Lean Black Belt Course 2: Managing Lean Projects Participant Workbook

LEADINGEDGE
GROUP

To understand how to manage Lean projects, we need to explain the processes that are used in project management. This course provides you with such an explanation. It begins by explaining the project management system and introducing the Project Management Body of Knowledge. It then explores the five core project management processes and the 12 rules of project management.

MODULES

Course Overview

1. Project Management Success

2. Project Charters and Project Leadership

3. Project Integration with Change Management

4. Scope Management

5. Project Schedule and Budget

Course Overview

This overview aims to prepare you for the content of Course 2 by providing details of this course's assignment, identifying a number of processes that are used in project management and outlining a number of self-assessment questions.

Course Goals

On successful completion of this course, you will be able to:

☐ Explain the project management system

☐ Understand the Project Management Body of Knowledge

☐ Identify the five core project management processes

☐ Understand and apply the 12 project management rules

The course consists of eight modules:

1. Project management success

2. Project charters and project leadership

3. Project integration with change management

4. Scope management

5. Project schedule and budget

6. Project risk management

7. Communications management

8. Review
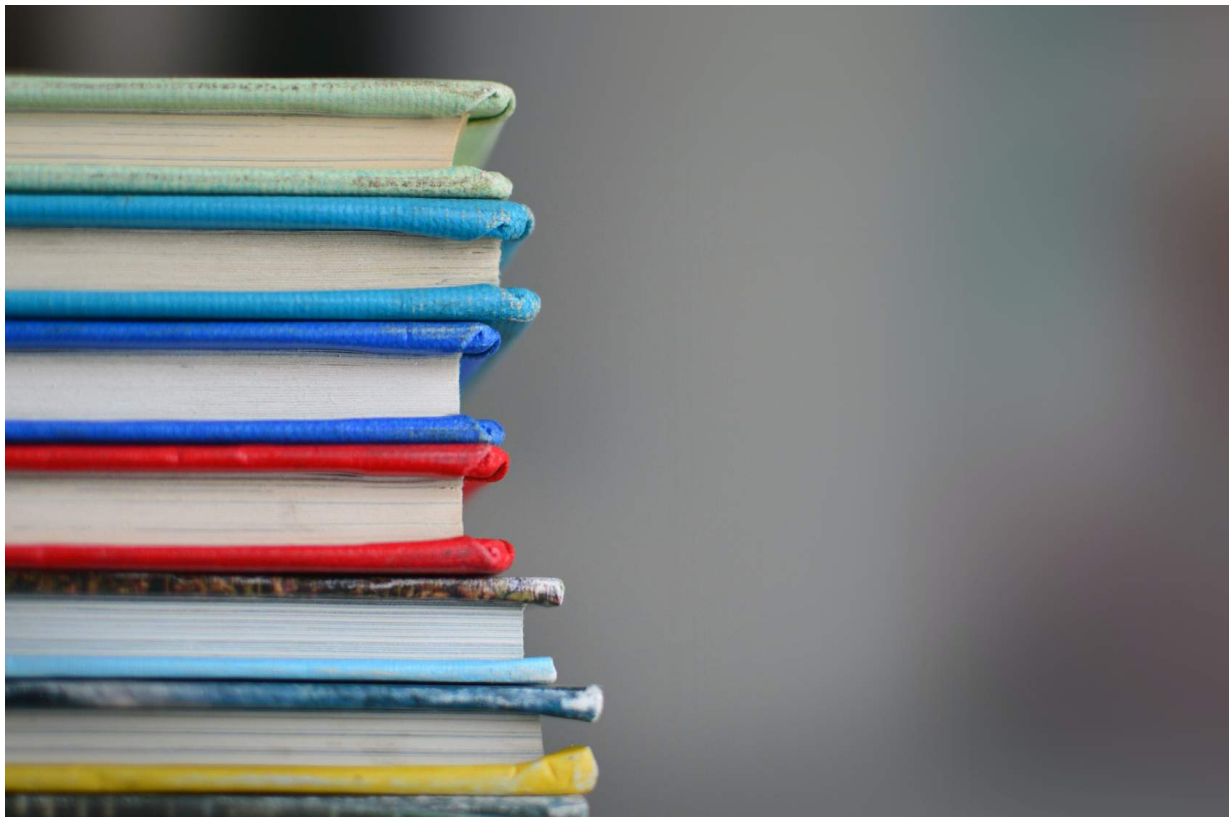
Preparatory Reading

Prior to commencing the modules for this Course, please read this introduction and the following required reading:

1. **Leach, L P 2005,** *Lean project management: Eight principles for success. Combining critical chain project management (CCPM) and lean tools to*

accelerate project results, Advanced Projects, Boise.

Course Assignment

Your assignment for this course is to review and critique the implementation of a previous project in your organization. This assignment is intended to help you to plan your facility-based project. Understanding the project management processes in your organization will help define the scope of what is practical for you to attempt

Assignment Deliverables

The assignment should have a **maximum total word count of 2,550 words** and include the following:

1   Business context (maximum 300 words)

2   Project management principles/techniques used and why these were utilized (maximum 500 words)

3   Specific project strengths: (maximum 500 words)

4   Specific project weaknesses (maximum 500 words)

5   Lessons learned for future projects (maximum 750 words)

Assignment Assessment

The assignment will be assessed by assigning a score out of ten for each of the following assessment criteria:

1. Professional appearance of assignment package

2. The need for project management is defined

3. Evaluation of core project management processes

4. Project managed within the context of triple constraints

5. Evaluation of the impact of project leadership

6. Project analysis defined within project success factors

7. Risks and mitigation strategy developed

8. Communication plan supports each project phase

9. Change management plan integrated

10. Depth of Analysis

The scores for each component will be totaled to produce an **overall score of 100**.

References and further optional reading

If you would like to do further optional reading about this course's topic, you may wish to consider the following resources that the creators of this course drew on in preparing this course:

- **Baker K, Baker S and Campbell G M 2003,** *Complete Idiot's Guide to Project Management,* Alpha.

Preparatory Brief

The following section highlights a number of processes that are used in project management and concludes with a number of self-assessment questions. On completion of this preparatory brief, you should be able to:

- Identify the elements of the project management system

- Understand the Project Management Body of Knowledge

- Describe the five core project management processes

- Outline the 12 project management rules

Video Tutorial: Lean Project and Program Management

Lean and project management methodologies are a synergistic match made for tackling the implementation challenges of continuous improvement. in order to understand how to meet stakeholder needs in project management, it is important to understand the project manager's job and the key components of successfully managing a Lean project.

The following video describes how program management strengthens Lean deployments.

Video Notes:

The Project Management System

Figure 0.1: The project management system as the intersection of People, Process, and the Product.

In Lean Project Management: Eight Principles for Success, Lawrence P. Leach argues that project management should be thought of as a detailed system involving people, process and product. The project management system and the relationships within that system are outlined by Leach on page 3 of Lean Project Management.

> ## Management of a system requires knowledge of the inter-relationships between all of the sub-processes within the system and everyone that works in it.
>
> Edward Deming

Every project management environment – whether in construction, technology, or in has its own nuances. However, the project management concepts remain the same; they just have to be applied to different circumstances. Managing variation is a key task in managing Lean projects and in conventional project management this task is called risk management (which is reviewed later in the course).

Project Management Body of Knowledge
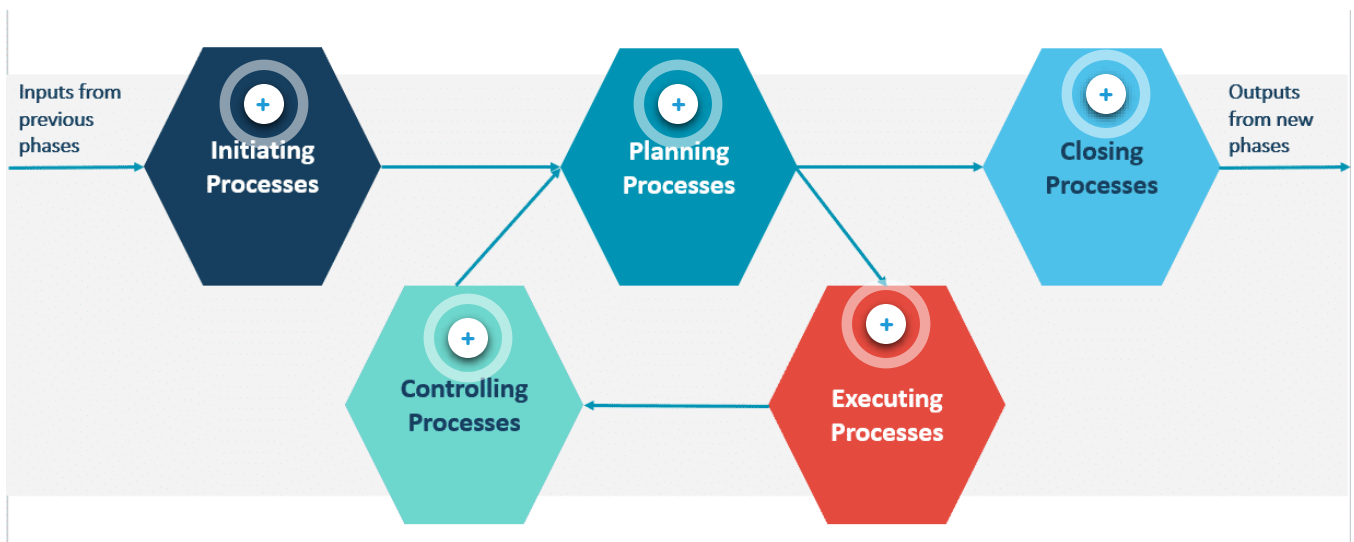
Figure 0.2: Project Management Body of Knowledge

The Project Management Institute has created the Project Management Body of Knowledge (PMBOK), which outlines the key project management knowledge areas.
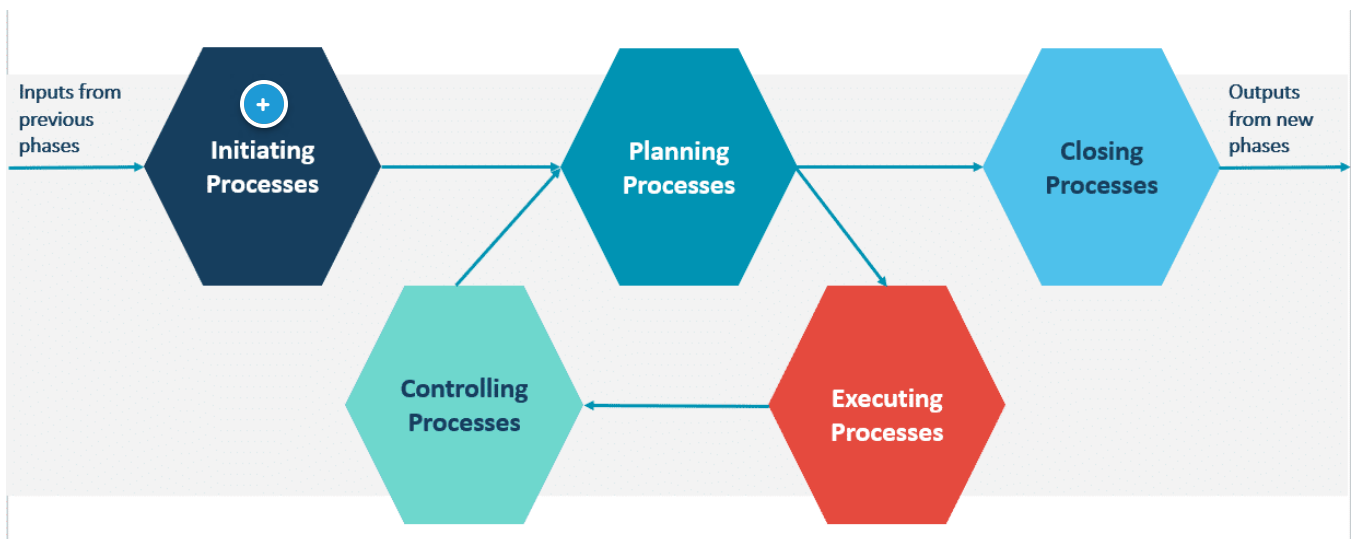
The latest version of the PMBOK provides detailed process flows for each knowledge area, including the key inputs and outputs of each process. Outputs from each knowledge area feed into the inputs of the next knowledge area.

Leach asserts that the five principles that Lean manufacturing uses to eliminate waste (specify value, identify the value stream, flow, pull and perfection) synergize well with project management methodologies.

Core Project Management Processes

Project management consists of five core processes: initiation, planning, execution, monitoring and controlling (often done in conjunction with execution) and closing.

Inputs from previous phases

Initiating Processes

Planning Processes

Closing Processes

Outputs from new phases

Controlling Processes

Executing Processes

Initiation

Initiation is the process of gaining stakeholder agreement on the desired outcome. It includes the processes and activities needed to define the project's purpose, business need, mission, desired outcome, assumptions, and parameters. During project initiation, the project management tasks are to assess priorities for the project, consider alternatives, select an approach, outline the business case for proceeding, document the assumptions and constraints, and obtain an approval signature that commits the organization to proceed. Initiation is complete when the high level approach, timetable, resources, budget, and scope of work are agreed on by management and key stakeholder. The team can proceed with more detailed planning.
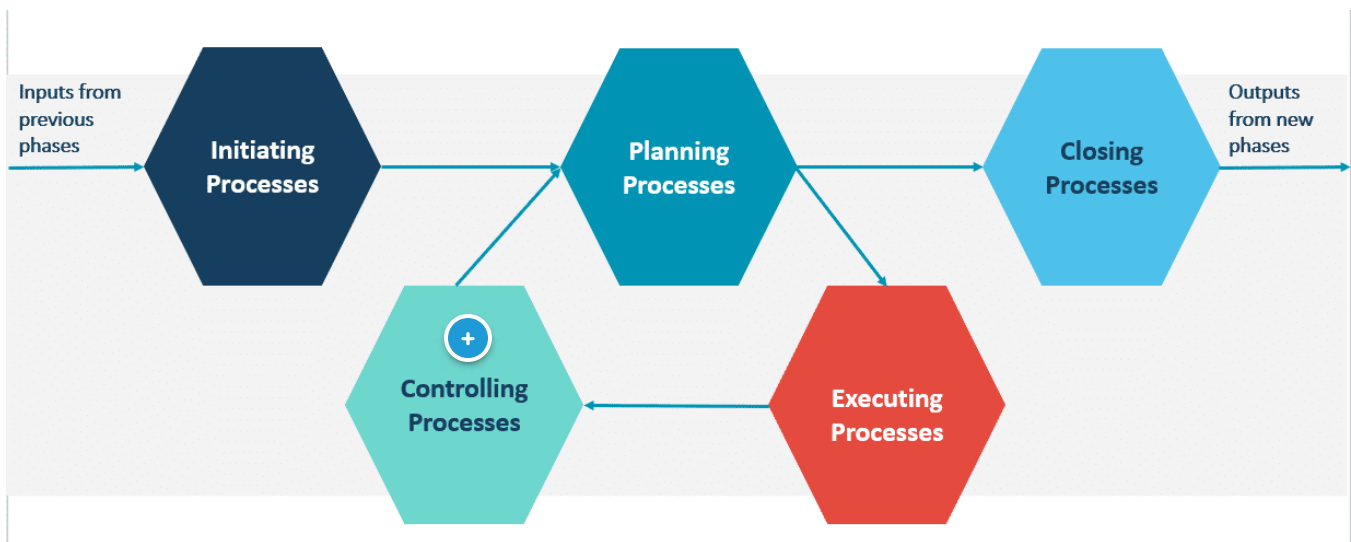
Controlling

