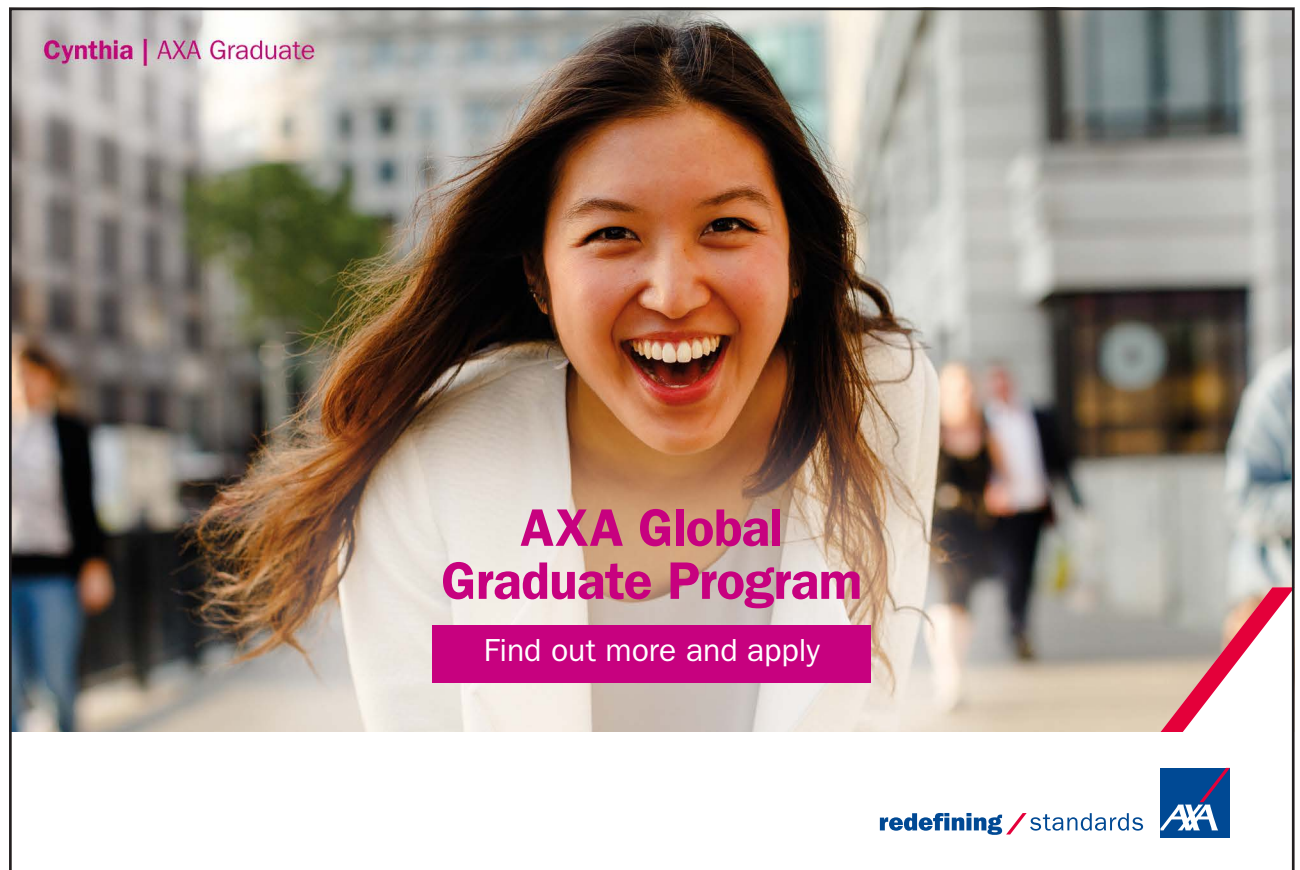
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13 Appendix B: Model Frequently Asked Questions

It is not common to have a frequently asked questions section in a book but we think it would help the reader find the answers to a few important questions about the model in an expedited way. There are answers for all of these questions in the eBook Series but we chose to summarize a few of them here.

