POPULATION HEALTH PARTNERS

PROJECT MANAGEMENT MASTERY

1.0 Initiate the project
1.1 Review the project proposal
1.2 Validate proposed objectives

2.0 Define and organize the project
2.1 Establish the project organization
2.2 Define the project parameters
2.3 Integrate project scope *(if part of a program)*
2.4 Define the project infrastructure

3.0 Plan the project
3.1 Develop the Work Breakdown Structure (WBS)
3.2 Develop the preliminary schedule
3.3 Integrate project schedule with program schedule *(if part of a program)*
3.4 Refine estimates and finalize resource commitments
3.5 Optimize the project plan
3.6 Develop risk management plans
3.7 Transition from planning to managing

4.0 Track and manage the project
4.1 Manage the project plan
4.2 Manage issues, changes and risks
4.2 Manage the communication processes

5.0 Close out the project
5.1 Complete the transition activities
5.2 Conduct project close-out reviews
5.3 Complete administrative close-out

© 2013 IPS Learning, LLC. All rights reserved.
IP Solutions (IPS) retain exclusive copyright ownership of materials used for educational programs presented for participants. The materials shall be marked to indicate that they are subject to a copyright. No part of this work may be reproduced, stored in a retrieval system, or transmitted in any form or by any means—electronic, mechanical, photocopying, recording, or otherwise—without the prior written permission of IPS. Further, program participants will not distribute or sell any of these materials without written permission from IPS.

Planning and managing projects

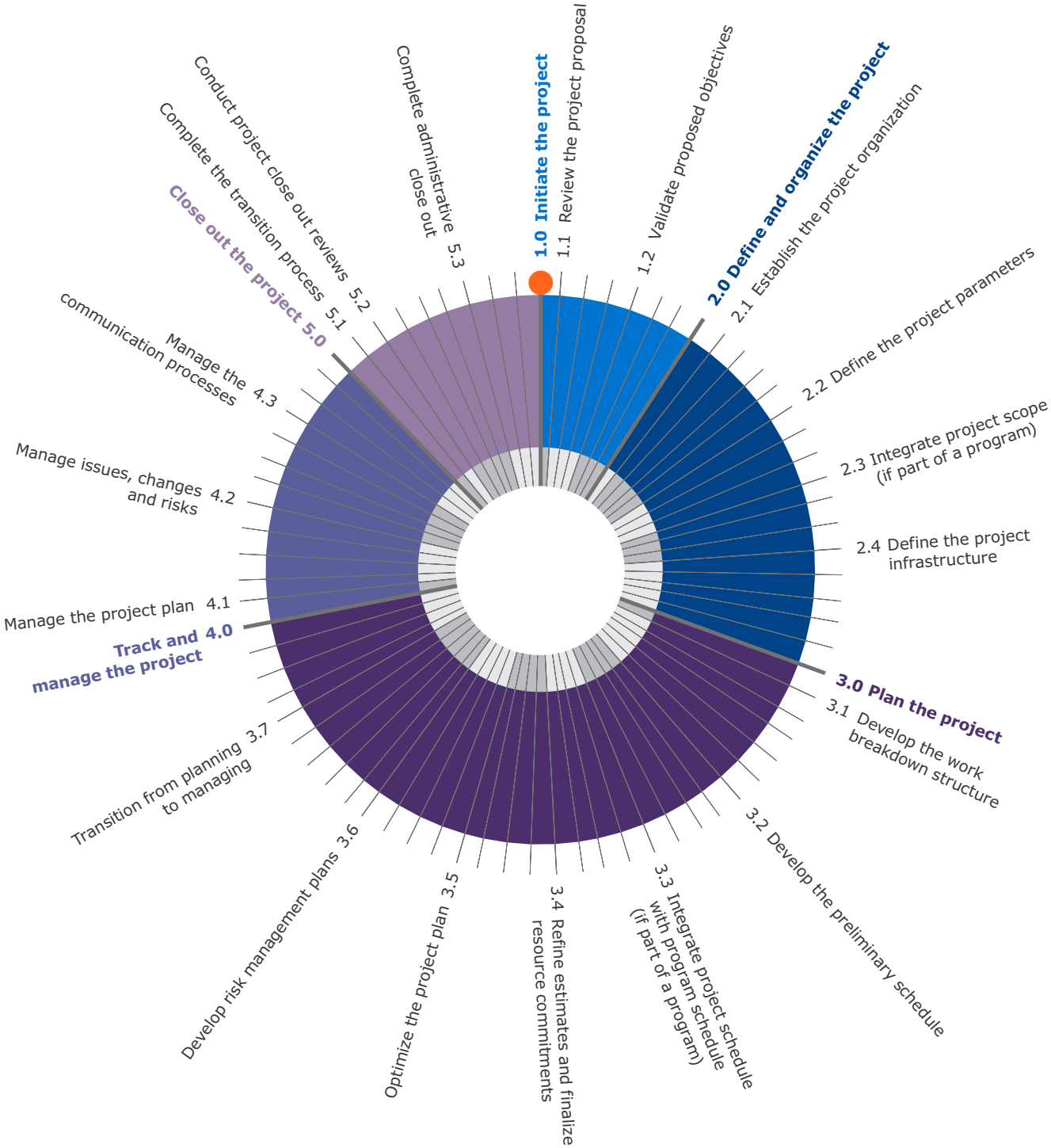


Table of contents

Introduction **3**
Project management mastery syllabus 9

Introduction **12**
The Theory of Conscious Alignment© 13
The integrated project system 17
In summary 19

Initiate the project **27**

1.0 Initiate the project **29**

1.1 Review the project proposal **31**
1.1.1 Review the existing project information 32
1.1.2 Test the project information 35

1.2 Validate proposed objectives **37**
1.2.1 Discuss the project information 38
1.2.2 Obtain approval to proceed 39

Define and organize the project **43**

2.0 Define and organize the project **45**

2.1 Establish the project organization **49**
2.1.1 Identify the project sponsor 50
2.1.2 Appoint the project manager 53
2.1.3 Identify the project team 57

2.2 Define the project parameters **63**
2.2.1 Create the project definition 64
2.2.2 Obtain approval to proceed 72

2.3 Integrate project scope **75**
2.3.1 Integrate project parameters into program parameters 76
2.3.2 Update and finalize project parameters 78