Executing (including Monitoring and Controlling) marks a shift from defining what needs to happen to actually doing the work. It is a cyclic process of proactive work activity, reacting to variances between the plan and actual results and controlling against the plan. The focus is on carrying out the defined tasks and working together to create the deliverables while ensuring the business need or outcome is met.
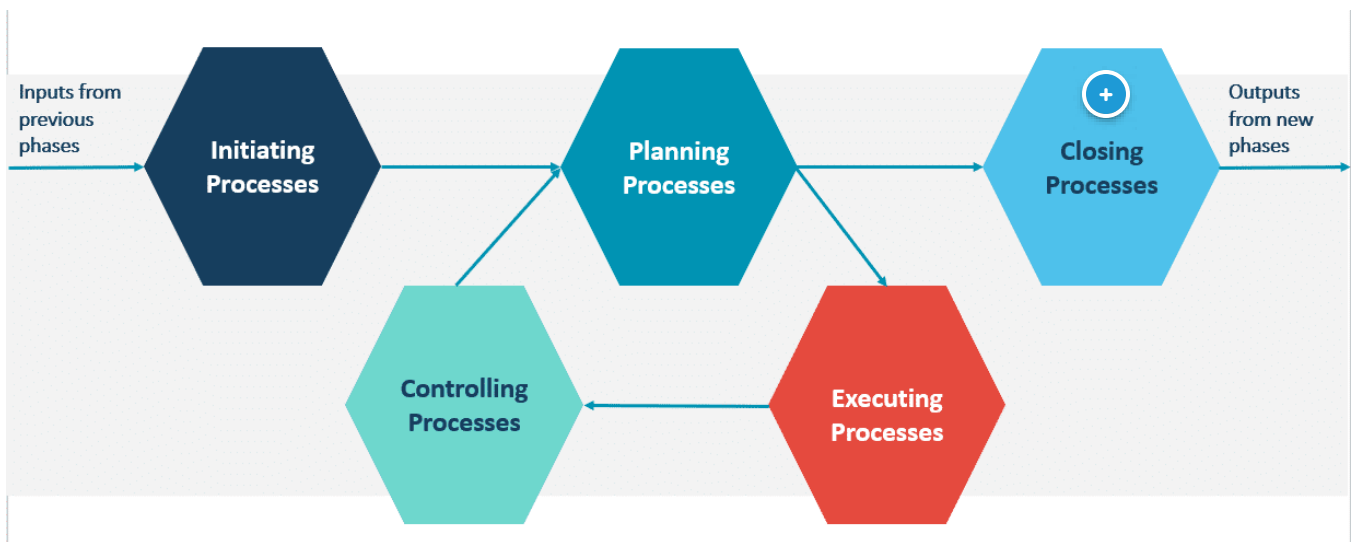
Closing

Closing has two parts: closing out the work on the deliverables and closing out the management responsibilities for the project. When the project is over and the work complete, the final deliverable or product as well as all the resources (including the team) are sent off to other areas or back to their operations. The customer, sponsor, project team, and stakeholders give feedback on the project and the deliverables. Lessons learned are recorded and files are stored for future reference.

Inputs from previous phases → Initiating Processes → Planning Processes → Closing Processes → Outputs from new phases

Controlling Processes — Executing Processes

Executing
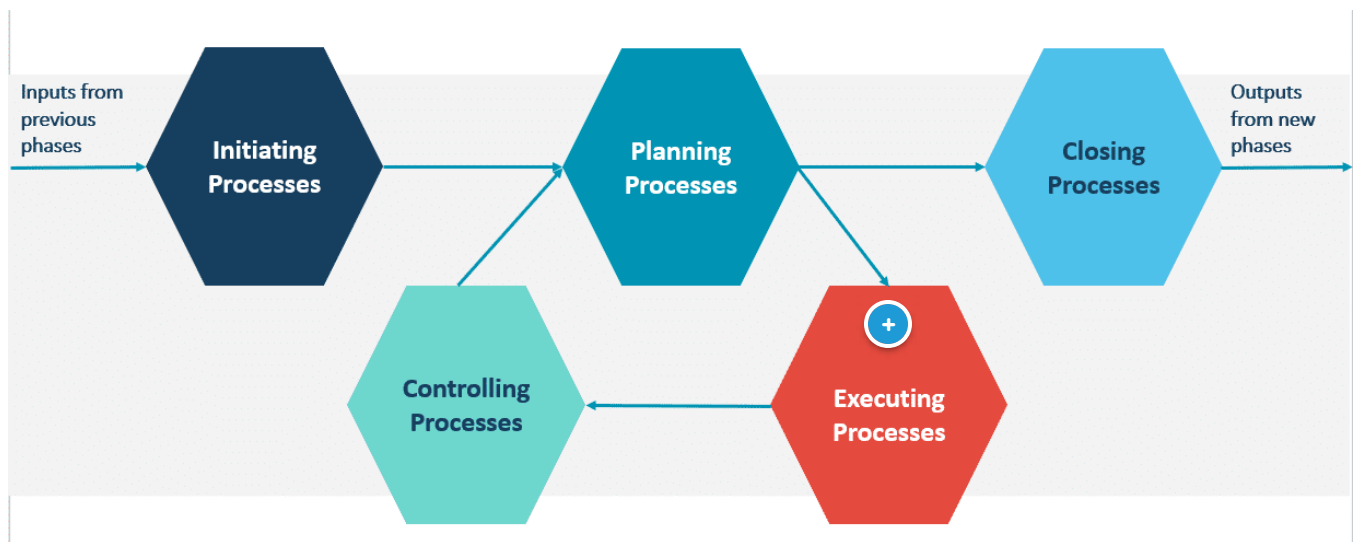
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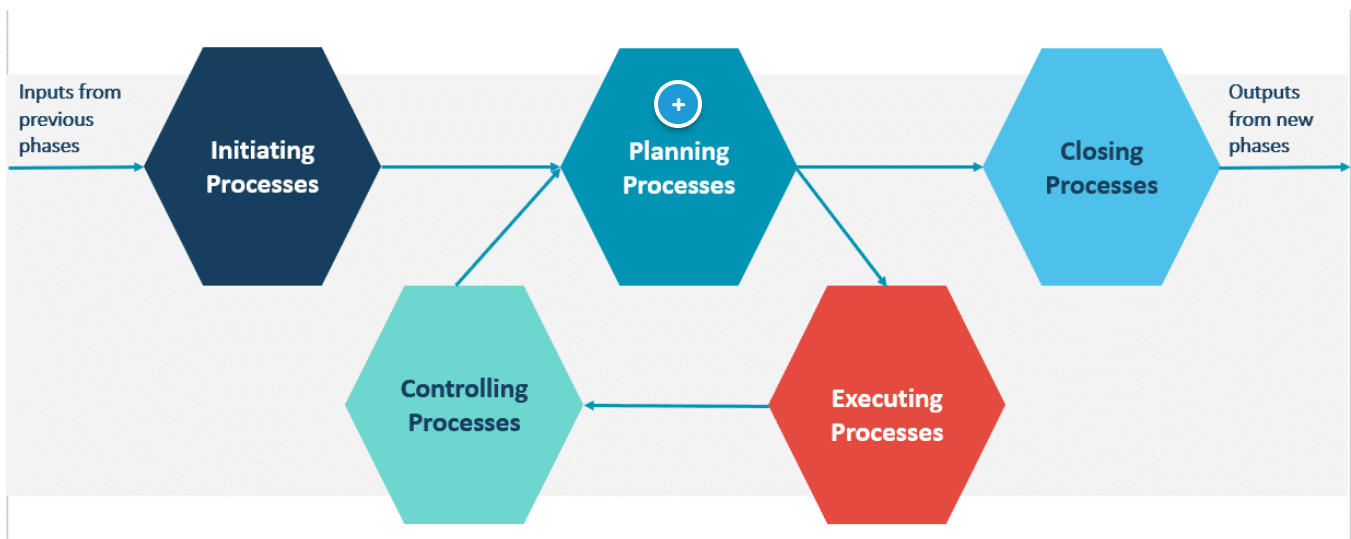
Planning

Planning establishes the project's context, overall structure, strategy, and process. Planning is carried out in two separate efforts that eventually are integrated into a comprehensive plan: high level and detailed planning. High level planning involves creating the framework for the project's management. It provides an opportunity for management to supply guidance to the team and for the team to refine the assumptions, boundaries, and constraints under which it must operate. Detailed planning takes the scope of work, objectives, and parameters already defined and it uses them to articulate the tasks, activities, methods, and tools for doing the work. Detailed planning is complete when both management of the project and the specification of its tasks, schedule, and methods are defined, discrepancies are resolved, and all are integrated into a workable plan.
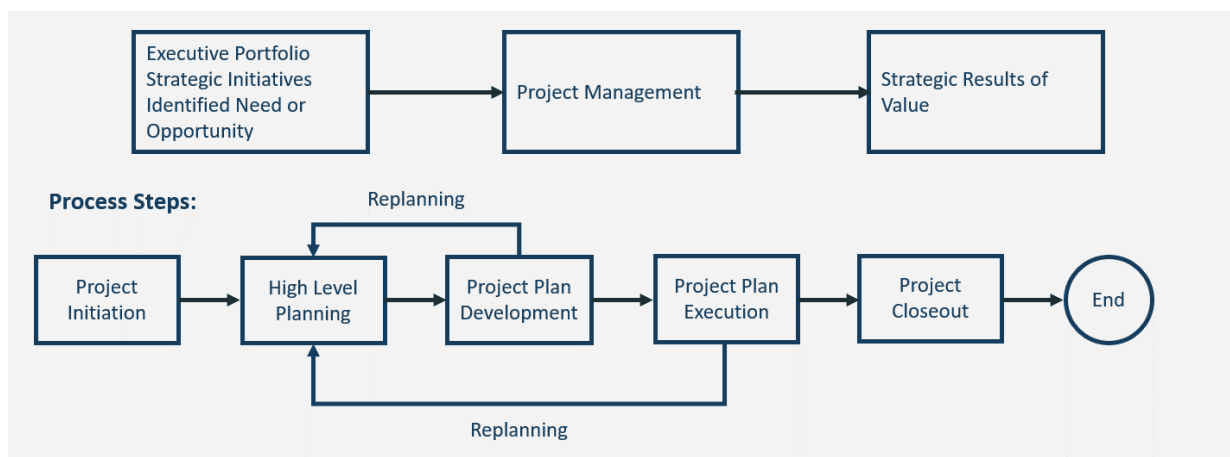

Figure 0.3: Project Management Process Model developed by H. Cooke

H. Cooke developed a model to provide a framework explaining how the project management processes integrate.

12 Project Management Rules

Baker, Baker and Campbell (2003) provide twelve rules of successful project management.

1. Thou shalt gain consensus on project outcomes – This is accomplished by ensuring the project charter is clear and agreed upon by all key stakeholders

2. Thou shalt build the best team you can – Although management and processes will get you so far, you need a highly skilled and competent team to make projects move along smoothly

3. Thou shalt develop a comprehensive, viable plan and keep it up to date – The project plan is the roadmap for completing what are often interdependent tasks and milestones

4. Thou shalt determine how much stuff you really need to get things done – One of the three pillars of constraints is resources (the other two are time and scope); if you do not accurately reflect what is needed in the way of people, materials, machines, and so on, you risk time and scope

5. Thou shalt have a realistic schedule – The key word here is 'realistic', so don't overextend your team by promising timelines that are unrealistic

6. Thou won't try to do more than can be done – It is important to have an appropriate scope

7. Thou will remember that people count – Project success depends on people

8. Thou will gain formal and ongoing support of management and stakeholders – Negotiation skills are key to good project management because you need to get consensus early on in the project and maintain it using negotiation

9   Thou must be willing to change – Projects take on a life of their own and, once all the project planning is completed and the project is underway, you need to be flexible to ensure successful implementation

10   Thou must keep others informed of what you are up to – All relevant project stakeholders need to stay informed of the project status and progress

11   Thou must be willing to try new things – Because every project is different, as the project manager you will need to try a variety to approaches in managing and maintaining project balance throughout execution, controlling, and implementation

12   Thou must become a leader – Project management is as much about leadership as it is about management, and leading by influence and example are key to success

Self-assessment

Prior to commencing the modules in this course, answer each of the following three self-assessment questions.

1. Briefly describe a project that you have been involved in.

2. Identify the things that went well and what could have gone better in the change project you described above.

3. Write a one to two page paper that identifies your key learnings from the preparatory reading. Your review should identify how your own experiences compare and contrast with the experiences outlined in this reading.

Note on Links:

If you find that a hyperlink used in this course is out of date, please notify us at cdneducationlead@leadingedgegroup.com. You may also be able to find an out of date web resource by searching for the expired URL at http://archive.org/web/web.php

1. Project Management Success

Module Overview

This module provides a brief history of project management, outlines the disciplines and rigor required for successful projects and identifies the keys to creating project success. It outlines the recent history of how project management came to be a significant management process and details the phases of project management and key project success factors.

Modules Objectives

On successful completion of this module, you will be able to:

- Understand the background to and origins of project management

- Understand project management

- Identify the principles of project management

- Understand the benefits of project management

- Understand the triple constraints and how it impacts project management success

- Understand the project management process and phases

Required Reading

- **Leach, L P 2005,** *Lean project management: Eight principles for success. Combining critical chain project management (CCPM) and lean tools to accelerate project results,* Advanced Projects, Boise. **Chapter 1, Pages 1 – 36.**

- **Bista B 2006**, *Project management: history and evolution* (http://ezinearticles.com/?Project-Management:-History-and- Evolution&id=340860)

- **Stretton 2007,** *A short history of modern project management* (https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.1039.376&rep=rep1&type=pdf)

Module Topics

The topics that will be covered in this module are:

1. Project Management History

2. The Role of Project Management

3. Determining the Need for a Project

4. Project Success Factors

5. Guidelines for Success

6. Project Processes

7. Processes within a Phase

8. Summary

Reflection and Self-assessment

At the end of this module you will be asked to answer a self-assessment question related to the required reading.

1. Project Management History

The professional project manager is now a major part of management teams in a broad range of businesses and industries.

Late 1950s and Early 1960s

Formal project management began in the late 1950s and early 1960s. The application of the fast-developing computer technology of the early 1960s was a natural partner to emerging management systems. In the US the arrow diagram had been considered a necessity for computer methods, and alternative methods were viewed as suitable only for manual applications. In the 1960s, arrow diagramming achieved the distinction of being standard practice where networking was utilized. By the mid to late 1960s, cost control, resource scheduling, the identification of problems, and the merger of Program Evaluation Review Technique (PERT) / Critical Path Method (CPM) into project management were well under way.

1970s

In the 1970s, writings on project management took two significant directions: applications and profession definition. This was the period of the how to of the project management business. Experience was beginning to replace ideas. Results were starting to reinforce concepts. A series of publications at that time looked at a new industry, a new field of research, and a new management style – in fact, a new profession. The publications' focus was primarily on the role of the project manager, organizational methods for project management, and managerial strategies.

Late 1970s

The 1970s were a period when organization structures were seen to be as important as the people working in project teams and the networking methods of the 50s and 60s. Since the late 1970s there has been resurgence in the use of PERT / CPM/ Precedence Diagramming Method (PDM) approaches in many industries. It is interesting to note that although some industries, such as aerospace, had a varied response to network planning,

the construction industry has maintained a continually high interest. It is perhaps for this reason that much of project management is seen to be related to the building and construction industries.