1. *When in the project life should we select the customized project life span for the specific project under consideration?*

This can happen at two different levels.

- a) **Organizational Level:** what we propose is that when an organization decides to implement a project management methodology, whether it is CAM²P™ or not, they should establish standardized project life span models that are adapted to their various requirements. If all the organization's projects are one type, and they are similar in size, then they need one model to follow. With a diversity of project types and sizes/ classifications then they will have more than one model to standardize.
- b) **Project Specific:** if there are standardized models, then the project manager could select the one that is most appropriate for the given project. The formal selection takes place during project management planning, although the project manager may already have a predetermined idea about the possible model to use during the pre-launch stage. If there are no organizational models, then the project manager formalizes the project life span during project management planning.

2. *Is this a fixed / standard methodology for all industries?*

One size does not fit all!

There are many project management concepts that are common across industries. Nevertheless, there are things that are specific to an industry. We propose that the thought process and sequence of the stages and gates are quite similar for all industries; the differences are in the application, terminology, number of stages and gates.

This is the customizable part of the CAM²P™ name.

3. *Is this methodology fixed regardless of the size of the project?*

No. Even for the same type of project, there should be differences on how to apply the methodology for different project classifications. For example, a small construction project requires a different approach than a major project or even a mega project.

This is the adaptable part of the CAM²P™ name.

4. *What do you mean when you say 'project classification'?*

Project classification is a categorization system that we can apply to projects within an organization to distinguish them based on established criteria; the criteria must be specific to an organization or industry; not readily transferable. For example, small could be a project classification but small in the petroleum industry could mean one to fifteen million dollars whereas in an internal organizational project 1 million could be a 'huge' project.

5. *What are typical project classifications?*

Once again, it is industry specific. However, one basic classification system would include three main classes or more; the organization must clearly define them. We could also use a simple questionnaire to help us decide on a project class.

Possible project classes per our basic model:

- a) Small or Simple Project, this classification captures size and complexity since some small projects could be quite complex whereas large projects could be quite simple.
- b) Medium or Moderate Project
- c) Large or Complex Project

Other possibilities:

- a) Mega Projects, typically in the construction industry
- b) Strategic Projects; this describes projects that are of major strategic benefits to the organization; these typically touch a large part of the organization.

For further reading on the concept of project classifications, we refer the reader to the work of Professor Lynn Crawford and GAPPS.¹⁷

6. *Is not every project of strategic importance? What does it mean that the objective of stage gate one (SG1) is to confirm that the project is strategic?*

We need to distinguish between strategic projects and projects that align to the organizational strategy. For example, if we are in the restaurant business, expanding a restaurant or opening another one under the same brand and in similar environment is likely to be part of the organizational strategy, a project that aligns to an expansion strategy. However, opening a new brand or going into a new geographic area might be a strategic move and therefore a strategic project.

7. *Can we delete stages?*

Before we answer, we must clarify the difference between a stage, as a time span along the project life, and the objective of the stage, in other words 'what are we trying to accomplish in a given stage'.

Based on the above, we can say that organizations can delete stages and have their models be less than six stages. However, they should not delete the purpose or focus of the stage. In other words, if they delete a stage then they must combine its scope with the previous or subsequent stage. For example, can one delete the project launch stage? Yes – one can delete the stage as long as one includes the basic requirements and project management plan with the preceding or succeeding stage. Finally, by doing so, the organization must recognize that they are increasing project risk.

8. *Can we delete gates?*

Same answer as in deleting stages.

9. *What does a disciplined approach mean?*

A disciplines approach is about two essential concepts:

- a) It is about establishing a formal organizational project management system...**and following it.**
- b) Within a project, the stage gate approach is about exercising discipline during the project concept, development, and delivery. In other words, no project should go through the project life span without proper reviews and approvals at specific stage gates.

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10. *Is not a disciplined approach a killer of innovation?*

Absolutely not! Refer to Part I.

11. *Is a stage gate process an indicator of risk aversion? Similarly, is project management about being risk averse?*

Once again, we do not agree with these statements. Refer to Part I.