2.4 Define the project infrastructure **81**
2.4.1 Define the planning and managing rigor 82
2.4.2 Define the project processes and procedures 86
the processes and procedures planning checklist 89
2.4.3 Establish physical and automated resource requirements 94
2.4.4 Establish the project office 96

Plan the project **100**

3.0 Plan the project **103**
3.1 Develop the Work Breakdown Structure (WBS) 107
3.1.1 Break the project down 108
3.1.2 Assign ownership 115
3.1.3 Document completion criteria 119
3.1.4 Establish the work breakdown structure dictionary 121

3.2 Develop the preliminary schedule **125**
3.2.1 Determine logical dependencies 127
3.2.2 Approximate duration 132
3.2.3 Analyze the preliminary schedule 141

3.3 Integrate project schedule with program schedule **149**
3.3.1 Integrate the project schedules 150
3.3.2 Determine the impact on the project 152
3.3.3 Update the project plan 153

3.4 Refine estimates & finalize resource commitments **155**
3.4.1 Determine pure effort 157
3.4.2 Refine the task duration 158
3.4.3 Determine workload requirements 160

3.5 Optimize trade-offs **167**
3.5.1 Review the POS and flexibility matrix 169
3.5.2 Modify plans as needed 171
3.5.3 Gain agreement on changes 175

3.6 Develop risk management plans **179**
3.6.1 Identify project risks 181
3.6.2 Assess project risks 183
3.6.3 Generate risk management plans 185
3.6.4 Obtain project plan validation 189

3.7 Transition from planning to managing **193**
3.7.1 Approve and set the project baseline plan 194
3.7.2 Set up management processes 196
3.7.3 Communicate project transition 198

Track and manage the project **203**

4.0 Track and manage the project **205**

4.1 Manage the project plan **211**
4.1.1 Collect status 213
4.1.2 Analyze variance 219
4.1.3 Plan and take adaptive action 224

4.2 Manage issues, changes, and risks **229**
4.2.1 Manage issues 231

4.2.2	Manage changes	234
4.2.3	Manage risks	237
4.3	**Manage the communication processes**	**241**
4.3.1	Generate management/customer reports	243
4.3.2	Manage the communication with the project team and conduct project reviews	247
Close out the project		**255**
5.0	**Close out the project**	**257**
5.1	**Complete the transition activities**	**259**
5.2	**Conduct project close out reviews**	**261**
5.2.1	Hold a project close out review	262
5.2.2	Document and archive key learnings	264
5.2.3	Acknowledge and reward participants	265
5.3	**Complete administrative close out**	**267**
5.3.1	Communicate the project close out	268
5.3.2	Complete administrative close out	269
Purpose statements		**273**
Templates		**285**
Proposal validation checklist project proposal		287
Workshop agenda		288
Appointment letter		289
Project team roster		290
Success criteria		291
Is / is not list		292
The processes and procedures planning checklist		293
Project change management process		296
Change request notices		297
WBS alternatives		298
Optimization model		299
Risk matrix		300
Transition letter		301
Closeout letter		302
Bibliography "The Greatest Hits"		**303**
Case study: The 5-P enhancement project		**307**
Executive briefing		309
High intensity lighting group		311
Project information sheet		313

Project management mastery syllabus

Establishing solid project management mastery
Learn why an effective project management process is essential for success in today's project-driven environments. Obtain a clear understanding of communication pitfalls and fundamental communication practices to facilitate successful project planning and management.

Start the project by clearly understanding what the project is all about
Acquire the knowledge and hands-on practice of defining and organizing a project, ensuring that all the stakeholders have buy-in, appropriate participation in, and a consistent understanding of, the project outcomes. Practice the methodology for reducing "scope creep."

Developing a successful project plan
Project planning can be a daunting task without a proved, communication-oriented process. Learn and use best practices for planning project work: identifying what work needs to be accomplished, sequencing the work, and applying time and cost estimation processes and techniques.

Making the project plan a robust plan
Many project teams stop planning once the initial schedule is completed. Take any project schedule and develop it into a world class project management tool through skillful optimization, risk management, and the use of project planning tools.

Tracking and managing the project
The advanced nature of project management becomes apparent during the execution of a project. Learn processes and techniques that allow you, the project manager, to keep the project on track while dealing with emergent issues and opportunities.

1.0 Initiate the project
1.1 Review the project proposal
1.2 Validate proposed objectives

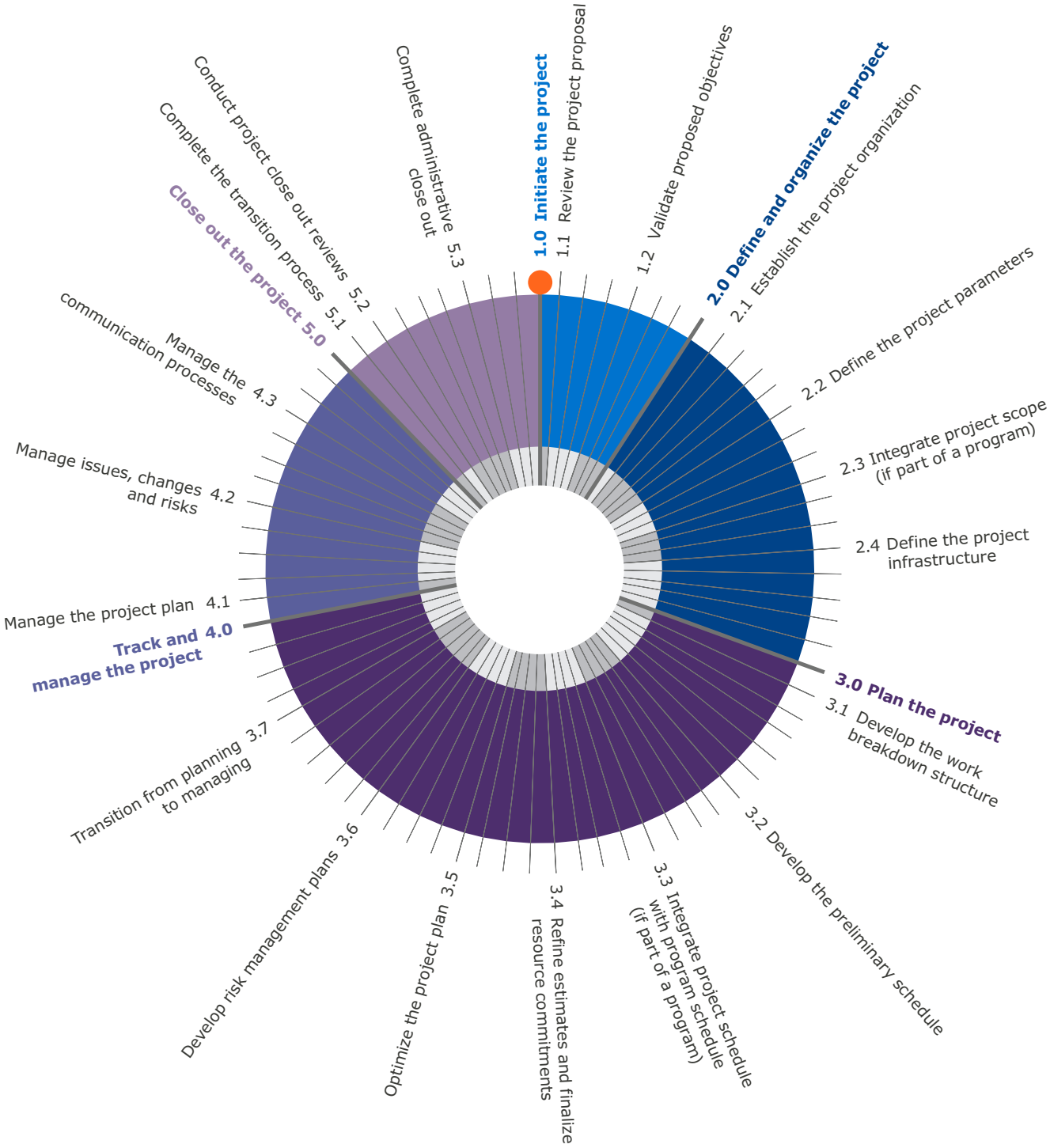
2.0 Define and organize the project
2.1 Establish the project organization
2.2 Define the project parameters
2.3 Integrate project scope *(if part of a program)*
2.4 Define the project infrastructure