2

2. The Role of Project Management

Project management's job is to meet or better the requirements of the intended project sponsor or owner. It means balancing competing demands among:

The scope, time, cost, quality functions, and any other applicable project functions

The parties involved in the project, who are likely to have different requirements

The identified needs and the unidentified expectations of the project's owner

The process of project management is an integrative one, where an action (or failure to take action) in one aspect will usually affect other aspects. These interactions often require trade-offs among the three variables that are normally used to measure whether a project's goals are achieved:

- Time

- Cost

- Scope
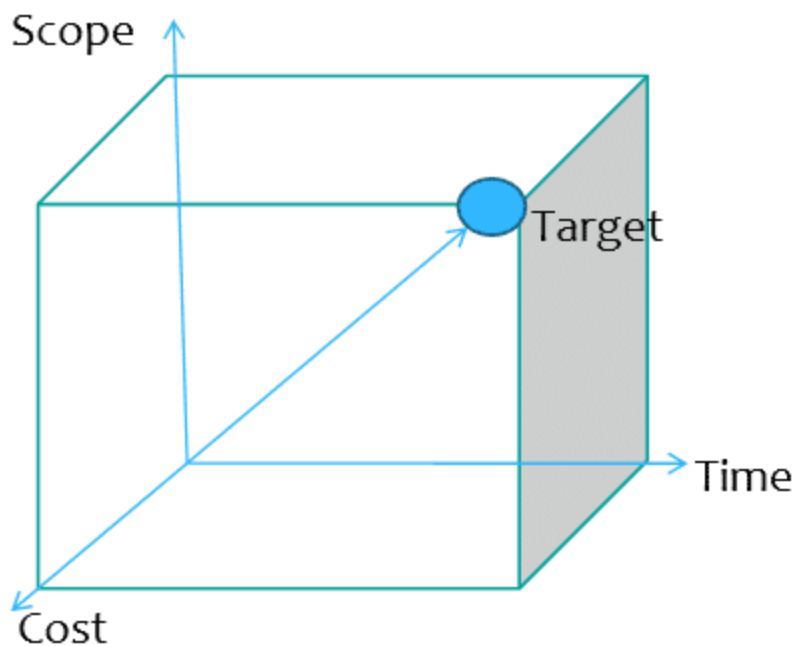
Figure 1.1: Triple constraints

This figure shows the variables related to one another in the form of a mathematical vector. The project's target is the confluence of the three variables. These three variables are sometimes known as the triple constraints. It is the project manager's job to ensure that the triple constraints are continually balanced and that, at completion, the project achieves or betters the predetermined target values of the triple constraints. During the lifecycle of a project, it is highly likely that, in order to meet say the cost goal, it may be necessary to relax on the requirements of the other two variables.

Video Tutorial: Lean and Project Management

Project management, along with change management, team building, and communication, form the basis of soft skill requirements for the success of Lean in your organization.

The following video describes how Lean integrates with project management.

Video Notes:

3. Determining the Need for a Project

The following five questions normally give some insight into whether project management is necessary:

1 Are the tasks in the project complex?

2 Are there dynamic environmental considerations?

3 Are the constraints tight?

4   Are there several tasks to be integrated?

5   Are there several functional boundaries to be crossed?

If the answer to any of these questions is **yes**, then some form of project management is likely to assist the organization.

3.1 Features of Project Management

Project management is a unique way of thinking about problems and about how to identify solutions. It presents a systematic and logical approach to achieving project objectives. As will be explained, the project management process has been identified as a strong source of better management within most organizations. Because project management is an outgrowth of systems management, it is essential that the underlying principles of the general systems approach are understood.

The aim of the systems approach is to facilitate better understanding in a complex environment. In other words, if the system within which managers make decisions can be given a more explicit framework, then such decision-making should be easier to handle. Project management has certain essential features that provide a strong basis for organizations which, being prepared to accept change, will achieve greater success in their operations.

These features are:

- Total accountability assumed by a single person

- Project dedication rather than functional dedication

- Requirement for coordination across functional lines

- Proper utilization of integrated planning and control

Total accountability by a single person —

The successful management of projects is linked directly to the appointment of a project manager and the responsibility and authority assigned to that position. There is a direct correlation between accountability for the project being in the hands of the project's manager and the successful outcome of the project.

Project dedication

When the organization distinguishes its projects from its operations, then the focus of those involved in projects has to be on the projects and not their functional alliances. Within the project environment, the personnel need to be goal- oriented, and within the functional environment, the personnel are generally role-oriented.

Requirement for coordination

The organization structure of the entity that is performing the project work (and providing its management) is required to make better use of resources by getting work to flow horizontally as well as vertically. Project management offers greater success by having functional personnel (the vertical hierarchy) assigned to a specific project (the horizontal hierarchy).

Integrated planning and control

It is not possible to control anything unless it has been satisfactorily planned. Planning and control are therefore inter- related elements of the project management process that, if not undertaken, will create a greater degree of uncertainty about the eventual outcome of projects.

4. Project Success Factors

Project managers need help in focusing on the critical factors that have most impact on project implementation success. Research carried out in the early 1990s confirmed the importance of managerial, behavioural, and organizational issues to the successful outcome of projects. The research also determined that the critical success factors are those that remain within the control of the project manager. That means that the project manager is in a strong position to influence and improve the team's chance of achieving project success.

Here are the critical success factors:

Project mission

This means that the objectives – the underlying purpose for the project's implementation – are clear and understood, not only by the project team involved but also by the performing organization and the other stakeholders. The project manager must be concerned with clarification of objectives as well as achieving broad belief in the congruence of the objectives with overall organizational objectives.

Top management support

Project management is dependent on top management support for authority, direction, and support. Variations in the degree of management support for a project will lead to significant variations in the degree of acceptance of or resistance to that project or its product. Top management support of the project may involve such aspects as allocation of sufficient resources (for example, money, manpower, and time) as well as the project manager's confidence in their support in the event of crisis.

Project plans and schedules

It is vital to develop a detailed plan for the required phases and stages of the project, specifying time schedules, milestones, and labour and equipment requirements. There must be a satisfactory measurement system to judge actual performance against budget allowance and time schedules.

Client consultation

The client is any entity that will ultimately make use of the product of the project, either as a customer outside the performing organization or as a department or sponsor from within the performing organization. Client consultation is increasingly important in attempting to achieve project success. The degree to which clients are personally involved in the project correlates directly with the extent of their support for that project. It is important to identify the clients for the project and accurately determine whether their needs are being met.

Personnel

An important but often overlooked aspect concerns the nature of the personnel involved. Personnel are often chosen with less than full regard for the skills necessary to actively contribute to project success. This heading also covers recruitment, selection, and training.

Technical tasks

It is necessary to have the right numbers of personnel for the project team but also to ensure that they possess technical skills and have the technology and technical support required to perform their tasks. It is important that the project be managed by people who understand the technology involved.

Client acceptance

At the final stage in the project lifecycle, the overall efficacy of the project is determined. It is important to find out whether the clients for whom the project has been initiated will accept it. Client acceptance is a stage in the project that must be managed, just like any other.

Monitoring

Making allowances for adequate monitoring and feedback mechanisms enables the project manager to anticipate problems, to oversee corrective measures, and to ensure that no deficiencies are overlooked. Monitoring and feedback refer to the project control process by which, at each stage of the project or at predetermined time intervals, key personnel receive feedback on how the project is progressing compared to initial projections. Project managers need to emphasize the importance of constantly monitoring and fine-tuning the process of project execution. Monitoring and feedback cover project schedule, budget, and the performance of team members.

Communication

Communication channels are extremely important in creating an atmosphere for project success. Communication is essential within the project team itself and between the team and the other participating organizations, as well as with the client. The communication factor covers feedback mechanisms and the necessity of exchanging information with both clients and the other stakeholders. Such feedback should deal with the goals of the project, changes in policy and procedures, status reports, and so on.

Troubleshooting

Problem areas exist on almost every project. The measure of a successful project effort is not the avoidance of problems, but knowing the correct steps to take once problems develop. Regardless of how carefully the project effort was initially planned, it is impossible to foresee every problem that could possibly arise. So it is important that the project manager make adequate arrangements to recognize problems and to include troubleshooting mechanisms in the project's management plan. Such mechanisms would make it easier not only to react to problems as they arise, but also to foresee and possibly forestall potential problem areas in the project.

Summary

Here are the critical success factors, with a brief definition of each one:

- Project mission: Initial clearly defined goals and general directions

- Top management support: Willingness of top management to provide the necessary resources and authority or power for implementation success

- Schedule/plan: A detailed specification of the individual action steps for system implementation

- Client consultation: Listening to all affected parties and active communication with and engagement of end user/customer

- Personnel: Recruitment, selection, and training of the necessary personnel for the implementation project team

- Technical tasks: Availability of the required technology and expertise to accomplish the specific technical action steps

- Client acceptance: The act of selling the final project to its ultimate user/customer

- Monitoring: Timely provision of comprehensive control and feedback information at each phase of the process

- Communication: The provision of an appropriate network and necessary data to all stakeholders in the project Troubleshooting: The ability to handle unexpected crises and deviations from the plan

5. Guidelines for Success

The following guidelines should help project personnel to become more effective in managing projects:

- Keep the mission to the forefront

- Consult as early and often as possible with your clients

- Stay well connected to the clients

- Make sure there is adequate technology available to succeed

- Set up and maintain a scheduling system

- Put the right people on the project team

- Make sure top management gets and stays behind the project

- Continually ask the 'what if?' question

There is clear evidence from research findings that managers and other team members who spent extra time early in the project establishing contingency plans were less often caught by surprise, spent less time puzzling out their responses, and got their projects back on track faster than those who ignored troubleshooting and did not ask the 'what if?' question.

5.1 Project Management Body of Knowledge (PMBOK)

The term PMBOK (discussed in the introduction to this Course) describes the sum of the knowledge within the profession of project management. As with other professions, the body of knowledge rests with the practitioners and academics who apply and advance it. The PMBOK includes proven, traditional practices that are widely applied as well as innovative and advanced ones that have seen more limited use.

6. Project Processes

A process is: 'a series of actions to bring about a result.' Projects are composed of two principal types of processes:

Project management processes

which are concerned with describing and organizing the work of the project. These processes must be coordinated with the relevant technical processes and the overall management process of the

Product-oriented processes

which are concerned with specifying and creating the project product. They are defined by the project lifecycle and vary by application area. The project management and product-oriented processes

6.1 Project Management Processes

It has been mentioned previously that project management is characterized by methods of restructuring management and adopting special management techniques. The project management process provides the basis for innovation and the tools and techniques that permit the solving of problems.

There are five basic management processes in project management:

1. Initiating
2. Planning
3. Executing
4. Controlling
5. Closing

Although the planning, executing, and controlling processes are also found within the traditional management approach, the processes of initiating and closing are not. These two processes are specific to the project management process. These management processes are not discrete, one-time events; they are overlapping activities that occur at varying levels of intensity throughout each phase of the project. The output of one process becomes the input to another, just as the output of one phase becomes the input to initiating the next.

Each sub-process can be described in terms of its:

- Inputs
- Tools and techniques
- Outputs

6.2 The Links Between the Processes

The figure below shows how the five management processes are inter-related. They are linked by the results they produce; in other words, the output from one becomes the input to another. Among the central process groups of *planning, executing,* and *controlling*, the links are iterated; planning provides executing with a documented project plan and then provides documented updates to the plan as the project progresses.
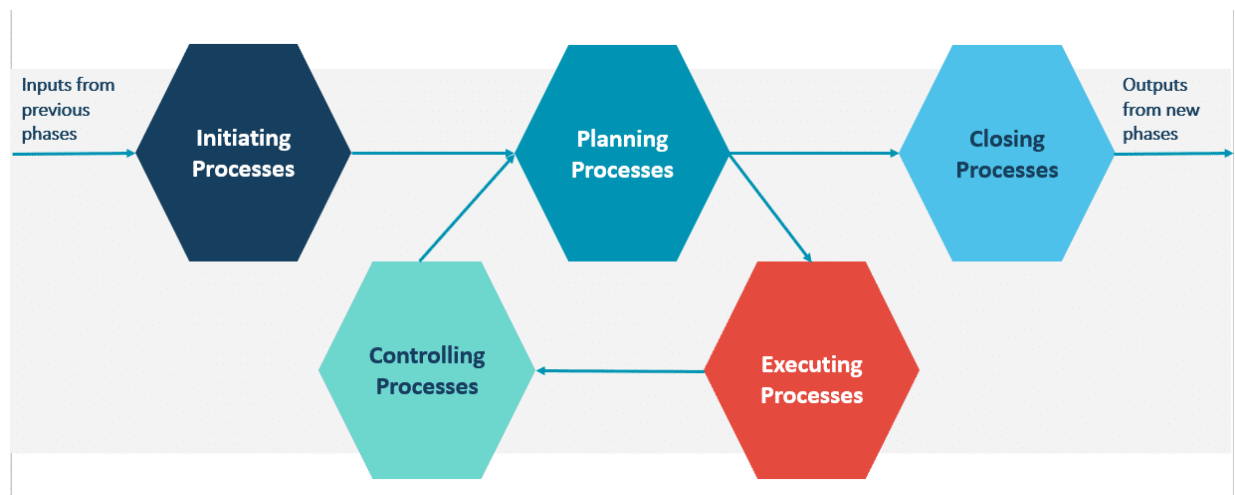
Figure 1.2: Project life cycles and associated processes

6.3 Initiation

Initiation is the process of formally recognizing that a new project exists or that an existing project should continue into its next phase. The principal actions are to:

- ☐ Investigate the overriding purpose (the requirement) of the current phase (or the project as a whole, if it's in the conception phase)

- ☐ Identify and rank the goals, objectives, and activities that will be needed to support the purpose and provide the end-of-phase deliverables

6.4 Planning

Planning means devising a work plan that will accomplish the requirements of the project. It includes an initial written statement of the scope (extent) of the project that will include:

- [ ] Reasons the project is to be undertaken

- [ ] The specific intermediate and final deliverables

- [ ] Clearly defined project objectives (the triple constraints and any other goals)

At this point, it is necessary to break the project down into detailed tasks (decomposition) that will, when integrated and executed, produce the deliverables and the final product. The decomposition approach is needed so as to provide better control.

The next step is identifying and documenting inter-activity dependencies in order to create a sequence of work. The duration of each task is estimated. The foregoing steps can together be defined as planning. The plan has then to be turned into a time-related schedule. This requires the analysis of the tasks and their sequences while taking account of their duration and resource requirements. It requires an examination of what resources are needed in what quantities to perform the project activities.

The results of this examination, with estimates of the cost of the resources to complete the project's tasks, can then be used to allocate the resulting cost estimates to individual project components. Taking these results and the outcomes of other planning processes, and putting them into a consistent coherent document, creates the project master plan from which the project work is implemented.

6.5 Executing

Executing refers to the coordination of resources to achieve the requirement. This means performing the activities that are included within the project plan.

That may include:

- [ ] Developing individual and group skills to enhance project performance

- [ ] Making information available to project stakeholders when they need

- [ ] Obtaining quotations, bids, offers, or proposals for outsourced resources or supplies

6.6 Controlling

Controlling means measuring the project progress against the plan and taking corrective action where necessary. Control includes coordinating scope, time, quality, and cost changes across the entire project.

The control process will:

- [ ] Monitor project results against quality standards

- [ ] Identify ways of eliminating unsatisfactory performance

- [ ] Evaluate overall project performance on a regular basis to provide confidence that the project will satisfy the relevant quality standards

- [ ] Collect and disseminate progress information

- [ ] Respond to changes in risk over the course of the project

6.7 Closing

Closing means the formalized acceptance that the requirements have been met and that this phase, or stage, of the project can be considered to have been concluded.

7. Processes within a Phase

As you have seen, the five processes overlap at varying levels of intensity throughout each phase of the project. The figure below shows this overlapping and the variation in level of effort of the five processes. As can be expected, the initiating and closing processes happen over relatively short periods at the beginning and end, respectively, of a project's phase.
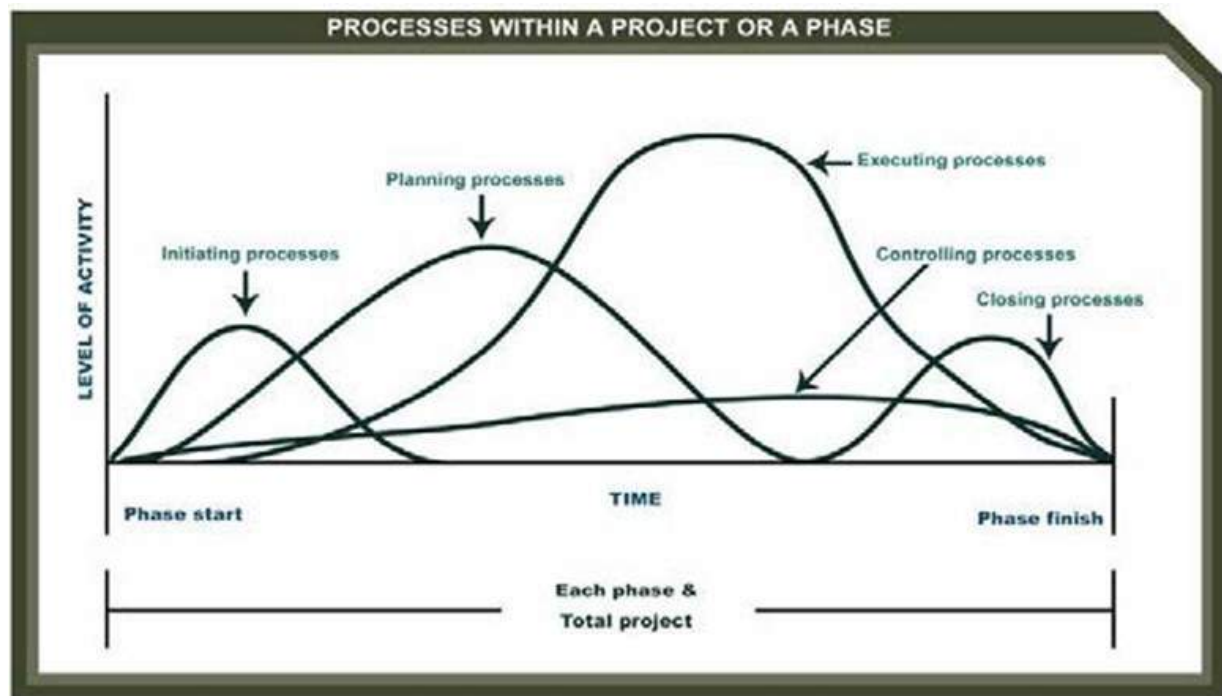
Figure 1.3: Processes within a project or a phase

8. Summary

In summary, project management has a long history of helping a wide variety of industries accomplish work that has a defined start and end date. It is important not to confuse project management with operations. Operations do not have a defined start and end date and usually are the next stage once a project has been completed.