12. *What is project management maturity?*

Project management maturity is a term linked to organizational project management. The concept is that each organization has a different level of maturity of project management practices. Some may have excellent systems in place and others may be doing projects in an ad hoc, unstructured, or informal way.

For example, an organization without any formal documented system on how to manage projects occupies a lower level of project management maturity. An organization with a well-established system – that team members understand and follow – and that embraces continual improvements, can be positioned it at a higher level of organizational project management maturity.

There are various project management maturity models in the market; most of them use a scale of one to five to measure the level of maturity within organizations. PMI® has a system that is not numerical but is based on the concept of SMCI – Standardize, Measure, Control, and Improve. SUKAD has also developed a basic model that consists of seven elements of project management maturity.¹⁸

13. *Is the stage gate the same as a milestone?*

No, although they may coincide.

Some use the term milestone for achieving a certain objective, which could be the same thing as a stage gate approval. However, we define milestones as nothing more than a flag of an important date on the project schedule or life span. Further, in scheduling we define a milestone as an activity with zero duration and zero resources.

For example, **the date** of approving the project at SG5 is a milestone. The stage gate itself is more than a fixed date, it is a process requiring input (the work from the previous stage), reviews and debates, leading to a decision. None of this can be accomplished in zero time and with no resources.

Once again, the stage gate is a process leading to a decision. The date of the decision is what we 'flag' as a milestone.

14. *What is operation readiness?*

Any project that requires the handover of a product or something similar to an internal or external client, and that requires the client to manage it or operate it, likely requires preparation before the provider handover the product to the client.

The project could be a new employee performance management system that the human resources department is implementing. Before the new system goes live, the employees of the HR department, in addition to supervisors and employees across the organization, need to learn about the system.

Similarly in an industrial plant, operation and maintenance policies and procedures have to be in place prior to initial operations.

15. *Is operation readiness required for all projects?*

No. There are projects that would not require operation readiness. For example demolishing a building, there is nothing to operate once completed. The Writing a Book Project presented in the book does not have an operation readiness stage.

16. *How do you link CAM²P™ to the PMBOK® Guide?*

The PMBOK® Guide provides guidelines for managing projects. However, we see that it focuses on the processes of project management, process groups, and knowledge areas. On the other hand, the Customizable and Adaptable Methodology for Managing Projects™ takes a holistic view of projects, a project life span view.

Another way of looking at this would be to consider how we could merge the use of the two references. We see them as two sides of the same coin and what we propose is CAM²P™ as the starting point for managing a project. CAM²P™ provides the organizing structure (like the picture in a picture puzzle) and the PMBOK® Guide provides the processes to fill in the blanks.

For example, CAM²P™ states that we need a WBS, a project management plan...in every stage; the PMBOK® Guide provides the process on how to create the WBS, develop the project management plan...and the same concepts apply to the other processes.

17. *Is the CAM²P™ limited to PMBOK® Guide?*

No!

- a) Not all of the project management functions of the CAM²P™ are in the PMBOK® Guide.
- b) We do not limit our approach and this book to the PMBOK® Guide.
- c) In more than one place in this Series, we refer to other standards and other associations such as IPMA, AACE International, ISO, and GAPPS.

18. *Why did we choose to use different terminology than PMBOK® Guide?*

- a) The PMBOK® Guide is not a methodology
- b) PMI advises practitioners to use any methodology to go with the PMBOK® Guide
- c) To avoid confusions created by the use of phrases like "...for the project or a phase"

19. *Is the intention that this methodology is a replacement for the PMBOK® Guide, or any other standard for that matter?*

No!

The PMBOK® Guide is a good standard with global reach. Let us share what page 4 of the PMBOK® Guide clearly states about the guide. *"As a foundational reference, this standard is neither complete nor all-inclusive. This standard is a guide rather than a methodology. One can use different methodologies and tools to implement the framework."* (Project Management Institute 2008)

The above statements are one of the reasons for the development of Customizable and Adaptable Methodology for Managing Projects™ and the publishing of this Series. In closing, CAM²P™ is the picture of a puzzle and the PMBOK® Guide and even IPMA Competence Baseline are the pieces within the puzzle.