3.0 Plan the project
3.1 Develop the Work Breakdown Structure (WBS)
3.2 Develop the preliminary schedule
3.3 Integrate project schedule with program schedule *(if part of a program)*
3.4 Refine estimates and finalize resource commitments
3.5 Optimize the project plan
3.6 Develop risk management plans
3.7 Transition from planning to managing

4.0 Track and manage the project
4.1 Manage the project plan
4.2 Manage issues, changes and risks
4.2 Manage the communication processes

5.0 Close out the project
5.1 Complete the transition activities
5.2 Conduct project close-out reviews
5.3 Complete administrative close-out

Introduction to project management mastery



Introduction

"Project management" is more than Gantt charts, resource histograms, and status reports. It is an entire system of implementation that converts the strategies of an organization into tangible operating results.

"Project management" is more than a team leader assigned to work with a team of technical experts in a concentrated effort to complete a designated output. And it should not be dependent on individual heroics. It is the comprehensive management structure that assures the optimum utilization of all available resources in the prioritized realization of an organization's strategies.

"Project management" is the language of work. It is the universal translator of good ideas into predictable organizational behaviors that ensure consistent operational success. All of the members of an organization that has mastered project management skills speak the same language, understand their individual roles and responsibilities, and are motivated by an understanding of their individual contribution to the organization's successes.

"Project management" is guided from the highest levels of the organization. An organization that has mastered the skills of project management uses the individual skills of its members to the collective advantage of the organization. All members of the mastered organization understand that their technical expertise, at a functional level, contribute to the ability of the organization to implement specific strategies through project teams, program teams, and project portfolio management teams.

In order to fully comprehend and put into practice the contents of ***Project Management Mastery: A Process Guide for Planning and Managing Projects,*** it is important to understand both the individual concepts and the inter-relationship of:

- ***The Theory of Conscious Alignment©***
- The Integrated Project System©
- The Project Portfolio Management Process (PPMP)©

The theory of conscious alignment

When all is said and done, there are only three things that an organization, as an entity of personalities, does:

Strategize → Implement (projects) → Operate
These three organizational focuses are not mutually exclusive in their contribution to the success of the organization. However, the historical treatment of these areas of focus has been somewhat mutually exclusive in nature. Business managers haven't necessarily followed the intuitive flow of strategizing first, then implementing the strategy, and finally creating supportive day-to-day operations. In fact, the focus began on creating operational excellence, followed by a more recent focus on strategizing. And only most recently has the need for the development of implementation skills emerged as critical. The concentration on each individual area of focus – an orthogonal approach to a synergistic relationship - has exposed business executives to the need to manage them as interdependent areas of focus.

Let's explore this further.

Operations, as a set of skills supported by defined processes and proven techniques, has been the focus of management since business began. This focus has included such initiatives as time and motion studies, humanism, customer service, professional performance review techniques, development life cycles, productivity studies, accounting standards, financial management, organization charts, etc. Since this is the indication of the organization's ability to manage their business to financial success, it is often the area of first attention. Successful operational behavior is evidenced by being "the best at what we do."

Successful strategic behavior is evidenced by knowing "what is best." Creating organizational strategies can be an explicitly managed activity. On the other hand, it can be an implicitly random outcome of the efforts of the members of the organization. The method for developing strategies can be a "top down" approach, driven by management, or a "grass roots" approach in which lower levels of the organization generate input into the conversation. The techniques, skills, and processes for creating strategies have been the focus of management teams for the past two decades. Companies are becoming more effective in their development of strategies to guide the future of their organizations. The constant development of technical rapidity for bringing products to a global marketplace increases the focus on successful strategies, even at the risk of diminishing the importance of operational prowess.