There are many phases in project management and processes within those phases. It is important to apply a balance between the 'science' and 'art' of project management in keeping balance within the triple constraints of cost, time, and scope.

References and Further Optional Reading

If you would like to do further optional reading about the topic, you may wish to consider the following resources that the creators of this course drew on in preparing this module:

- **Baker K, Baker S and Campbell G M 2003,** *Complete Idiot's Guide to Project Management,* Alpha.

Module 1 Self-assessment

Review the Bista and Stretton articles and write a single 1–2 page paper outlining your key learnings from the two case studies and how your experience compares and contrasts with

that outlined in these articles.

2. Project Charters and Project Leadership

Module Overview

This module reviews how to establish and maintain a clear project vision by creating a detailed project charter.

Concise project charters are important in order to ensure stakeholder understanding and goal alignment. The module will cover issues including project assumptions, constraints, risk and issue-resolution. The module also reviews how to lead people when managing Lean projects, emphasizing that engaging stakeholders, building team commitment and maintaining motivation are all essential to project success.

Modules Objectives

On successful completion of this module, you will be able to:

- Understand the components of a project charter
- Understand the keys to selecting the right project team
- Understand how to plan and implement an effective project kickoff
- Understand how effective project leadership contributes to project success

Required Reading

- **Leach, L P 2005,** *Lean project management: Eight principles for success. Combining critical chain project management (CCPM) and lean tools to accelerate project results.* Advanced Projects, Boise. Chapter 2, pages 39–68 and chapter 3, pages 69–83.

- **Fuller T 2007,** *Chartering projects.* (https://www.projectsmart.co.uk/chartering-projects.php)

- **Nielsen E 2006,** *Developing the project charter.* (http://www.anticlue.net/archives/000739.htm)

Module Topics

The topics that will be covered in this module are:

1. Project Start-up

2. Project Charter

3. Project Team Selection

4. Project Commencement

5. The Triple Constraint Model

6. Lean Project Leadership

7. Team Building and Individual Leadership

8. Project Roles

9. Project Conflict Management

10. Summary

Reflection and Self-assessment

At the end of this module you will be asked to reflect on your prior experience in projects and to answer two self-assessment questions related to the required reading.

1

1. Project Start-up

Once a decision has been made that a project is to commence, the work of the project manager and project team begins in earnest. Establishing a project vision and gaining alignment on a project charter are key steps to helping your project team to succeed. The project charter is an agreement between the project manager / team and the project sponsor or organization. It defines the what, who, when, why, and how of the project. Once signed, the project charter is maintained through version control and / or change control. The charter is the 'stake in the ground' or contract that all questions that arise throughout the project are measured against. Questions of change in scope, time, cost, and so on need to be brought back to the original vision established as part of the project charter.

2. Project Charter

Depending on the size of the project, charters can be from one page to 50 pages in length. An example of a one page charter is located in Lean Project Management: Eight Principles for Success by Lawrence P. Leach (page 73).

The project charter is created by the project manager. However, this task cannot be completed in isolation. The project sponsor provides key information to the project manager related to the project history and background. Questions of why this project is necessary, at this time, with this particular scope need to be answered. It is equally important to include what key processes and systems may affect the project and to ensure that all process owners are involved and supportive of the project.

The project charter should contain the following elements:

Vision   —

Vision for the project: A mental picture of the project result

---

Purpose   —

Purpose of the project (why are we doing it?)

- Project background: A brief description of the history of the project and how it fits in with the organization's strategy

- Product description: A description of the product that the project is expected to produce

Membership

Membership of the team to prepare the project plan, including assignment of the project manager

- Project manager authority: Naming the project manager and detailing the level of authority that this individual has with respect to the project (This document gives the project team its brief for the project and confirms the organization's commitment to the project)

- Team and individual responsibilities for creating the project plan

Organizational Linkage

What parts of the organization are involved in the project, and to whom do the key members report?

Boundaries

What is in scope and out of scope for the project?

Key Assumptions and Constraints

What are the project sponsor, project manager, project team and stakeholders assuming about the project and what constraints are in place for the project?

Measures of Success   —

Measures of success for the project (beyond on time, within cost, and meeting scope)

Operating Guidelines   —

Operating guidelines for the project planning team

Estimated Project Schedule   —

High-level project timeline and key deliverables

Estimated Project Budget   —

High-level budget

Estimated Risk Plan   —

High-level risks associated with the project

Estimated Resources —

High-level project human resource plan

3

3. Project Team Selection

The receipt of a project charter by the project team should mark the official commencement of the project.

Up to this point, a number of individuals may have been involved in initial feasibility studies and the generation of feasibility reports. This involvement may benefit the project by providing a number of project team members with understanding of the project background and history.

Ideally, the project manager, once assigned to the project, should have an input into selecting those project team members who are to work on the project. In any type of organizational structure from functional through matrix to project, the acquisition of any individual will require negotiating with others. The likelihood is that the individuals whom the project manager would like to work on his or her project team are also the resources that other managers wish to retain. Negotiating skills, therefore, are a necessary asset of a project manager.

In selecting resources for the project, it should first be determined what skills are required to complete the work of the project to the required standard. Individuals with the appropriate skill set would then be targeted for recruitment. An important element to consider is how the various targeted resources would interact if placed on the same project team. While the technical combination of the resources on paper may appear to be optimized, other issues such as personality conflicts may interfere with project implementation to the planned schedule. It is the job of a good project manager to deal with such issues within a project team, but if these possibilities can be identified prior to the commencement of the project, perhaps some undesired and unnecessary conflict can be prevented. An outcome of this may be that the best technical expert in a particular field is omitted from the proposed team in favour of a lesser technical expert who may work more productively with other team members.

The key personnel or skill-sets identified should be targeted for selection first. Once these positions have been filled, the positions considered the next most critical should be filled and so on. If team selection is completed in this manner, there is a greater possibility of obtaining a preferable technical and personality mix to the project team.

The 'softer' elements can be harder to assess than the 'harder' elements in team profiling and selection. The level of technical expertise can generally be obtained from resumes if the individual is not known to the project manager, or through consultation with the individual's current or previous managers or other technical colleagues. The 'softer' issues are more subjective. Although interviewing colleagues and supervisors may provide some insight into the individual, it does not necessarily mean that the same interaction will be present between different groups of personalities. Personality profiling tests can be used to profile an individual and, if completed on all potential team members, can aid greatly in selecting a team that is more likely to work well together.

In the selection of the project team, therefore, both technical and person issues must be addressed. As stated above, these are categorized as the 'hard' and the 'soft' issues of project team selection. In reality, however, a number of the project personnel are generally assigned to the project without any input from other project members. In this case, the selection of the remaining resources is critical in order to try to maximize the resources already assigned. In extreme cases, the entire project team has been pre-selected. It is the job of the project manager to get the project completed on time, within budget, and to the required standard

(triple constraints). The project manager must use his or her personnel skills to firstly negotiate to obtain the team members that he or she has identified and secondly to get the best performance out of the team members once finalized.

4. Project Commencement

Once the project charter has been received and project team formed, the next step is to hold an initial meeting of the project team. If the team is located in multiple locations, conference calls, site visits, or other means may be explored to try to get everybody on the team together for the 'kickoff' meeting. The project kickoff meeting facilitates two processes. It serves as a meeting point for the project team members. There may be members of the project team who have not met before or never worked together. The project kickoff meeting can be used to introduce everybody and to commence the process of communication between team members. This process relates to the 'forming stage' of the team development process. The project kickoff meeting may also be used to review the project charter and the project scope statement.

This is the team members' opportunity to ask questions about what they are required to do. The project kickoff will address the following four elements:

Project Background

A brief description of the project background

Project Description

A description of the planned product of the project

Project Deliverables

A list of key items required to be completed during the life of the project

Project Objectives	A list of measurable criteria which the project is designed to achieve

The project kickoff meeting is an ideal platform for the review and clarification of the project charter and project scope statement. The end of the project kickoff meeting symbolizes the end of the project start-up phase.

At this point, the following activities should have been completed:

- Project charter received, reviewed, and agreed upon

- Project manager authority established by the project sponsor

- Project team introduced to each other – verify that no other areas are missing from the team

- Project scope statement reviewed and approved

- Project timeline and key deliverables reviewed and approved

- Project communications are established so the team knows how and when they will communicate

5. The Triple Constraint Model
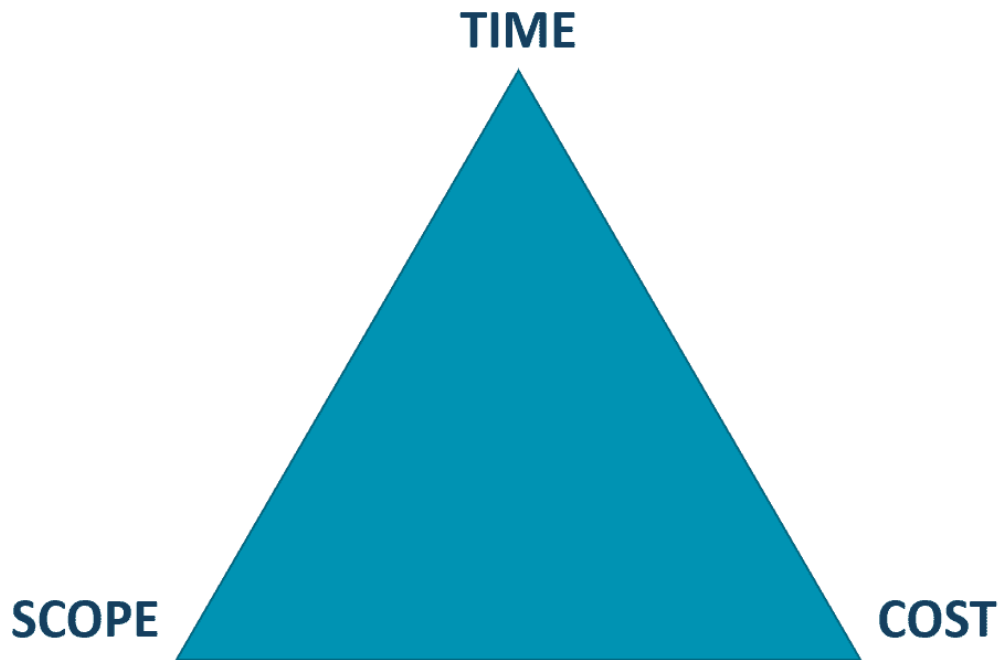
TIME

SCOPE

COST

Figure 2.1: Triple constraints

There are three constraints when considering the project success criteria. These are time, cost, and scope. Collectively these are known as the triple constraints.

☐ **Scope:** The scope of a project is about the end product and the work to be done to create it. Defining the scope of a project involves capturing the client requirements and then using techniques such as work breakdown structures and product definitions to document these requirements, clearly and unambiguously. If requirements are not included in the agreed scope definition, they must be considered 'extras' and subject to change control.

☐ **Time:** The project schedule is developed from the work defined in the scope definition. If there are constraints on time, it may be necessary to reduce the

scope. If the scope increases once the project is underway, it may be necessary to delay the completion.

☐ **Cost:** The cost of a project is based directly on the scope definition. This scope definition ultimately will lead to the work being broken down into specific streams of activities (generally these are referred to as work packages). Therefore, it is the quality of the scope definition that will determine how accurate the subsequent estimating and cost budgeting will be when the project progresses through the initiation and planning processes of the project life cycle.

6

6. Lean Project Leadership

Project leadership is one of the most important aspects of project management. Leach (chapter 2, pages 39 –67), reviews leading people under the following criteria:

- Stakeholder endorsement (to include team building, individual leadership, and team leadership)
- Project roles (to include project leader/manager role, resource role, and resource manager role)
- Conflict management

According to Leach, the goal of stakeholder endorsement is to bring all the project stakeholders together to work as a team to ensure project success. The key is to create a climate of collaboration, where the teams of stakeholders are able to do whatever it takes to make the project successful.

Stakeholders include the project or process owner (the person paying for the project), the project team, and the end users of the project. There are other stakeholders, such as regulators, unions, local commmoduley, and business owners and other approvers.

For example, a project to build a new hospital that will be deploying electronic medical records could have stakeholders that encompass construction, clinical staff, and non-clinical staff and state and government regulations. This list of stakeholders could include:

- CEO and other executive staff

- Construction permits and inspections such as safety and building codes

- Unions, if various staff group are unionized

- Physician groups

- HIPPA

- The joint commission

- Local community

Levels of commitment and compliance for Lean projects may vary based on the stakeholder. The table below outlines the difference between commitment and compliance.

Commitment Comes From	Compliance Feels Like
- Invited to participate - Goals/results driven - Purposeful - Privilege to participate - Clear alignment to organizational goals - Essential to success - Tool to improve quality of my work - Collaborative team effort	- Told what to do - Task/activity driven - No real value - Participate or else - Not sure why I am doing this - Something extra to do - Not part of my real job - Monitored and inspected

		Commitment	
		HIGH	**LOW**
Influence on the Project Success	**HIGH**		
	LOW		

Figure 2.2: Stakeholder Influence/Commitment matrix

Of course, not all project stakeholders need to have the same level of commitment in order for the project to be successful. This figure shows how the stakeholder level of commitment maps to the influence on project success.

Once project stakeholders have been placed on the matrix to determine the level of commitment needed, an action plan (table below) should be developed to address gaps in current commitment.

What	Who	When

Leach encourages the use of a formal endorsement session before the project kickoff and launch. To ensure continued alignment, this meeting can serve as a reference point in future discussions to keep stakeholders aligned. Leach provides an agenda outline of the following:

1. Define the business purpose for the project

2. Affirm the project vision

3. Clarify the business benefit for the project and who is accountable to achieve the benefit

4. Overview the project plan

5. Conclude the meeting with a verbal and written commitment by the attendees that they endorse the project

6. Issue meeting minutes showing who was in attendance and affirming their commitment to the project

The Project Management Institute defines project management as 'the application of knowledge, skills, tools, and techniques to project activities to meet project requirements'. Leach states that he prefers to think of projects in terms of satisfying stakeholder needs. He also believes that satisfying stakeholder needs is more about leading than management, because you lead people and manage things.

7. Team Building and Individual Leadership

Team building and the stages of team development are reviewed in Module 1 of the Effective Leadership and Change Management course. The stages of team development are forming, storming, norming, and performing. Many teams never move out of the storming stage and often the project leader's biggest challenge is to manage the creative tension between team members. You need to effectively manage the conflicts that arise during storming, while maintaining a 'safe' environment where divergent thinking is encouraged and group think is not the norm.