We developed CAM²P™ to complement and supplement the PMBOK® Guide and IPMA Competence Baseline standards.

14 Appendix C: Summary Outlines for All Four eBooks

Part I (eBook 1)

Section 1: Challenges and Opportunities

- Chapter 1: Growth of Project Management
- Chapter 2: Challenges: The Growing Pains
- Chapter 3: Opportunities for Sustainable Growth

Section 2: Project Management Methodology

- Chapter 4: Rationale and Model Perspectives
- Chapter 5: Fundamental Concepts
- Chapter 6: Introducing the Model
- Chapter 7: Alignment to Global Standards
- Chapter 8: Alignment to PMBOK® Guide

Part II (eBook 2)

Section 1: Project Concept Phase

- Chapter 1: Project Pre-Launch Stage

Section 2: Project Development Phase

- Chapter 2: Project Launch Stage
- Chapter 3: Project Definition Stage

Section 3: Project Delivery Phase

- Chapter 4: Project Implementation Stage
- Chapter 5: Project Operations Readiness Stage
- Chapter 6: Project Close Stage

Part III (eBook 3)

Section 1: Life Cycle Perspectives

Chapter 1: Life Cycles 360°

Section 2: Across the Project Life Span

Chapter 2: Project Approvals

Chapter 3: Project Estimates

Chapter 4: Project Control: Moving Baselines

Chapter 5: Project Risk Management

Chapter 6: Project Stakeholders

Chapter 7: Project Success

Section 3: Model Principal Features

Chapter 8: Applying the Model

Chapter 9: Customizing the Model

Chapter 10: Adapting the Model

Chapter 11: Potential Pitfalls

Part IV (eBook 4)

Section 1: Practical Application of the Methodology

Chapter 1: Samples from CAM²P™ Workshops

Chapter 2: Capital Investment Project

Section 2: Writing a Book Project

Chapter 3: Project Pre-Launch Stage

Chapter 4: Project Launch Stage

Chapter 5: Project Definition Stage

Chapter 6: Project Implementation Stage

Chapter 7: Project Close Stage

15 Author Biography

Mounir A. Ajam

Mr. Ajam is an entrepreneur, author, speaker, coach, advisor, consultant, volunteer leader, and project management thought leader.

He is the author of *'The Inheritance, a Story about Friendship, Community, and Project Management'* and *'Project Management for the Accidental Project Manager'*, and is working on *'Redefining the Basics of Project Management'*, which is not yet published.

He is a senior executive with close to three decades of outstanding global and practical experience in capital project industries such as engineering, construction, petroleum, utilities and project management. He has worked on projects worth billions of US dollars in North America, Europe, South East Asia, and West Asia.

Mr. Ajam is a co-founder and the Chief Executive Officer of SUKAD Group, a leading project management provider with offices in Lebanon and Dubai, United Arab Emirates.



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Mr. Ajam and SUKAD play quite an active role in the project management community through various professional activities that are open to community members at no cost. He is a true volunteer servant leader. He is heavily involved with the project management community at the regional and global levels. Globally, he has served in various roles and capacities, such as serving on the Global Advisory Group to the Project Management Institute (PMI®) Registered Education Provider program and as a judge for various PMI® educational awards. He served on the 2008 PMI® EMEA (Europe-Middle East-Africa) Congress Project Action Team. He is also a graduate of the PMI Leadership Institute Master Class.

In West Asia, Mr. Ajam served on the board of directors for the PMI chapter in the Arabian Gulf. He led an effort to establish a PMI chapter in the United Arab Emirates. He also led the effort to establish the Global Project and Process Management Association (GPPMA) and served as its board chairperson for three years.

Mr. Ajam is an advocate of project management and recognizes its strategic value. He contributes to project management growth by publishing professional papers and articles on numerous platforms, such as PMI Congresses, Construction Week Magazine, Dubai Quality Group, DKV Experts Channel, PMForum.com, Wamda.com, and other publications. He is the main author on the SUKAD blog (<http://blog.sukad.com>), in addition to a personal blog.

For more information about Mr. Ajam, please refer to his personal page at www.mounirajam.com.