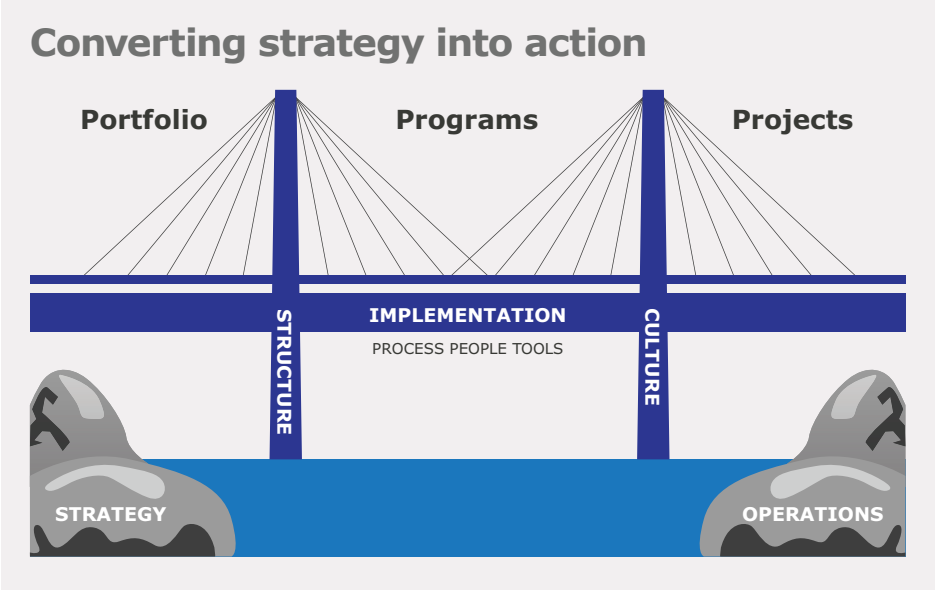
Witness the emergence of e-commerce start-up organizations. These ". com" companies were born from a solution-based strategy with no historical, industrial, or operational evidence of continued viability. Stock market investors who watched these emerging companies put money into a "bundle" of these types of companies, hoping that at least one of them would end up financially rewarding. This is an environment in which strategies dominate, with the expectation that operational behaviors will follow.

The notion that successful day-to-day operations naturally evolve from the explicit or implicit strategies of the organization is faulty from the onset. What is worse, the rapid pace at which organizational strategies change in order to stay ahead of – or keep up with – the competitive influences of the chosen marketplace magnifies the impact of the disconnect between a strategy and day-to-day operations.

The organization's ability to implement a given strategy and convert it into successful day-to-day operations emerges as the solution set of processes, skills, and techniques that permit the organization to "turn on a dime" and produce expected results consistently, reliably, and predictably. Implementation, as a procedural focus of an organization, includes the ability to:

- Translate a strategy into tangible terms
- Align the work of the organization with the current strategies
- Align the right resources with the prioritized work
- Align the work of the organization with emergent change
- Align the interdependencies of the various work efforts
- Align performance indicators with the priorities of the organization

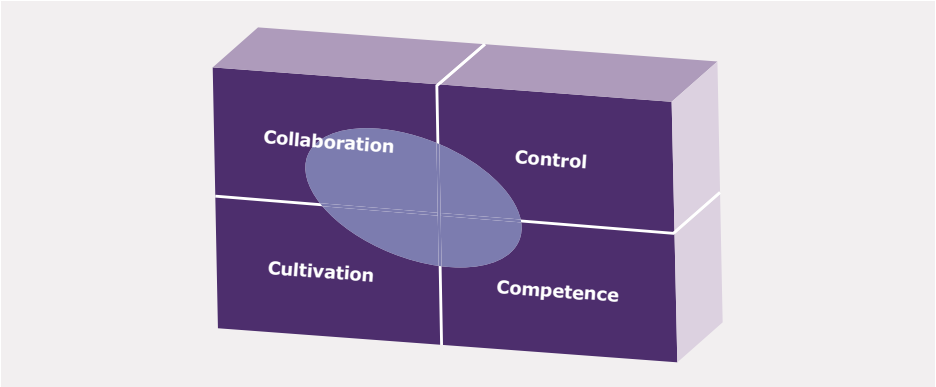
The Theory of Conscious Alignment© identifies the processes, skills, and techniques that explicitly align the work efforts of the organization (project work) with the organization's strategies. This results in the appropriate day-to-day operational behavior, which supports the positive business outcome of the strategies.



Not to be forgotten in this conversation of strategizing, implementing strategies, and converting strategies into day-to-day operational behavior is the over-arching dialog around the "business culture" of the organization. Much work, research, and pontificating have emerged around this question of "business culture." However, it has consolidated into a discussion around four focus areas for the way business is done. Though the terminology changes from thesis to thesis, the basic breakdown for these four focus areas of an organization's cultural behavior is:

- **Collaboration culture** – This organization will do whatever it takes to please our customers.
- **Control culture** – This organization will be the most efficient, lowest cost provider to our industry.
- **Competence culture** – This organization will produce the highest quality solution to the marketplace.
- **Cultivation culture** – This organization will be a constant source of personal satisfaction to our customers and our employees.

A successful organization establishes a core culture, and assures that it has balancing characteristics of the other three cultures. The mapping of a well-directed organization might look like this:



Note that the organization has a dominant business culture (collaboration), but also has characteristics from the other three cultures, to a lesser extent, which balance the organization.

For example, a leading automobile manufacturing company establishes itself in the "competence culture." This company works diligently to produce the highest quality automobiles, expending resources to develop the best of all features. A marketing campaign is designed to convince the consumer that these are the features that they really want! However, to be completely successful, this automobile manufacturing company must also assure that it has cost controls and procedural behaviors that make the company financially viable ("control culture"). It must also ensure that it tempers its development work to not exceed the consumers' ability to comprehend or desire the output ("collaboration culture"). Of equal importance is the need to maintain the expertise inside of the company by assuring that employees are satisfied and that customers have a sense of fulfillment from the results of the company's labors ("cultivation culture").

There is, therefore, another factor in ***The Theory of Conscious Alignment©.*** It is the consideration of the "business culture" of the organization. This dimension is often the defining criteria for successful implementation of a strategy. Organizational strategies that do not align with the "business culture" of the organization challenge the ability to accomplish anticipated operational results. Typically, the organization does not understand how to interpret the strategy or behave in this "new" culture.

The CEO of an organization cannot simply announce that the focus of the organization will change from being the low-cost provider to becoming a customer-driven organization. Such a change in strategy requires a conscious alignment with the project work of the organization, assuring that the organization's resources are deployed to the execution of the developing strategies. This cannot be successful managed as a "natural evolution."

The explicit strategy to "change a culture," often meaning a change in the way business is done, should translate into explicit work efforts (projects) to ensure the successful transition from one way of doing business to another.