Individual leadership involves applying leadership skills to each team participant based on individual needs. Hersey, Blanchard, and Johnson developed a situational leadership model to take into consideration the leadership styles of:

- S1 – Directive
- S2 – Coaching
- S3 – Supporting
- S4 – Delegating

The project leader then matches the leadership style to the follower's readiness:

- R1 – Enthusiastic Beginner
- R2 – Disillusioned Learner
- R3 – Capable but Cautious
- R4 – Self Reliant Achiever

It is important to keep in mind that someone may have operated at readiness level R4 for their last project, but may be at readiness level R1 for the current project. In order to have clear and

open communications and reduce conflict, the project manager must have open and honest dialogue with team members about their readiness level for various tasks.

Think about times when you operated at these different levels of readiness. Did you move from one level to another during a project? Why did you move?

Leach (page 47) refers to Max DePree's 1989 definition of leadership as 'liberating people to do what is required of them in the most effective and humane way possible'. This philosophy recognizes that each team member is at different places in the situational leadership model. To get the most out of your project team, you cannot treat everyone the same; you must take into account the needs and readiness of each individual.

Team leadership is the next step in leading projects. The figure below shows how teams may initially look like.
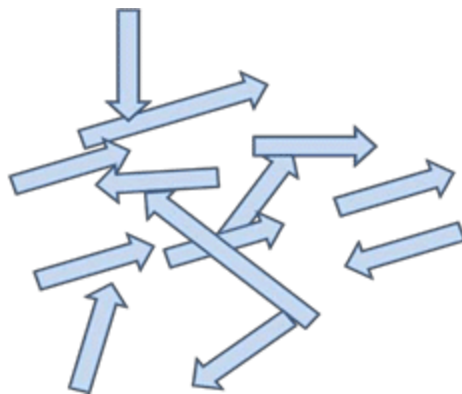
Figure 2.3: Initial state of the project team

The following figure shows the goal you are seeking through leadership.
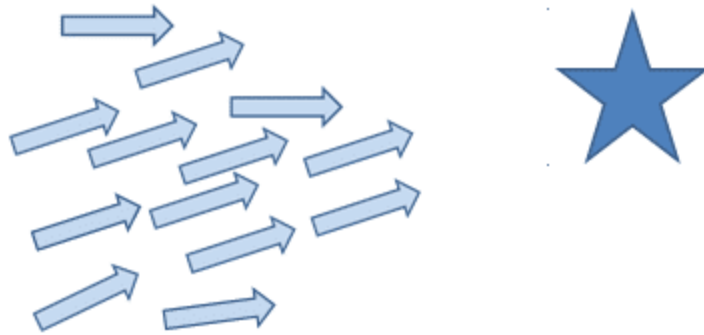
Figure 2.4: Aligning the team towards the project goal

Leach explains how to synergize team strengths to increase the rate of speed and gain the most out of project individuals.

> (i) **Reflection: Identify a project where you were on a team that was high performing and how the arrows of all team members contributed to significant success. For example, you could think of a sporting team you may have participated on.**

8. Project Roles

Project teams vary greatly depending upon the project type and scope. This variation also impacts the various roles that project team members may play in the project structure. Leach explains the variety of roles that project team member may be expected to fulfill:

   1. Project leader

2. Task manager

3. Resource (person who does the work)

Larger projects may have roles such as:

1. Resource or functional manager

2. Work package manager

3. Project manager or scheduler

> (i) **Reflection: Identify the various roles you have played on projects.**

The Responsibility matrix is another tool to assist project teams become clear about the various roles in the project. This tool provides a documented approach to ensure the team is not duplicating efforts, and individuals are kept informed or involved as necessary.

9

9. Project Conflict Management

Conflict is a normal part of working in teams. It is not typically seen as a positive emotion. However, Leach asserts that '*[Conflict] over ideas can be productive when it leads to developing improvements.*' When teams are built, project managers want to bring in diversity of thought. However, it is that same diversity of thought within a strong team that can cause conflict.

The conflict management matrix provides an analytical way of viewing conflict while taking the emotion out of the issue. Stephen Covey used a conflict management style known as 'win-win'. Convey states: 'Win-win is a frame of mind and heart that constantly seeks mutual benefit in all human interactions.' He further states: 'Most credibility problems begin with perception differences.' This approach asserts that if each side takes the time to really listen to the other person's point of view, you can find areas of agreement and begin to seek a third alternative to the problem.

A conflict resolution tool known as the Evaporating Cloud developed by Eliyahu Goldratt in 1994, seeks to create alternatives based on the parties in conflict sharing a common goal. If there is a common goal, there is no need for conflict.

The Evaporating Cloud aims to convert a 'me against you' situation to a 'you and me against the problem' situation. Goldratt also asserts that both sides in a conflict are rational. Each believes that the result they want is the best way to achieve the goal. You need to think about the problem objectively, based on a shared goal that both parties are working toward.

10. Summary

This module has covered the project charter, leadership, teams, and conflict management. The project charter is the contract or work agreement between the project sponsor and project manager. It is important to ensure this document is reviewed and signed, and then communicated to the team on an ongoing basis. When times get tough, and they will, refer to the project charter.

Leading people and supporting teams is an art. As the project manager, you should be the best example for your team. Investigate facilitation skills, listen more than you talk, and remember that the key to success is to remain calm when all around you is in chaos.

Module 2 Self-assessment

1. Review the Fuller and Nielsen articles and write a single 1–2 page paper outlining your key learnings from these articles and how your experience compares and contrasts with that outlined in these articles. Identify what ideas from these articles you could apply in your own organization.

2. Review and answer the discussion questions in the Leach text pages 66 and 82.

3. Project Integration with Change Management

Module Overview

This module reviews the integration points between project management and change management. The module discusses ways to ensure that the people side of change is addressed in coordination with the management of project time, cost, and scope. The module identifies and explains the different skills required in the management and leadership of projects.

Modules Objectives

On successful completion of this module, you will be able to:

- Understand the integration points between project management and change management

- Appreciate how project and change resources integrate

- Understand how various project and change readiness assessments assist in identifying project issues and risks

Required Reading

- There is no required reading for this module.

Module Topics

The topics that will be covered in this module are:

1. Integrating Project and Change Management

2. Prosci Project Change Triangle

3. Project Management and Change Management Resource Integration

4. Summary

Reflection

At the end of this module you will be asked to reflect on the thinking in your organization that may become obsolete.

1

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1. Integrating Project and Change Management

Integrating project management and change management is a new aspect of project management. A lot of the research in this area has been conducted by an organization called Prosci, based in Loveland, Colorado. Prosci asserts that successful change requires three key elements:

- Project management
- Change management
- Leadership

An organization must ask itself some key questions in order to gauge its readiness for change. Prosci created a methodology to determine organizational readiness for change. Because most projects create change, successful project management requires an ability to deal with change.

2

---

2. Prosci Project Change Triangle

Figure 3.1: Prosci project change triangle (PCT) model

The Prosci project change triangle highlights three elements of successful projects: leadership, project management, and change management.

At the start of a new project, the leader should ask:

1. What is our project management readiness? Do we have a project management methodology? Do we have the project management skills required?

2. What is our change management readiness? Do we have a change management methodology? Do we have the change management skills required?

3. Am I ready to lead this change?

Asking these questions is important to ensure that the project has the three elements of a successful project and to thereby facilitate a smooth transition to the new way of doing business.

Senior leaders play a central role in making change successful. In all four of Prosci's

benchmarking studies on effective change management (1998, 2000, 2003, 2005), participants cited the role of the leader (also known as the sponsor) of change as the number one contributor to success. In the 2005 study with 411 participants, the role of the senior leader was cited by a 3:1 margin over any other success factor. One of the biggest issues raised from these surveys was that senior leaders may not always know what good leadership looks like in concrete terms. It is the responsibility of the change management practitioner to educate and coach senior leaders.

3. Project Management and Change Management Resource Integration

Project management and change management have individual key skills and core competencies, yet they must work in an integrated fashion to attain effective results. the figure below shows an example of two separate processes integrated throughout the entire project/change process.
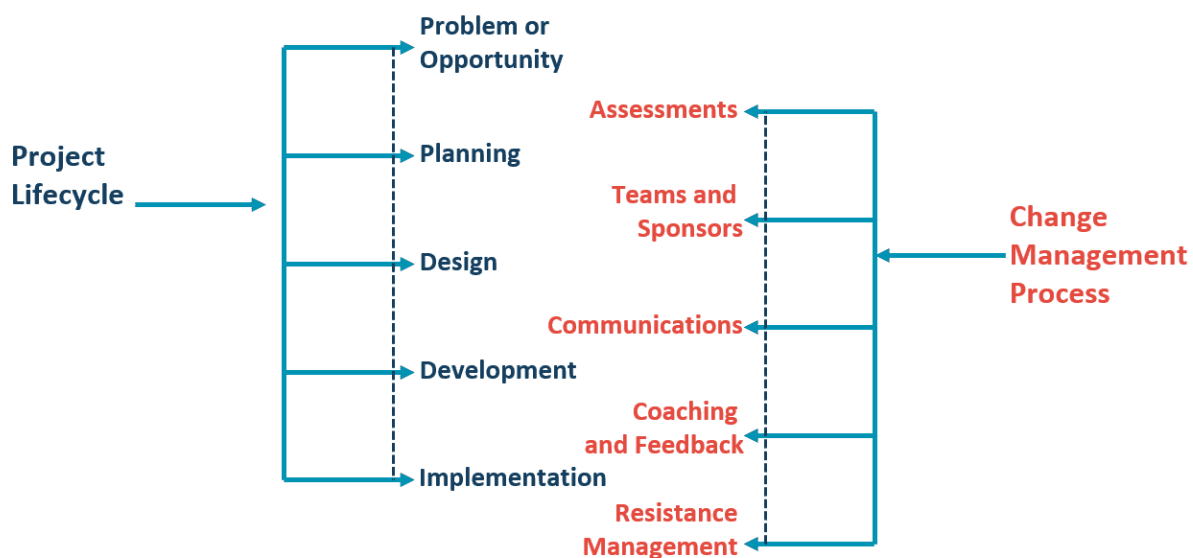
Figure 3.2: Project and change integration Source: Prosci

Many organizations do not think about the people side of change until the end of the project, when it is too late to build buy-in for the change. The figure below shows an instance of change management being added into a project once the project is well underway. The project team may be preparing to implement or implementation may have already started.
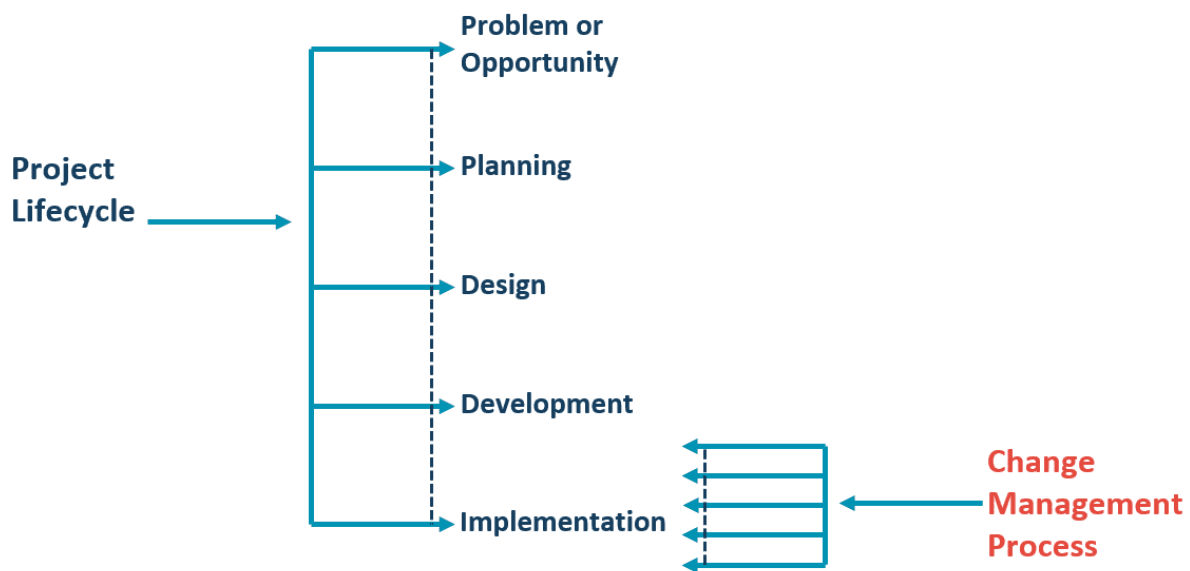
Figure 3.3: Project with change late in the process

The catalyst for change management is often resistance from employees, supervisors, and managers. In this situation, the project has already begun to experience difficulties, which may include productivity declines, active and passive resistance, and possible loss of valued employees.

If this is the case, your first activity as a project manager is to find out what has already happened. You will have to conduct an assessment of the organization or project to determine where the sources of resistance are and why they have emerged at this time in the project. You need to implement action plans to address and overcome the resistance. After damage

control, you can move into proactively addressing a change management plan for the remainder of the project.

Change management and project management are integrated. Change management focuses on the people side of change. Project management focuses on the process of delivering a project on time, on budget, within scope. Change management is not meant to be a 'side dish'; it needs to be in the 'sauce' of how we manage Lean projects.

In the book Making Change Happen, On Time, On Target, On Budget, Ken Matejka and Al Murphy make the point that successfully leading organizational change and projects requires a balance between extremes:

- [ ] Objectivity and subjectivity

- [ ] Logic and emotion

- [ ] Substance and style

- [ ] Big picture and details

- [ ] Right-brain and left-brain thought

- [ ] Art and science

They argue that as a leader of change projects, you must be willing to change as well.

> ⓘ **Reflection: As you transition through the remainder of the Managing Lean Projects material, take the time to learn from your past experiences and previous projects. Below are a couple of statements made by organizational and change leaders, which now in hindsight seem foolish.**

> 'There is no need for any individual to have a computer in their home.' Ken Olsen, Digital Equipment Corporation, 1977
>
>
> '640k ought to be enough for anybody.' Bill Gates, Microsoft, 1981
>
> Think about how you see your organization and identify what you think will be 'obsolete' thinking in 10–20 years.

4

4. Summary

Integrating project management and change management involves balancing the management of processes and the leadership of people in your Lean projects.

References and Further Optional Reading

If you would like to do further optional reading about the topic, you may wish to consider the following resources, which the creators of this course drew on in preparing this module:

- **Hiatt, J M and Creasey, TJ 2003,** *Change Management*, Prosci.
- **Matejka, K and Murphy, A 2005,** *Making Change Happen, On Time, On Target, On Budget,* Intercultural Press.

4. Scope Management

Module Overview

This module introduces the concept of scope management. It discusses scope management techniques such as work breakdown structures (WBS) and various organization and project structures. The module provides a template for documenting sponsor requirements and reviews the triple constraint methodology as a way of controlling scope creep.

Modules Objectives

On successful completion of this module, you will be able to:

- Understand what scope management consists of

- Develop a project scope statement from a template

- Understand how to manage scope and to avoid scope creep

Required Reading

- **Leach, L P 2005,** *Lean project management: Eight principles for success. Combining critical chain project management (CCPM) and lean tools to accelerate project results* – Advanced Projects, Boise. **Chapter 4, pages 86-89 and chapter 4, Pages 106-111.**

- **Mochal T 2004,** *Poor scope-management practices could precipitate project failure.* **([http://www.techrepublic.com/article/poor-scope-management-practices-could-precipitate-project- failure/5034542](http://www.techrepublic.com/article/poor-scope-management-practices-could-precipitate-project-failure/5034542))**

Module Topics

The topics that will be covered in this module are:

Reflection and Self-assessment

At the end of this module you will be asked to answer three self-assessment questions related to the required reading.

1

1. Scope Definition

Scope is one of the three constraints of project management.

Scope definition forms the basis of planning techniques such as resource estimating, time scheduling, and cost management. In the early phases of the project, it is paramount that the scope of the project is clearly articulated, ideally in the project charter. It also must be maintained through the use of change control and risk management. Therefore, scope definition must be integrated into several other knowledge areas. When establishing a project, the scope must be clearly defined and agreed to by all key stakeholders.

In defining the project scope, the specific outcomes of the project need to be defined along with those activities and deliverables that are outside the scope of the initiative. The scope of work forms the basis of the agreement between the client and the project manager by clearly identifying the project objectives and major deliverables.