The Foundation

Twenty percent (20%) of the author's revenues from this work will be redirected to a foundation, a not-for-profit organization. This is in addition to 100% of the revenues from his previous eBook, *Project Management for the Accidental Project Manager*.

Al-Insan is the short name for the foundation, but the full name is **Insan Al-Mujtama Foundation**. The origin of the name is Arabic, to reflect and honor the home of the foundation.

- *Insan* means *Human*, and *Al-Insan* means *The Human*
- *Mujtama* means *Society* and *Al-Mujtama* means *The Society (also community)*
- The literal translation for *Insan Al-Mujtama* means *Human of The Society*

The above is the literal translation for the name. However, when we combine the two words, the phrase '*Insan Al-Mujtama*' has a more philosophical meaning. In simplistic terms, the concept is about the difference between an individualistic mindset and a collective, social, service-oriented mindset. This is what one might call social or national consciousness. With this in mind, the purpose of the foundation is to serve humanity through serving humans, directly or indirectly. It is our intention to encourage all to do their part to be or become *The Human of The Society*, to be *Insan Al-Mujtama*.

The main purpose of this foundation is to use project management as a social enabler to serve communities around the world. The concept is to use project management for 'life projects' and the following are examples of the programs that Al-Insan will run.

1. Provide complimentary professional services (learning and consultancy solutions) to non-government organizations (NGO). This is specific to NGOs operating and providing social services in the least developed countries and communities on an international basis. The ultimate purpose is to help these organizations build their capacity for delivering service.
2. Provide services directly to communities or in partnership with NGO/humanitarian organizations. The services can include youth camps, training, advisory, and coaching services, among other needs.
3. Reaching out to schoolchildren by training their teachers and working directly with students on school projects, with a focus on using project management as a key enabler.
4. Organize youth camps (high school and university students) to help them learn project management and apply the learning on community projects in their villages, towns, and communities.



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Jane, Chinese architect

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16 Endnotes

1. The PMBOK® Guide is a leading reference for project management and includes a project management standard, approved by the American National Standards Institute (ANSI). The Project Management Institute (PMI) publishes the PMBOK® Guide, which is the work of a large number of volunteers.
2. Writing a Book Project; the author followed this methodology to write a book.
3. The term selected for CAM²P™ is *Project Life Span* in order to reduce confusion.
4. This is not universally true since some organizations might have the capacity to develop and deliver these types of projects. However, based on our observations this is rare in the marketplace today.
5. Or two sub-stages. Which is correct: two stages or sub-stages? It is a matter of organizational preference. In the context of this chapter, we use two stages if we have two service providers, one for each stage and we use two sub-stages if we have one service provider handling the engineering and construction activities.
6. Actually, we added this chapter because of the review question from our colleague Mr. Youssef Saad.
7. OPEX (Operating Expenses) is another appropriate term.
8. Some organizations are willing to approve up to 10% of the total estimated costs. They do this because they are willing to accept higher risks and the additional amount allows them to expedite the project and shorten the overall duration. This is known as a fast tracking approach.
9. We discuss estimating in the next chapter.
10. The AACE International Recommended Practice No. 17R-97 states, “Five cost estimate classes have been established. While the level of project definition is a continuous spectrum, it was determined from benchmarking industry practices that three to five discrete categories are commonly used. Five categories are established in this guideline as it is easier to simplify by combining categories than it is to arbitrarily split a standard.” (AACE® International n.d.).
11. This is an arbitrary number to demonstrate the point. The number symbolizes capacity so larger numbers means larger capacity, which means a bigger machine and system.
12. Please refer to Part I of this Series for extensive discussion on project life span versus process groups.
13. <http://blog.sukad.com/20130225/project-successpmbok-guide-creates-confusion/>.
14. Please refer to Chapter 1 in this eBook for discussion on life cycles, which is relevant for this chapter.
15. The figures we are using here are slightly different from the standard model to purposely show that there can be various models.
16. This is the reason for the question mark in the graphic on the bottom right.
17. http://www.globalpmstandards.org/main/page_complexity.html.
18. <http://sukadway.sukad.com/>.