The Theory of Conscious Alignment© suggests that there is an explicit roadmap for organizational success:

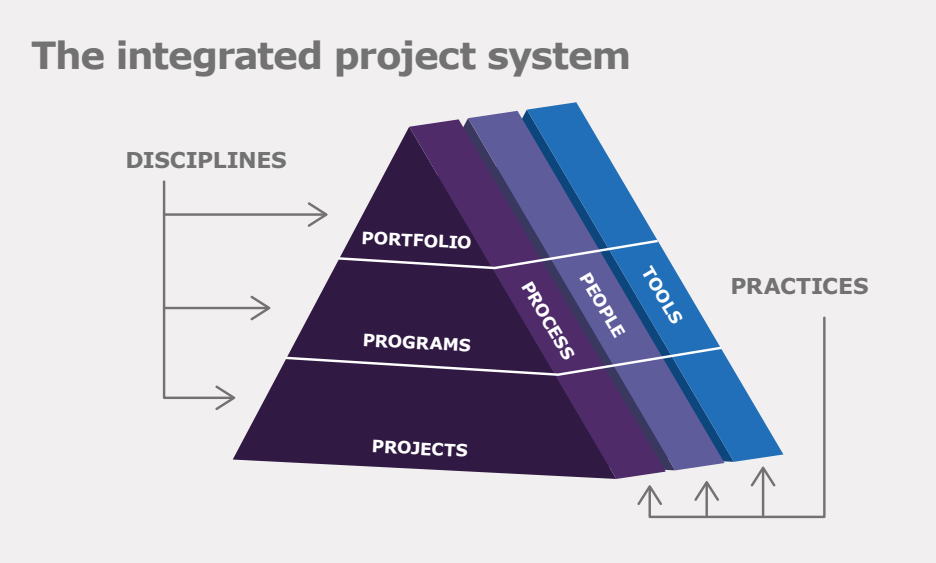
1. Identify a core business culture, balanced by the remaining three business cultures
2. Align the strategies of the organization with the identified cultural outline
3. Align project work in the organization (implementation efforts) with the prioritized strategies of the organization
4. Explicitly adjust day-to-day operations to support the output of the projects, in alignment with expected organizational behavior.

Culture → Strategies → Implementation (projects) → Operations
This model, which supports ***The Theory of Conscious Alignment***©, emphasizes the concept that "the whole is greater than the sum of the parts." Individually considered, each area of focus advances an organization's ability to be successful. However, managed in a synergistic fashion, with conscious alignment throughout, the organization is assured of success. The linchpin to this model, the bridge that completes the road from strategies to operation, is implementation. The successful application of implementation skills, techniques, and processes is a two-way street, bringing strategies to the operational level, and feeding operational considerations into the strategies of the organization. Therefore, implementation must be considered as a system, more than a process.

The integrated project system

More than managing individual efforts inside of an organization, project management is a comprehensive environment that contributes to the "control culture" behaviors of the organization, whether this is the dominant or a balancing business culture. Project management is an integrated system, and must be considered in its entirety in order to break it down into focus areas.

Consider the following illustration:

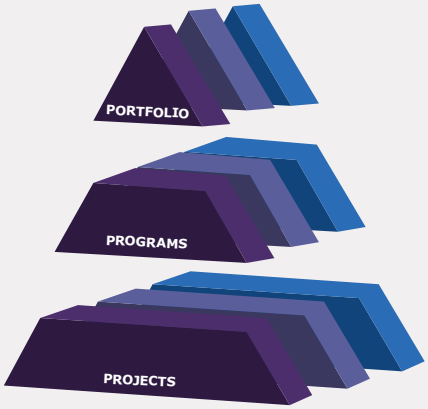


This model demonstrates ***The Integrated Project System***©, which includes:

Three disciplines that require specific and uniquely different skills development.

- **Project management** – managing a single effort to its defined deliverable, schedule, and budget
- **Program management** – managing the inter-relationship between multiple projects that contribute to a larger deliverable
- **Portfolio management** – managing the allocation of resources to project work as prioritized according to the strategies of the organization

Definitions



Portfolio: The prioritized set of all projects and programs in an organization

Program: A single coordinated effort with multiple interdependent projects

Project: A unique effort with a defined beginning, a defined end, a specific deliverable, and defined resources

Three practices inside of each discipline that require attention and development:

- **Processes** – each discipline should be supported by a defined, repeatable, and scalable step-by-step process
- **People** – consideration should be given to the organization, education, and application that support the three disciplines
- **Tools** – each discipline should be supported by an appropriate software tool, and other defined templates and support structures, that assure that processes are supported by the tools, and not dictated by the tools

In order for an organization to effectively and predictably implement strategies through projects, as a normal course of business behavior, attention should be given to all nine segments of **The Integrated Project System**© model.

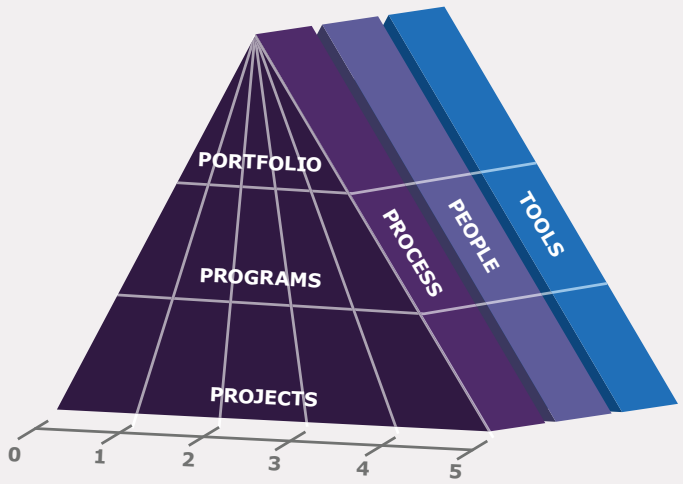
At the same time, however, consideration must be given to the cost and time constraints of the organization. Focus must be given to the development of those segments that will have the most effective, and often most immediate, impact on the organization.

In order to grow, or mature, an organization's ability to implement its strategies via project work, consideration must be given to all three disciplines. A common view of maturity, demonstrated for example in a typical CMM-SEI maturity assessment, would guide an organization to focus first on project management skills, then program management skills, and finally portfolio management skills. This is a faulty, less effective view for an organization that desires to successfully improve its implementation competence.