The project scope must comprise everything that is needed to ensure that the project benefit is realised. There should be no assumptions that 'others' are providing a key part of the

scope. If other projects are providing deliverables, it must be clearly stated in the project charter and scope statement. It is important to note any assumptions or prerequisites for the project in the scope statement.

One of the major causes of project time and cost overruns is scope creep. Stakeholders ask for 'small' changes. They are not very significant alone, so you accept the 'minor' increase in scope. The problem is that small changes can add up to significant cost and time increases. As the project manager, it is your job to review each 'small' change request following a formal change request process and provide the impact to the cost, time, and possibly performance back to the project sponsor. (In some cases, a change review team is used to make the determination.) If the sponsor is willing to absorb the impacts, then the change in scope can be added. The key point here is that you as the project manager may not be in a position to determine if additional scope will be added. However, you will be held responsible if the additional scope creates project risk in the end.

Video Tutorial: Scoping a Lean Project

Project scope management is a dedicated area in Project Management Body of Knowledge (PMBOK). It involves planning activities of the project so that only the activities required to meet project objectives are included–no more, no less.

The following video discusses principles, practices, and tools for scoping a Lean projects

Video Notes:

2

2. Requirements

One of the first things a project manager can do to gain a full understanding of project scope is to listen and inquire. Principle four in Leach's Lean Project Management: Eight Principles for Success textbook outlines key success factors in defining requirements. The business requirements must capture "What stakeholders expect to be able to do that will advance their strategic, operational or personal goals.'

As a project manager, when you hear your project stakeholder answer this question about requirements, it is important to remember that you are hearing through your own filter based on your previous experiences and history. In other words, you might not have heard what they think you think you heard. You need to ask 'unencumbered by knowledge' questions.

Ask about what data the stakeholder has. What would the project and operations look like after the project is completed? What will the stakeholder will see, feel, and hear after a successful project implementation?

The figures below shows the Juran Quality Planning roadmap and a simplified Juran Requirements Matrix. These tools provide you with a linear approach to gathering and documenting project requirements that will form the project scope. If you use these approaches of listening, inquiring, and documenting with your sponsor and key stakeholders, you will have a solid project scope that clearly outlines what is in and out of scope.

Existing Product and Process

Identify Customers

List of Customers (Stakeholders)

Discover Customer Needs

Customer Needs (in their language)

Translate

Customer Needs (in our language)

Establish Modules Of

Modules Of Measure Criteria

Establish Measurement

Customer Needs (Modules of Measure)

Figure 4.1: Juran Quality Planning Roadmap

Number	Requirements	Module Of	Sensor	Criteria
1	Project Owners expect to be able to identify the complete project scope	Elements of delivers scope (artifacts and services)	Project Owner approval	Project Owner approves the detailed work breakdown structure
2	Project Owners expect to be able to understand the project schedule	Dates	Project milestone sequence chart	Key deliverables have an associated delivery date

Figure 4.2: Juran Requirements Matrix

3

3. Work Breakdown Structure (WBS)

Once the scope is determined and agreed upon, the next step is to create a work breakdown structure (WBS). Leach outlines the WBS process and provides a template to create your WBS. You can think of the WBS as a tool to help document a 'brainstorm' of all of the work to do on your project. The challenge with the WBS is similar to that of creating a process flow chart – how much detail is necessary and how much detail is too much detail? The Project Management Institute (PMI) provides some guidance, saying that the entries on the WBS should be deliverables.

A deliverable is defined as '[any] measurable, tangible, verifiable outcome, result or item that must be produced to complete a project or part of a project. Often used more narrowly in reference to an external deliverable, this is a deliverable that is subject to approval by the project sponsor or customer.'

The PMI lists functions of the WBS as:

- Defining the hierarchy of deliverables

- Supporting the definition of all work required to achieve the project and objective

- Providing graphical picture or textual outline of the project scope

- Creating a framework for all deliverables

- Acting as a vehicle to integrate and assess schedule and cost performance

- Associate deliverables to the responsible stakeholders

- Structure project reporting and analysis

You may find the WBS simple or complex, but once understood you will see the value in creating the visual. Additionally, the WBS lends itself in outlining key tasks and assigning roles and responsibilities for those tasks. Module 5 will go into further detail on creating a WBS.

4

4. Summary

This module introduced project scope through the development of effective customer requirements. The module discussed the Juran Quality Planning roadmap in conjunction with the Juran Requirements Matrix. Lastly, the module reviewed the next step in the scoping

effort through the development of a work breakdown structure (WBS). In module 5 we will review the WBS in more detail and discuss how it feeds into developing the project timeline.

References and Further Optional Reading

If you would like to do further optional reading about the topic, you may wish to consider the following resources that the creators of this course drew on in preparing this module:

- **Baker K, Baker S and Campbell G M 2003,** *Complete Idiot's Guide to Project Management,* Alpha.

Module 4 Self-assessment

1. Review the required reading article and write a single 1–2 page paper outlining your key learnings from the article and how your experience compares and contrasts with that outlined in the article.

5. Project Schedule and Budget

Module Overview

This module explores building the project schedule and budget. The module discusses the importance of building the project schedule and outlines how to build the project schedule based on the WBS introduced in module 4. The module emphasizes that building the project schedule begins during the development of the project charter and is an iterative process. This module also discusses the project budget and explores areas of focus for budgeting.

Modules Objectives

On successful completion of this module, you will be able to:

- Create a project work breakdown structure (WBS)

- Understand how to sequence the WBS

- Understand the critical path methodology (CPM)

- Understand the steps in conducting CPM

- Understand the process of project management budgeting

Required Reading

- **Leach, L P 2005,** *Lean project management: Eight principles for success. Combining critical chain project management (CCPM) and lean tools to accelerate project results,* Advanced Projects, Boise. **Chapter 4, Pages 111 – 114.**

- **NetMBA.com,** *Critical path method* (http://www.netmba.com/operations/project/cpm/)

- **NetMBA.com,** *Work breakdown structure* (http://www.netmba.com/operations/project/wbs/)

- **Schuyler J 2006,** *Tip of the week #110* (http://www.maxvalue.com/tip110.htm)

Module Topics

The topics that will be covered in this module are:

1. Dependencies and Sequencing

2. Critical Path Method (CPM)

3. Budgeting

4. Refining the Budget

5. Summary

Reflection and Self-assessment

At the end of this module you will be asked to answer two self-assessment questions related to the required reading.

1

1. Dependencies and Sequencing

In determining a project schedule and budget, a sequence of tasks needs to be created to support the WBS (introduced in Module 4).

Principle four of Leach's Lean Project Management: Eight Principles for Success reviews the sequencing process. Once the WBS is created and you know all the key deliverables, you need to determine in what order the deliverables need to be completed to best support overall project success. Think of building a house. If the WBS looks like figure below, then the sequencing could look like figure that follows.

Build House

1.0 Framing

1.1 Dig basement
1.2 Pour foundation and driveway
1.3 Build Frame
1.4 Put on roof frame

2.0 Close-in

2.1 Install roof tiles
2.2 Install electrical
2.3 Install windows
2.4 Lock

3.0 Finish

3.1 Install appliances
3.2 Install counter
3.3 Install siding
3.4 Install flooring
3.5 carpet
3.6 Install plumbing
3.7 Dry wall
3.8 Paint

4.0 Deliver

4.1 Clean
4.2 Final punch list
4.3 Final owner walk through
4.4 Transfer ownership

Figure 5.1: Build House WBS

Build House

1.0 Framing

1.1 Dig basement

1.2 Pour foundation and driveway

1.3 Build Frame

1.4 Put on roof frame

1.5 Weather proof roof frame

2.0 Close-in

2.1 Install roof tiles

2.2 Install flooring

2.3 Install plumbing

2.4 Install electrical

2.5 Dry wall

2.6 Install windows

2.7 Install door lock

3.0 Finish

3.1 Install cabinetry

3.2 Install counter

3.3 Install siding

3.4 Carpet/tile

3.5 Hang closet rods

3.6 Hang doors

3.7 Pour driveway

3.8 Paint

3.9 Install light fixtures

3.10 Install appliances

4.0 Deliver

4.1 Clean

4.2 Final punch list

4.3 Final owner walk through

4.4 Make final touchup

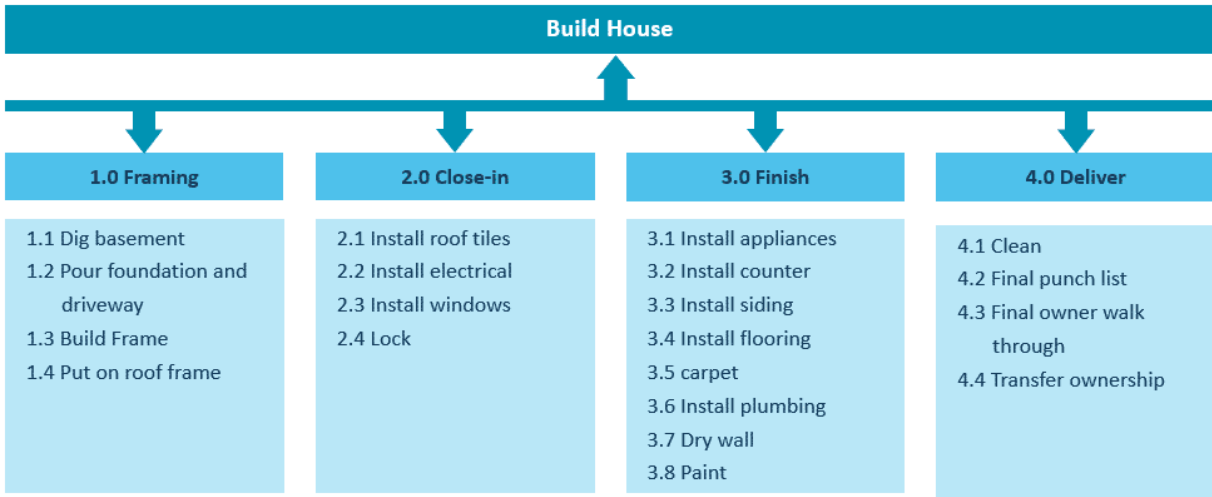4.5 Transfer ownership

Figure 5.2: Build House sequencing

The sequencing process is one that takes the WBS to the next level in planning and detailing. If a team was gathered that included a general contractor, plumber, framer, roofer, carpet installer, and cabinetry specialist, it is easy to see how the above sequencing may change and more detail may be added.

Once the WBS and sequencing are completed, then work packages can be created. This provides a basis for cost and schedule estimates. It functions as a contract between the project manager and the project task performers. A work package contains:

1. Scope or what is to be delivered in a work package

2. Specifications or acceptance criteria for the work package (how do you know it is done and done well?)

3. The activity logic (what is done in what order?)

4. Activity resource estimates (how many people are needed to complete the work?)

5. The basis for the resource estimates (for example, if one person does the work, it can be done in 40 work hours, but if two people do the work, it can be done in 20 work hours)

Once the work package is created by sections of work, then the resources are added, the timeline determined, and a work package manager is appointed. Then the work begins. But how do you know you have the project timeline outlined in a way where there is no wasted time or cost? This is where the critical path method comes into play.

2. Critical Path Method (CPM)

The critical path method (CPM) is a procedure for using network analysis to identify those tasks that are on the critical path. These are tasks that, if they are delayed, will lengthen the project timeline, unless action is taken. For all tasks off the critical path, a degree of tolerance

is possible (for example, late start, late completion, early start, early completion, and so on). This analysis used to be carried out by hand; today you can use software to enter all the tasks, the duration of each task, and the dependencies on other tasks. The software then creates a network chart and CPM automatically.

The CPM formally identifies tasks that must be completed on time and which tasks can be delayed for a while if resources need to be reallocated to catch up on any missed tasks. The process of CPM helps you identify the minimum length of time needed to complete a project. For each task, the CPM determines the earliest and latest start date for each activity in the schedule.

The steps in creating a CPM are:

Specify the individual activities

From the WBS, you can make a listing of all the activities in the project. This listing can be used as the basis for adding sequence and duration information in later steps. (We just completed this work in the creation of a WBS and sequencing.)

Determine the sequence of those activities

Some activities are dependent on the completion of others. A listing of the immediate predecessors of each activity is useful for constructing the CPM network diagram.

Draw a network diagram

Project Network Diagram is any schematic display of the logical relationships of project activities
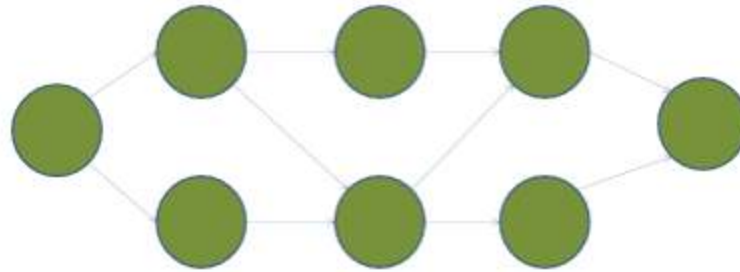
Once the activities and their sequencing have been defined, the CPM diagram can be drawn. Place each activity from the WBS/sequencing on a post-it note and place them on the wall in a network layout of how the work will actually be completed (see figure for a visual).

Estimate the completion time for each activity

The time required to complete each activity can be estimated using past experience or the estimates of knowledgeable persons. CPM is a deterministic model that does not take into account variation in the completion time, so only one number is used for an activity's time estimate (not a range of between 2–4 hours depending on circumstances). The time can be estimated in days, hours, and so on, but it is important to make sure a standard time is used throughout the CPM exercise.

Identify the critical path

The critical path is the longest-duration path through the network. The significance of the critical path is that the activities that lie on it cannot be delayed without delaying the overall project. Because of its impact on the entire project, critical path analysis is an important aspect of project planning. The critical path can be identified by determining the following four parameters for each activity:

- EST (earliest start time): the earliest time at which the activity can start given that its precedent activities must be completed first

- EFT (earliest finish time): equal to the earliest start time for the activity plus the time required to complete the activity

- LFT (latest finish time): the latest time at which the activity can be completed without delaying the project

- LST (latest start time): equal to the latest finish time minus the time required to complete the activity

The Slack time for an activity is the time between its earliest and latest start time, or between its earliest and latest finish time. Slack is the amount of time that an activity can be delayed past its earliest start or earliest finish without delaying the project. The critical path is the path through the project network in which none of the activities have slack. In other words, it is the path for which EST=LST and EFT=LFT for all activities in the path. A delay in the critical path delays the project. Similarly, to accelerate the project, it is necessary to reduce the total time required for the activities in the critical path.

Update the CPM diagram
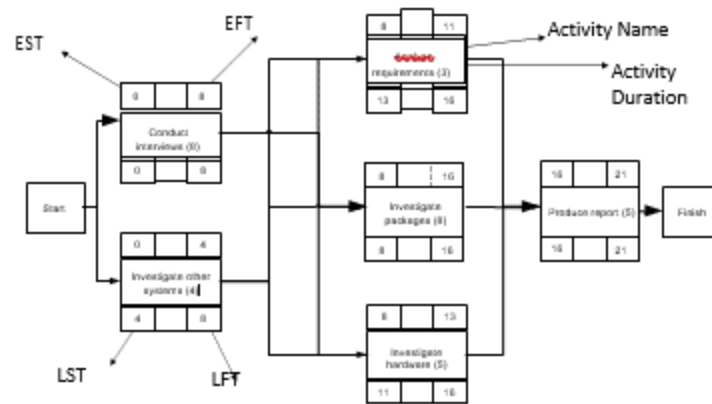
Network diagram (activity-on-node format)

As the project progresses, the actual task completion times will be known and the network diagram can be updated to include this information. A new critical path may emerge, and structural changes may be made in the network if project requirements change.

The figure above shows an example of a network diagram with the activity in the middle of the box, and the actual duration for that activity in parenthesis in the box. In the quadrant corners are the earliest start time (EST), earliest finish time (EFT), latest start time (LST), and latest finish time (LFT). As you might guess, this exercise is done best on a white board with team input to allow discussion and agreement. At the end of this exercise, the team is aware of the critical path.

Summary

In summary, the critical path analysis is an effective and powerful method of assessing which tasks must be completed, where parallel tasks can be carried out, the shortest time in which a project can be completed, how many resources are needed to achieve a project, the sequence of activities, scheduling and timing involved and task priorities.