The maturing project management organization becomes aware of the inter-relationship of the three project management disciplines. For example, an organization that focuses on developing the team members' skills in the discipline of managing individual projects soon discovers that the teams are inhibited by management's lack of direct attention to the prioritization of project work. They find themselves over-allocated and unable to accomplish the maturing skills. In the same light, when an organization focuses on developing the project portfolio management skills, it soon discovers that ineffective project management limits the ability to appropriately understand and prioritize the assignment of the available resources.

Therefore, the vision of advancing the maturity of an organization should be multi-discipline based. The following illustration demonstrates levels of maturity (numbers 0-5 at the bottom of the model) that reflect growth in all three disciplines in a stratified approach. Notice that a level 3, for example, has significant growth in the discipline of project management, appropriately lesser growth in the program management discipline, and even lesser growth in portfolio management skills. The amount of growth is stratified with the "size" of the discipline in the organization.

The integrated project system



This stratified growth encompasses the three practices—process, people, and tools—inside of each discipline.

This growth, or maturity, model assures that an organization develops its implementation skills across all disciplines. Such an approach is important in the goal to develop conscious alignment. At one end of the implementation bridge, in ***The Theory of Conscious Alignment©***, well developed and practiced project management skills become the blending influence with creating and supporting day-to-day operations. At the front end of the implementation bridge, the discipline of portfolio management melds the strategies into the overall project structure of the organization.

This manual, ***Project Management Mastery: A Process Guide for Planning and Managing Projects***, is focused on the concepts and skills required to lead successful projects on any scale. An organization will benefit significantly from implementing this process.

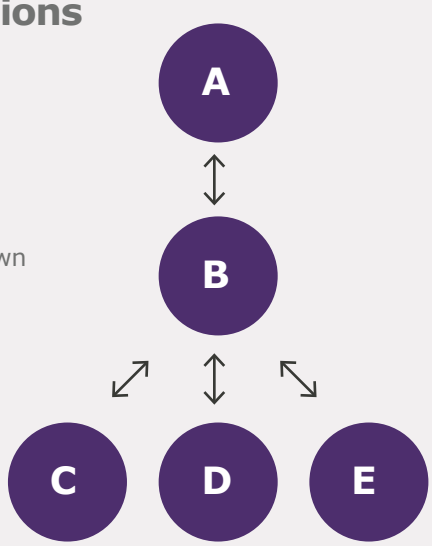
In summary

This guide supports the implementation and ongoing management of ***The IPS Project Management Process***. A related course is offered through the Stanford Advanced Project Management Program, a joint venture between the Stanford Center for Professional Development and IPS. Information is available by contacting IPS at 650-578-6300, or by visiting our web site at www.ipsassociates.com.

ABC exercise instructions

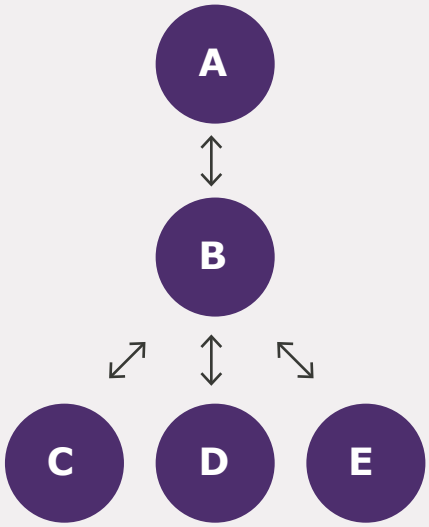
The rules

- No verbal communication
- Use e-mail system
- You may only send e-mail as shown
- Fold in half and raise to deliver
- Three work periods with status period in between



The ABC exercise

- Provide a common project goal
- Keep people involved
- Confirm assumptions
- Clarify roles



Challenges

Brainstorm the challenges that your company experiences in project management

Identify your top 3 challenges

Be prepared to present

Project management challenges

Unclear objectives

Unrealistic schedules

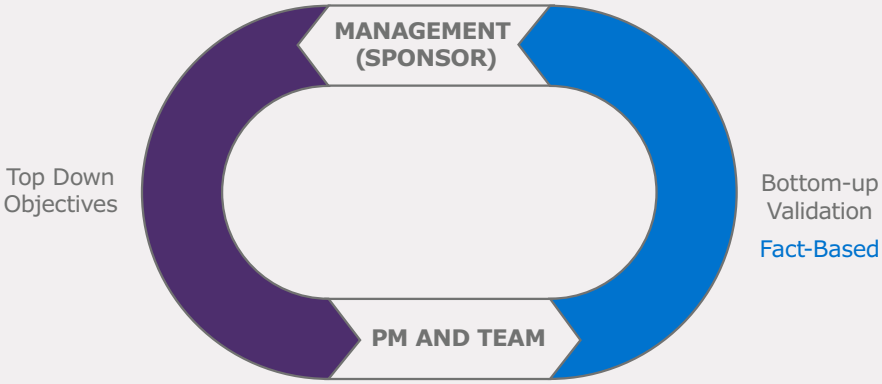
Over-committed resources

Unclear or changing priorities

Poor communication

Unclear organizational relationships

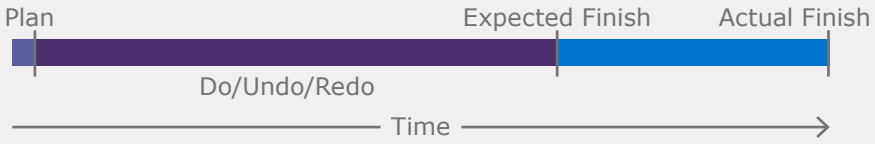
Cycle of validation



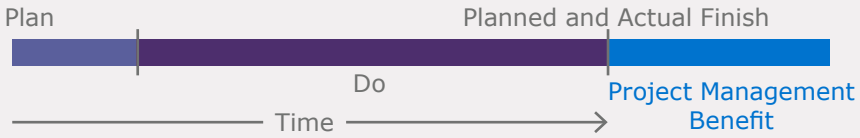
A concept describing the continuous process of validating project decisions—not a single event

Plan/Do

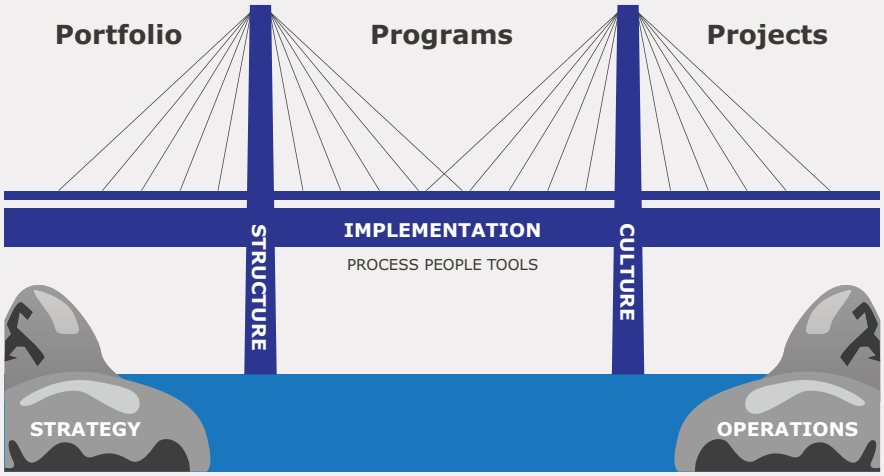
Without Project Management



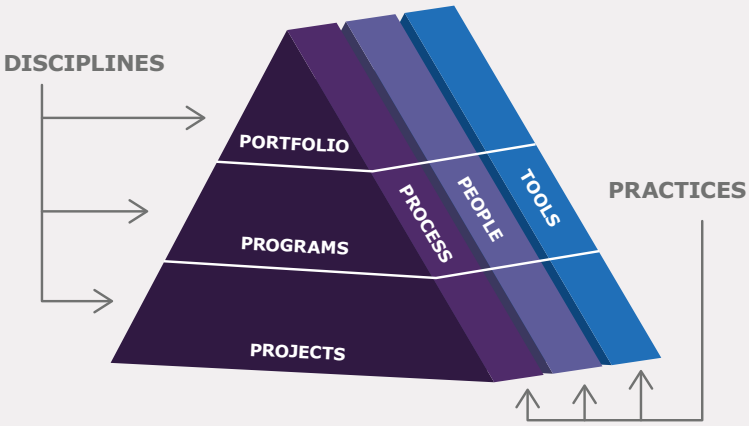
With Project Management



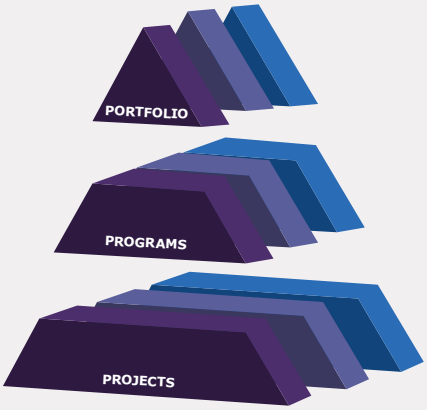
Converting strategy into action



The integrated project system



Definitions



Portfolio: The prioritized set of all projects and programs in an organization

Program: A single coordinated effort with multiple interdependent projects

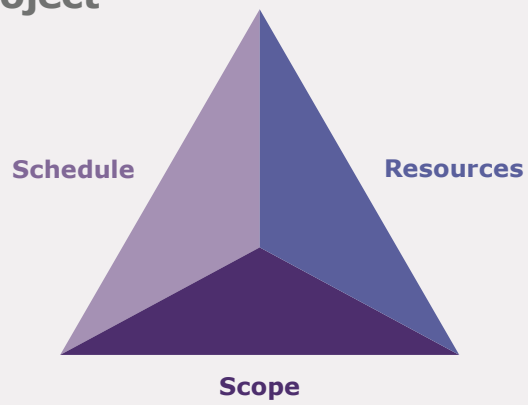
Project: A unique effort with a defined beginning, a defined end, a specific deliverable, and defined resources

"Advanced" project management

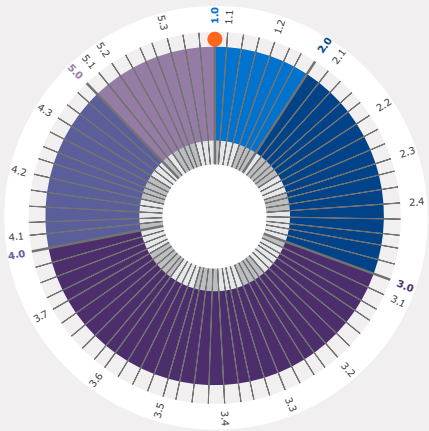
Project Management		Advanced Project Management
Mechanics of a PM process	→	Include judgments and behavior
Driving to the perfect plan	→	Driving to the appropriate plan
Managing in black and white	→	Managing in the gray
Focused only on the project	→	Considering the impact on the project portfolio, programs and the rest of the organization
A single process	→	A flexible process, adaptable to the changing environment

Definition of a project

- **Unique** effort
- **Defined** beginning
- **Defined** end
- **Specific** deliverable
- **Defined** resources

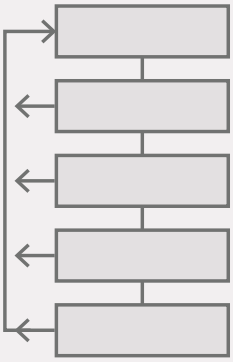


Project management model



1.0 Initiate
1.2 Review the project proposal
1.3 Validate proposed objectives
2.0 Define and organize
2.1 Establish the project organization
2.2 Define the project parameters
2.3 Integrate project scope
2.4 Define the project infrastructure
3.0 Plan the project
3.1 Develope the work breakdown structure
3.2 Develope the preliminary schedule
3.3 Integrate project schedule with program schedule
3.4 Refine estimates and finalize resource commitments
3.5 Optimize trade-offs
3.6 Develop risk management
3.7 Transition from planning to managing
4.0 Track and manage
4.1 Manage the project plan
4.2 Manage the communication processes
5.0 Close out
5.1 Complete the transition activities
5.2 Conduct project close out reviews
5.3 Complete administrative close out