3

3. Budgeting

Budgeting can seem intimidating. The process of building a budget should be logical and orderly; otherwise, you will struggle to get and maintain reasonable estimates. As the project manager, you will need to understand the components of each activity and then use the bottom-up method to cost out each activity. There is always the chance that you will over estimate or under estimate but all you can do is try, using your best estimating capabilities. Even so, business conditions might change, the project might get bumped into a new direction, or a task might fail. So what you are making is a set of assumptions that might change. You can do the following to get the best estimates:

- Costs are tied to project goals. Technology is growing so quickly that many projects are betting on the future growth of revenues

- Costs are tied to timeframes and schedules, and doing things faster usually costs more money. The estimates you develop in your WBS coupled with the schedule you develop to complete the project are critical to this. If leadership wants the project done faster, it will undoubtedly cost more money. It is your job to communicate the assumptions and constraints contained in the budget to leadership, provide them the information they need, and document all decisions in the case of cost over run

- When establishing detailed estimates, the costs require expert input. With specific activities developed in the WBS and a schedule at the ready, ask the people who do the work about their charges for time and material. It is important for each person to understand what you are looking for in the way of estimates

- Other managers or experts in your organization who have handled projects may be able to provide excellent advice and study cost estimates. They may also provide exact estimates if a project they worked on had elements similar to yours. At a minimum, having another project manager review your budget can provide valuable feedback and identify any missing information

- Your managers and owners can be a great resource. Although they are almost always unhappy about a project's cost, they might be able to provide advice from their own years of managing projects. It also builds trust when you bring the budget to them early and they are able to see that you are carefully covering all of the bases and spending their money in an equitable manner

There are two types of budgeting methods we will talk about here: bottom-up and top-down. Deciding which of these is best for your project depends on your organization's standard approach to decision making.

Bottom-up Budgeting

In bottom-up budgeting, staff members get together and create a budget from the task level. It is

Bottom-up Budgeting

important for the team to be able to speak frankly and brainstorm options. Using this process also helps to

Top-down Budgeting

In top-down budgeting, the senior managers estimate the budgets based on their experience and allocate funds to lower-level managers for execution. The top-down budgeting works best if the managers

In progressive organizations, a mix of both the top-down and bottom-up approaches is used to ensure that the top- down numbers are grounded in reality of the workers' experience.

4. Refining the Budget

Once the budget numbers are in, it is time to refine the estimates. It is possible that this process may have to be repeated a couple of times if new estimates arrive or are revisited. One way to think of this process is sanding a piece of wood – you sand initially with a larger grain,

and then reduce the grain of the sanding material until the wood is as smooth as you would like. Here are the steps in refining a budget:

1. Rough cut

Sometimes this is a best guess or 'pulled out of the air'. You may ask people to give an estimate based on their experience or best guess.

2. A Second Cut

The resources for each task estimate are reviewed. The second cut includes the cost of labor, supplies, materials, equipment, overhead, and any vendor pricing. In this step you may find that looking at previous similar project costs can help guide your estimates. All estimates need to involve the relevant stakeholders.

3. Getting it Right

The third pass is the one in which you and the team do fine tuning. This step moves from guessing to reality and provides overall estimates for the project's real scope. Again, involving the key stakeholders is vital.

4. Wrapping it Up

If the project budget looks realistic and affordable, then it is wrapped into the project plan and forwarded to leadership for approval.

5. Presentation for Approval

At this point, there should be no surprises to the approvers. If you followed the process above, then the stakeholders have been involved and you have demonstrated an effective development process. There may be clarifying questions and requests to cut the budget. However, at the end of the budget presentation the expectation is that there is agreement and there are signatures on the bottom line.

6. Beware if the 10 Percent Solution

Some organizations have been known to automatically cut 10 percent of the budget because of financial constraints. If you have followed the due diligence in steps 1−5, you will have the details necessary to demonstrate that there has been no financial 'sand-bagging'. If leadership cuts the budget, you will have to revise your project plan and present the new plan based on the reduced budget.

5. Summary

Requirements set the basis for the solution design: be sure your stakeholders agree with them. Select the right solution using criteria that reflect stakeholder requirements. The WBS and milestone sequence chart enable you to structure the project to plan and implement the project budget effectively.

References and Further Optional Reading

If you would like to do further optional reading about the topic, you may wish to consider the following resources that the creators of this course drew on in preparing this module:

- **Baker K, Baker S and Campbell G M 2003,** *Complete Idiot's Guide to Project Management,* Alpha.

Module 5 Self-assessment

1. Review the NetMBA.com and Schuyler articles and write a single 1–2 page paper outlining your key learnings from these articles and how your experience compares and contrasts with that outlined in these articles.

2. What ideas from these articles could you apply within your organization?

6. Project Risk Management

Module Overview

This module addresses project risk management and it shows how to identify and mitigate risk impact on Lean projects. The module will discuss how to identify risks in advance and the areas of risk inherent in all projects. The module identifies types of risks and explores how risks impact the triple constrains of budget, schedule, and people.

Modules Objectives

On successful completion of this module, you will be able to:

- Conduct a project risk assessment

- Understand risk probability and impact analysis

- Create a risk mitigation plan

- Understand the process of project risk management

Required Reading

- **Leach, L P 2005,** *Lean project management: Eight principles for success. Combining critical chain project management (CCPM) and lean tools to accelerate project results,* Advanced Projects, Boise. **Chapter 6, Pages 143-157.**

- **Jutte B,** *10 golden rules of project risk management.* (https://blog.trginternational.com/trg-in-the-board-room/bid/196873/10-golden-rules-of-project-risk-management-part-1l)

- **R. S. Pressman & Associates 2005,** *Chapter 25 risk management.* (https://nanopdf.com/download/chapter-25-risk-management_pdf)

- **Turbit N 2005,** *Basics of managing risks.* (http://www.projectperfect.com.au/downloads/Info/info_risk_mgmt.pdf)

Module Topics

The topics that will be covered in this module are:

1. Project Risk Management

2. Risk Responses

3. Risk Management

4. Summary

Reflection and Self-assessment

At the end of this module you will be asked to answer three self-assessment questions related to the required reading.

1

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1. Project Risk Management

Risk is part of any project and as a project manager you must consider your 'project risk' early and often.

1.1 Types of Risk

According to Baker, Baker and Campbell (2003), there are three types of risk:

1. **Known risk** – These are risks that you can identify after reviewing the project definition within the context of the business and/or technical environment. You will have to draw on the experience of your project team and subject matter experts to gain a full understanding of these risks.

2. **Predictable risk** – These are the risks that might occur and are anticipated based on previous similar projects. This type of risk is based on instinct rather than concrete evidence.

3. **Unpredictable risk** – These are the risks that 'just happen' and these risks are outside of our control. For example, during an implementation the power might go out because of a flood or tornado at the implementation site. These risks are basically the things that keep a project manager up at night

Risks can be broken up into several risk areas that might have an impact on the project:

Funding   —

You may not get the full funding for your project.

Time   —

You may find tasks take longer than anticipated.

Staffing   —

You may find that the staff you counted on are not available or don't have the expertise you expected.

Customer Relations

Your customer may not available to work with the project team as expected.

Project Size or Complexity

Your project may be much more complex and offer challenges in completing on time.

Overall Structure

As a result of political decisions, responsibility may be fractured between competing work groups or organizations.

External Factors

These include new regulatory requirements or shifting technologies.

Change Management

You need to ensure end user engagement and acceptance of the change in processes or technology.

Risks can be encountered at every phase in project management. Although we can't predict them all, we can look at the common risks most projects encounter.

1.2 Risks During the Project Definition Phase

- Unavailable subject matter experts
- Poor definition of problem
- No feasibility study
- Unclear objectives
- No buy-in from the organization

1.3 Risks During the Project Planning Phase

- No risk management plan
- Spotty planning
- Underdeveloped requirements and specifications
- Unclear statement of work
- No management support
- Poor role definition
- Inexperienced team

1.4 Risks During the Project Execution Phase

- Changes in scope

- Changes in schedule

- No control systems in place

- Unskilled labor

- Material availability

- Strikes

- Weather

- Regulatory requirements

1.5 Risks During the Project Close Out Phase

- Unacceptable to customer

- Poor requirements fit

- As-built changes

- Budget problems

1.6 Addressing Risk

So how do you as the project manager address these potential risks?

1. Identify potential problems early in the planning cycle – be proactive.

2. Involve the right people at the right time.

3. Have a backup plan for each risk.

4. Use a mitigation strategy for each risk.

5. Accept the risk – some risks are inherent in projects.

1.7 Risk Management Processes

What process should you use to manage the risks?

1   **Identify the risks you** believe may impact your project. Describe the risk and what the potential impact of the risk is. Assume that anything can go wrong.

2   **Analyze the probability of the risk** – how likely is the risk to occur and what is the potential impact of the risk? First assign a number on a scale of 1 (lowest impact), 3 (medium impact), to 5 (highest impact) to quantify the potential impact of the risk to your project. Next determine how likely you think that it is that this event will occur and use the same 1–5 scale.

3   **Determine the overall severity or importance of the risk.** We do this by multiplying the probability number by the impact number (each on a scale of 1–5) to come up with a measure of severity. For example, a risk with a probability of 1 and an impact of 5 is less severe than a risk with a probably of 2 and an impact of 3.

4   **Determine which risks are the most important for further action.** You may establish a risk threshold that determines that all those that are high in both impact and likelihood get the most attention. Risks with less severity are monitored and considered for further analysis.

5   **Document a response plan for the risks.** This plan needs the endorsement of the project sponsor.

2. Risk Responses

For each risk you have four responses:

1. **Accept the risk** – This means you do nothing with the risk unless it occurs.

2. **Avoid the risk** – This means you delete the part of the project that contains the risk; in some cases, this means having to adjust the scope.

3. **Monitor the risk and develop a contingency plan** – This means you make a plan to deal with the risk if it arises and apply proactive thinking.

4. **Transfer the risk** – Insurance is the most obvious but can be expensive.

The figure below is an example of a project risk worksheet. It is important that you review and maintain a project risk plan.

Type of Risk	Jeopardy	Description of Risk	Expectation of the Risk (1-5)	Impact of the Risk (1-5)	Severity of the Risk (1-5)	Contingencies Plan of Action
Critical resource delay	Budget, schedule	Crane not available due to other project	3	5	15	Increase funding for lease from another vendor
Permit delay	Schedule	Building permit not approved	2	4	8	Focus on the task, no additional contingency required
Project staffing	Schedule, resources	Can't hire enough carpenters	1	3	3	Not necessary to monitor, low risk

Figure 6.1: Risk management worksheet

3

3. Risk Management

Project risk management develops actions to reduce the probability and potential undesirable consequences of identifiable (special–cause) risks to your project. Active risk management

extends over the life of the project, involving risk identification, analysis, and mitigation.

Lean project management varies in the approach for risk management by determining whether your project is in control or out of control. Deterministic project risk management seeks to control special-cause risks due to project goals: scope, cost, and schedule and customer satisfaction. The project risk management we discussed earlier seeks to control project risks beyond the scope of your project plan.

Chapter 5 in the Leach text addresses common-cause variation, and demonstrates how Lean project management (LPM) uses buffers to estimate and control variation. LPM assumes that the project task processes are in statistical control. Figure 6.2 provides the various types of uncertainty and management approaches.

Type	Examples	Management Method
Variation Common Cause	All causes of variation within the output of product and processes in statistical control (most conventional project tasks)	Projects – Buffers and action thresholds (e.g. control charts). Products – tolerances and statistical process control.
Design Uncertainty	Lack of knowledge, assumptions, difference in opinion and viewpoint.	Progressive Elaboration Robust decision making. Project or product change management.
Environmental and internal uncertainty	Natural events, new regulations, external-driven changes in project requirements, accidents. Failures or changes with the product or process.	Project Risk Management: Identify, quantify, monitor, prevent and mitigate.

Figure 6.2: Types of uncertainty and management approaches to address

The Project Management Institute (PMI) defines project risk as 'an uncertain event or condition that, if it occurs, has a positive or negative effect on a project's objectives'. PMI further outlines a six-step risk management process appropriate for special cause variation:

1. Risk management planning

2. Risk identification

3. Qualitative risk analysis

4. Quantitative risk analysis

5. Risk response planning

6. Risk monitoring and control

As the project manager, your risk management is only as good as the actions you take to prevent or address risks. Leach (pages 146–156) reviews the options project managers have in dealing with risks, the types of risks and an example risk matrix. Please read these pages and reflect back on the content of this module.

4. Summary

Risk management is the methodology used to manage special-cause variation in your project. As well as identifying risks and creating a risk management plan, you have to put the plan in action in order for it to work. Risk management requires several steps including but not limited to:

- Identification

- Analysis

- Monitoring

- Control

References and Further Optional Reading

If you would like to do further optional reading about the topic, you may wish to consider the following resources that the creators of this course drew on in preparing this module:

- **Baker K, Baker S and Campbell G M 2003,** *Complete Idiot's Guide to Project Management,* Alpha.

- **Lewis JP 2001,** *Project Planning Scheduling and Control,* McGraw Hill.

Module 6 Self-assessment

1. Review the Jutte, R.S Pressman and Turbit articles and write a single 1-2 page paper outlining your key learnings from these articles and how your experience compares and contrasts with that outlined in these articles.

2. What ideas from these articles could you apply within your organization?

3. Review and answer the discussion questions in the Leach text, page 157

7. Communications Management

Module Overview

This module addresses communications management, project information flow and keeping project sponsors informed. The module provides a template to create a project status document and a project communications plan. The module addresses communication pitfalls and provides guidance on effective communications.

Modules Objectives

On successful completion of this module, you will be able to:

- Create a project communications plan
- Understand the leadership role in communication
- Conduct a project kickoff meeting
- Establish ground rules
- Understand the various types of project communication
- Complete a project status document

Required Reading

- **Leach, L P 2005,** *Lean project management: Eight principles for success. Combining critical chain project management (CCPM) and lean tools to accelerate project results,* Advanced Projects, Boise. **Chapter 7, Pages 189 − 192.**

- **Freedman R 2000,** *Communication plans are key to project success.* (http://www.techrepublic.com/article/communication- plans-are-key-to-project-success/1028635)

- **Office of Project Management Process Improvement 2007,** *Project communication handbook.*(https://pdf4pro.com/view/project-communication-handbook-15a79e.html)

Module Topics

The topics that will be covered in this module are:

1. Communications Management

2. Communications and Leadership

3. Kickoff Meeting

4. Ground Rules

5. Project Status Reporting

6. Summary

Reflection and Self-assessment

At the end of this module you will be asked to answer two self-assessment questions related to the required reading.

1

1. Communications Management

Proper communication for a project is a critical success factor for managing the expectations of the sponsor and the stakeholders. If these people are not kept well informed of the project progress, there is a much greater chance that you will face problems caused by differing expectations and surprises. In fact, in many cases where conflicts arise, it is not because of the actual problem, but because the person was surprised.

All projects should communicate status. This includes reporting from the project team to the project manager and reporting from the project manager to the sponsor and stakeholders. Two typical forums for communicating status are through a status meeting and status reports. Larger projects or any projects that require culture change need to be more

sophisticated in how they communicate to various stakeholders. This more multi-faceted approach is defined in a communication management plan (see figure below).

Figure 7.1: High-level communications process

The first step in creating a communications plan is identifying the project stakeholders. Stakeholders are anyone inside or outside of an organization who:

1. Sponsor a project

2. Have an interest in or a gain from a successful completion of a project

3. May have a positive or negative influence on project completion

Examples of project stakeholders include the customer, the user group, the project manager, the development team, the testers, and so on.

The project management team must identify the stakeholders, determine their requirements and expectations, and, to the extent possible, manage their influence in relation to the requirements to ensure a successful project.

2. Communications and Leadership

Communications and leadership go hand in hand. The project managers who consistently succeed in bringing their projects in on time and on budget are those who effectively manage the interfaces and communications between people and organizations. The people working on your project, and other members of the project team, need to be comfortable with bringing issues to your attention. This goes for people who report directly to you, their managers, and your managers as well.

There are three types of communications that must occur for effective project management:

1. Vertical communications

These are the up and down organizational communications based on the hierarchical relationships established on an organization chart.

2. Horizontal communications

Horizontal or lateral communications involve communicating and coordinating activities with peers.

3. Diagonal communications

The diagonal relationships are rarely shown on organization charts, but they are almost always important to the success of a project. Diagonal communications involve upward relationships with managers and officers from other departments. They also include downward diagonal communications with third parties such as contractors, suppliers, or consultants.

If you establish communications in all three dimensions early, you will have built relationships and opened communications channels to resolve issues before conflicts occur.

It is important to meet frequently to keep the project team feeling like a team. When holding team meetings, you should review project accomplishments or successes as well as any hindrances or problems that team members might have in meeting objectives. Status meetings can become a source of project knowledge, suggestions, and conflict resolution if managed correctly.

Leach identifies communications among the project control procedures once a project is underway. Figure 7.2 below is a communications plan template. The key is to ensure that the communications is appropriate for the audience. Volumes of communications do not necessarily mean effective communications.

Stakeholder	Information Needed	Frequency	Medium	Response
Project Owner	• High-level scope • Project Status	Monthly	Website Presentations Report	Required in 3 working days
Project Team	• Detailed task plan • Detailed task status	Weekly	Meetings Website Email	Required in 1 working day
Project Result Users	• Required actions by users • Plans for user involvement	Weekly	Report Information meetings	Required in 3 working days

Figure 7.2: Sample communications plan

Video Tutorial: Project Documentation and Reporting

Documentation plays a key role on Lean methodologies. Effective documentation and communication throughout a project is key to successful project and program management.

There are several types of documents and reports used throughout a project to keep stakeholders informed of project progress.

The following video describes the purpose and types of essential project documentation.

Video Notes:

3. Kickoff Meeting

Effective meetings are an important area of project communications. In many cases, the project kickoff meeting is the first formal meeting of the project team. Prior to the kickoff meeting, you need to think about your leadership style and your approach to communications and the project. Be prepared to answer questions the project team may ask. The kickoff meeting is an opportunity to set team expectations.

Project Kickoff Sample Agenda

To: Project Team member Names
From: Project Manager, Phone Number
Date:

Notification

You have been identified by the (*Project team name*) Team as a member of the (*Project*) Team that will address (*subject title*). This initiative is a business priority of (*the company name*) team and requires your active involvement. Please plan on attending the following meeting:

DATE: *(Of the kickoff meeting)*
TIME:
LOCATION: *(Room)*
TELECON: *(Conference Call number)*

If you are unable to attend, please designate a representative to participate on your behalf. The current initiative description is attached for your review. If you have any questions, please feel free to contact me.

Purpose

- Establish a direction for the project

- Establish team communications

- Determine a probable deployment date

- Establish roles, responsibilities, and expectations for the team

- Discuss the planning

- Discuss process

- Discuss logistics

- Discuss cost management

- Discuss user guides/training materials

Agenda

Agenda Item	(total meeting time = 2 hours)	Minutes
Review purpose of the meeting		30
Define roles and responsibilities of project team members		
Communication discussion, ground rules, expectations, review communications plan		
Obtain clear understanding of the project request and timeframe to completion		20
Determine if additional resources or subject matter expertise is needed		10
Outline of next steps/key initial milestones ■ Discuss project process ■ Discuss project logistics ■ Discuss project cost management ■ Discuss user guides/training material (if needed)		30
Discuss and document any known project risks		10
Discuss and document any known project dependencies		10
Other discussion about the project		10

Communications

	NAME	PHONE	E-MAIL
SPONSOR			
CLIENT			

Team Member Contact List

ROLE	NAME	PHONE	E-MAIL
Project sponsor			
Project manager			
Process owner			
Subject matter expert			
Team name			
Team name			
Team name			
Team name			
Team name			
Team name			

Team Member Contact List

ROLE	DESCRIPTION	VERTICAL TEAM RESPONSIBILITIES
Project sponsor	The sponsor allocates funds for development efforts that fulfill corporate strategic directives, and is responsible to the corporation for these changes	■ Allocate funds for corporate initiatives ■ Point of contact for issue resolution and escalations
Client	The client represents the users, and internal and external	■ Develop the 'idea' ■ Document the business

	customers that require/request some product or service or functionality.	- needs and/or business case - Input into the creation of the user request - Participate in decision making during the project life cycle - Might be asked to participate on the project team
Project manager	Responsible for management of business initiative for the organization	- Monitor critical dates, project status, risks, issues, and dependencies - Provide status to project sponsor - Manage sponsor escalations - Encourage proven and effective project management techniques - Make decision if project leader role is necessary - Bring benefits to client and sponsor - Prepare cost/benefit at client and/or sponsor's request

4

4. Ground Rule

It is important to remember the project team is probably in the forming phase, so all will seem well. As the work begins and team members begin to work together, storming will most likely ensue. The kickoff meeting is an opportunity for you to set up ground rules for how the team will work together. Ground rules are a set of standards about how the team will make decisions, treat each other, manage conflict, manage communications, and so on. The list below is a sample list of areas that teams can build ground rules on.

The Team Should Consider Establishing Ground Rules for:

- Attendance

- Promptness

- Assignments

- Breaks

- Full participation

- Conversational courtesy

- Decision-making

- Other group norms

4.1 Example List of Ground Rules

You can add to the list the below list, based on your experience.

1. Start and end meetings on time

2. Cell phones set to silent ring

3. One conversation at a time

4. Conflict addressed openly and constructively

5. No attacking persons; only attack the problem

6. Come to the meeting prepared

7. Follow the meeting agenda

8. Other:

9. Other:

10. Other:

11. Other:

12. Other:

5. Project Status Reporting

Another area of communications is project status. After the kickoff meeting, the project begins in full force and there will be many moving parts. As the project manager, your key connection to what is happening in the project is the project status document. You should also wander around and have offline conversations with task owners and management. Face-to-face communications is the best way to gain a feel for how the project team is doing.

Your sponsor or project owner will want periodic communications from you about how the project is progressing. The figure below is a very simple template for gathering project status quickly and succinctly from project team members.

Project Status

Accomplished Last 2 Weeks	Planned to Accomplish next 2 Weeks
A B C	A B C
Milestones or Deliverables Met A B C	Leadership assistance Needed A B C

Figure 7.3: High-level Project Status template

In the above example, two weeks of status is provided. The template can be adjusted to one week or monthly status as the project need dictates. In project status meetings, this template helps project team members provide input with brevity and focus.

You will likely be required to provide project status updates to executive leadership. This

communications is vital in that it provides you the opportunity to emphasize the accomplishments of the project team and highlight areas where additional leadership support or assistance is needed. The frequency of the updates depends on the project and the project sponsor, but monthly or bi-monthly status updates are usually the norm.

The project status report needs to include:

1. Project name

2. Date of the status and reporting period (from to date)

3. Project manager name

4. Project sponsor name

5. Overall status – many organizations use green, yellow, and red status

6. Status broken down by budget, schedule, and scope – this helps determine why the overall status may be in yellow or red

7. Comments section

8. Accomplishments during the reporting period

9. Plans for the next reporting period

10. Status of any issues, changes, or risks along with mitigation plans

It is important to keep the executive project status document short and succinct. There are several templates available and the key is to create a template that supports both the project sponsor and the projects needs. See figure below for an example.

PROJECT STATUS REPORT
{Project Title}
{Project Manager}
{Reporting Period}

Project Status:	○	☐ Red	☐ Yellow	☐ Green	Project Phase:	☐ Planning	☐ Design	☐ Build	☐ Test	☐ Implementation	☐ Support

Green – On schedule, on budget, and on scope for meeting deliverables; Yellow – Issues are being worked that may jeopardize milestones; Red – Issues cannot be resolved, over budget, critical path is compromised. *To change color, RIGHT CLICK on circle, select Format Auto shape, change Fill Color in "Colors/Lines" tab.*

Distribution:

Requested Project Completion Date:		Current Estimated Project Completion Date:	

PROJECT DESCRIPTION

PROJECT STATUS SUMMARY|

Summarize and explain project status color.

Accomplishments

- *List major accomplishments for this reporting period*

Milestones Next Period

- *List upcoming accomplishments for the next reporting period as bullets*
- *List proposed milestones or key deliverables for the next reporting period*

Issues/Risks

- *List any risks identified this period along with mitigation plan (e.g., Are there any project schedule slippage concerns?)*
- *Address requirement(s) for escalation*

Communications

- *Address communication concerns*
- *Review project budget*

HOURS WEEK ENDING:

	Actual	Budgeted	YTD Variance

Figure 7.4: Executive project status

6. Summary

Communications is a key success factor in any project; it is the grease that moves an organization from current state to future state. As the project manager, everything you say and do communicates something and it can help or hinder your project. Team motivation is a fragile thing, so never communicate a message that has more negative than positive potential to motivate people. When listening to your project team, it is only through careful, focused, sensitive listening that you will find out what is really going on. Remember, you cannot not communicate!

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References and Further Optional Reading

If you would like to do further optional reading about the topic, you may wish to consider the following resources that the creators of this course drew on in preparing this module:

- **Baker K, Baker S and Campbell G M 2003,** *Complete Idiot's Guide to Project Management,* Alpha.

Module 7 Self-assessment

1. Review the Freedman and Office of Project Management Process Improvement articles and write a single 1–2 page paper outlining your key learnings from these articles and how your experience compares and contrasts with that outlined in these articles.

2. What ideas from these articles could you apply within your organization?

8. Review

Module Overview

Module 8 is a review of the Managing Lean Projects course. The module provides a template of a project management plan.

Modules Objectives

On successful completion of this module, you will be able to:

- Develop a project management plan from a template

Required Reading

- **Leach, L P 2005,** *Lean project management: Eight principles for success. Combining critical chain project management (CCPM) and lean tools to accelerate project results,* Advanced Projects, Boise. **Chapter 7&8, Pages 159-211.**

- **TenStep 2003,** *Project management summary of best practices.* (https://pmpapers.com/whitepaperdownload/SummaryofBestPractices.pdf)

Module Topics

The topics that will be covered in this module are:

Reflection and Self-assessment

At the end of this module you will be asked to answer two self-assessment questions related to the required reading.

1

1. Module Review

We have seen that project management has a long history, beginning in the US in the 1950s and continuing through to today. We reviewed healthcare project management, outlining specific nuances based on the industry. Specifically, we discussed the need for integration between project and change management in order to ensure adoption of changes in systems and/or processes.

The project management context describes the larger context in which projects operate. Managing the day-to-day activities of a project is necessary for success but it is not sufficient: the project management team must understand the broader context. The project lifecycle, the project stakeholders, the organizational influences, and the key general management influences are key aspects. In other words, it is important to view a project as a system that is a subsystem of another larger system.

Simply delivering a project's product that satisfies the triple constraints of performance, time, and cost is not in itself sufficient to achieve project success. Achieved triple constraints would mean little in a project that had been continually in trouble throughout its lifecycle or had poor client–project team relationships, inadequate communication feedback, and so on. Projects are composed of processes.

The process of project management describes a generalized view of the impact of various project management processes. For example, the process of scope definition produces the work breakdown structure (WBS), which is then used as input to activity definition, activity sequencing, and resource planning and cost estimating.

Throughout this course, we have referred to the project management process as being iterative. In the case of a project, there are five basic management processes: initiating, planning, executing, controlling, and closing. The project management process is a series of overlapping activities that occur at varying levels of intensity throughout each phase of the project. However, addressing each of these processes focuses on the science of project management. As a project manager, you will learn to overlay the art of project management through practice and experience. It is learned through listening with the head and the heart, effectively managing team and project risks, and communicating effectively with stakeholders and the project team.

The next section is an example of a full project plan. Remember, the project schedule, Gantt chart, or task list is not the project plan. In fact, these are merely inputs into the overall plan. Leach uses the metaphor that if the project manager is the orchestra conductor, then the project plan is the music score.

1.1 Project Management Plan Template

PROJECT MANAGEMENT PLAN

<PROJECT NAME>

COMPANY NAME

STREET ADDRESS

CITY, STATE ZIP CODE

Introduction

The introduction provides a high-level overview of the project and what is included in this project management plan. Limit the introduction to a couple of paragraphs.

Project Management Approach

This section is where you outline the overall management approach for the project. It should be written as an executive summary for the project management plan.

The project manager has the overall authority and responsibility for managing and executing this project according to this project plan and other management plans associated with the project plan. The project team will consist of personnel from the project team list.

Project Scope

This section defines what the scope of the project is and how the scope will be managed.

Milestone List

Using the schedule you created for the project list the milestones in the schedule. Include details such as the milestone, a brief explanation if necessary, and a date for meeting the milestone.

Schedule Baseline and Work Breakdown Structure

The project schedule baseline and work breakdown structure are provided in Appendix A, Project Schedule and Appendix B, Work Breakdown Structure.

Project Change Control Process

Describe your change control process here. Identify who has approval authority for changes to the project, who submits the changes, and how they are tracked and monitored.

Communications Management Plan

The purpose of the communications management plan is to define the communication requirements for the project and how information will be distributed. It defines the following:

- Communication requirements based on roles

- What information will be communicated

- How the information will be communicated

- When the information will be distributed

- Who does the communication

- Who receives the communication

This communications management plan sets the communications framework for this project. It will serve as a guide for communications throughout the life of the project and will be updated as communication needs change. This plan identifies and defines the roles of persons involved in this project. It also includes a communications matrix which maps the communication requirements of this project. An in-depth guide for conducting meetings is used to detail the communications rules and how the meetings will be conducted, ensuring successful meetings. A project team directory is included to provide contact information for all stakeholders directly involved in the project.

Approximately 80% of a project manager's time is spent communicating. Think about it – as a project manager you are spending most of your time measuring and reporting on the performance of the project, composing and reading emails, conducting meetings, writing the project plan, meeting with team members, and overseeing work being performed.

Cost Management Plan

The cost management plan clearly defines how the costs on a project will be managed throughout the project's lifecycle. It sets the format and standards by which the project costs are measured, reported, and controlled. The cost management plan identifies:

- Who is responsible for managing costs

- Who has the authority to approve changes to the project or its budget

- How cost performance is quantitatively measured and reported upon

- Report formats, frequency and to whom they are presented

Procurement Management Plan

The project manager will provide oversight and management for all procurement activities under this project. The project manager will work with the project team to identify all items to be procured for the successful completion of the project.

- Project Scope Management Plan

- Schedule Management Plan

- Quality Management Plan

- Risk Management Plan

- Risk Register

- Staffing Management Plan

- Resource Calendar

- Cost Baseline

- Quality Baseline

- Sponsor Acceptance

Approved by the Project Sponsor: *(Sponsor Signature and Title)*

Date:

1.2 Project Management Plan Matrix

In order to determine how much project planning work is necessary, figure 8.2 provides a matrix to assist in determining the size project planning that may be necessary.

Project Size

	Small	Large
Low	**Simple Project Plan** •Charter •WBS (with responsibility) •Budget (spreadsheet) •Schedule (resourced)	**Moderate** •Small project plan •WBS, Scope Statement, Work Packages •Integrated
High	**Moderate** •Small Project Plan •Design and Peer Review •Risk Management Plan •Quality Plan	**Full Project Plan** •All project elements •Supporting Plans •Procedures •Process training •Project Controls Function

Project Risk

Figure 8.1: Grading the project plan

In summary, one size does not fit all when it comes to creating your project plan. It is much more than a project schedule. The value of a project plan is measured when each member of the project team uses the plan.

References and Further Optional Reading

If you would like to do further optional reading about the topic, you may wish to consider the following resources that the creators of this course drew on in preparing this module:

- **Baker K, Baker S and Campbell G M 2003,** *Complete Idiot's Guide to Project Management,* Alpha.

Module 8 Self-assessment

1. Review the TenStep article and write a single 1-2 page paper outlining your key learnings from this article and how your experience compares and contrasts with that outlined in the article.

2. What ideas from these articles could you apply within your organization?

Further Exercises

1. For a recent project in your organization, create a WBS, sequencing, and CPM of key tasks.

2. For a recent project in your organization, review and critique the project budget.

3. For a recent project in your organization, review and critique the communications plan.

"Our age of anxiety is, in great part, the results of trying to do today's job with yesterday's tools. "

- Marshall McLuhan