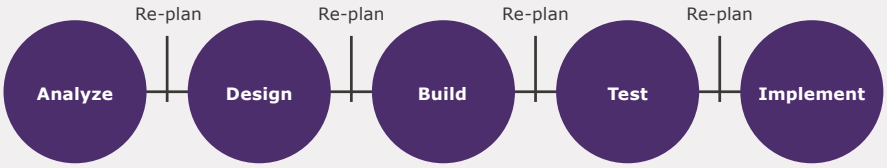
Project management model



- Step-by-step
- Iterative
- Self-correcting
- Scalable

Project management and other organizational processes

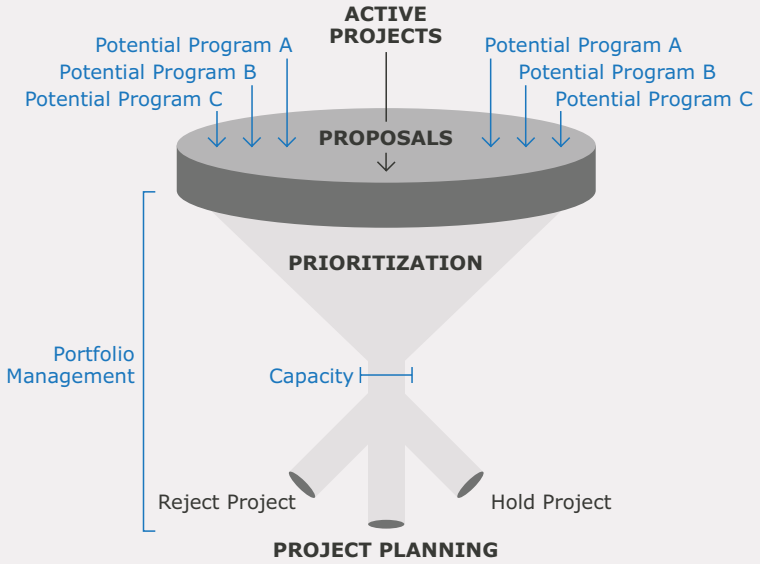
Project management and life cycle



PM process usually occurs iteratively throughout the lifecycle

Re-planning typically occurs at the end of each lifecycle phase

Selection of projects



Project proposal

Defines target market

Specifies market requirements

Lists and prioritizes features

Presents financial analysis

Justifies business driver for a solution

Addresses project prioritization process

1.0 Initiate the project
1.1 Review the project proposal
1.2 Validate proposed objectives

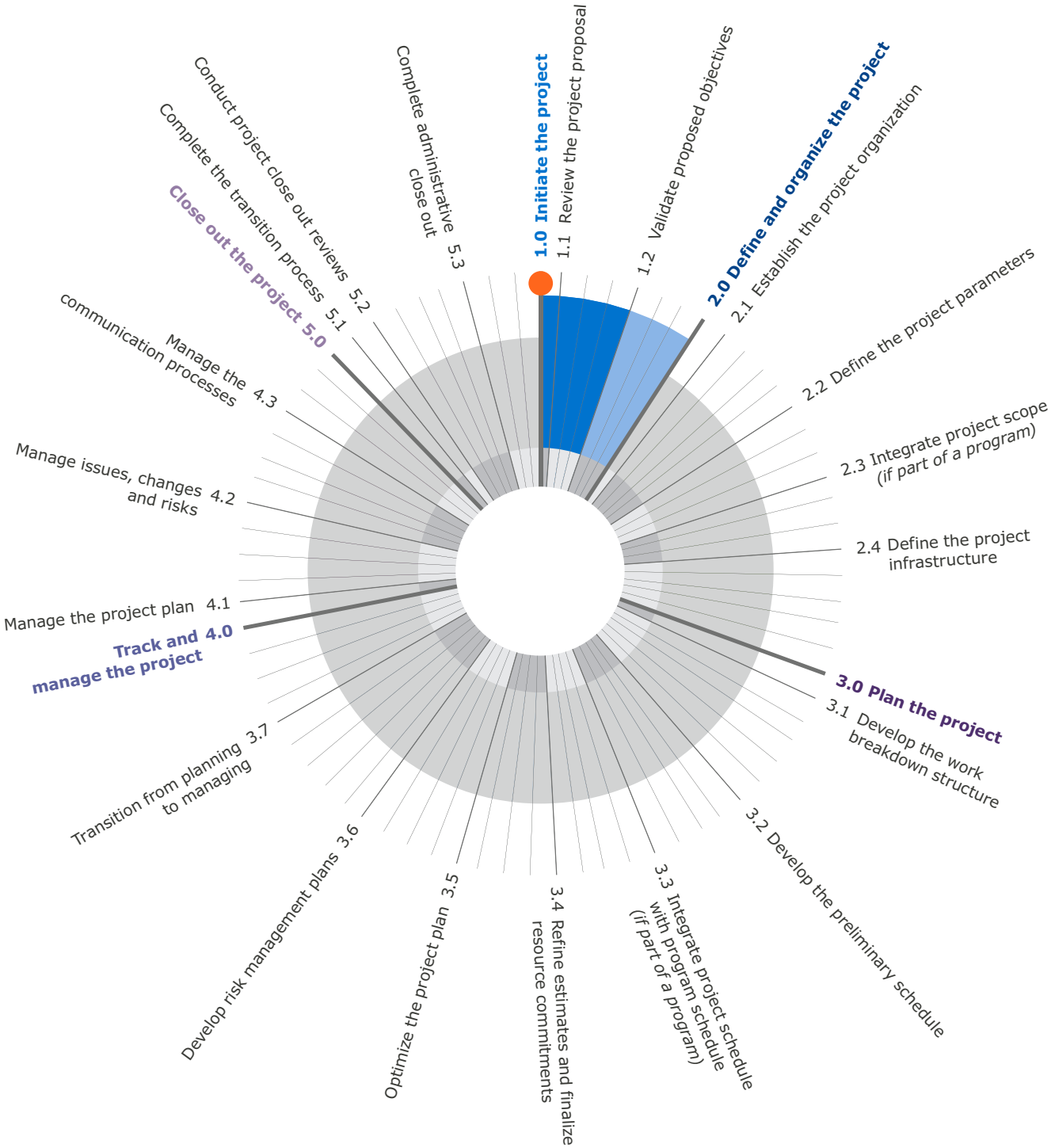
2.0 Define and organize the project
2.1 Establish the project organization
2.2 Define the project parameters
2.3 Integrate project scope *(if part of a program)*
2.4 Define the project infrastructure

3.0 Plan the project
3.1 Develop the Work Breakdown Structure (WBS)
3.2 Develop the preliminary schedule
3.3 Integrate project schedule with program schedule *(if part of a program)*
3.4 Refine estimates and finalize resource commitments
3.5 Optimize the project plan
3.6 Develop risk management plans
3.7 Transition from planning to managing

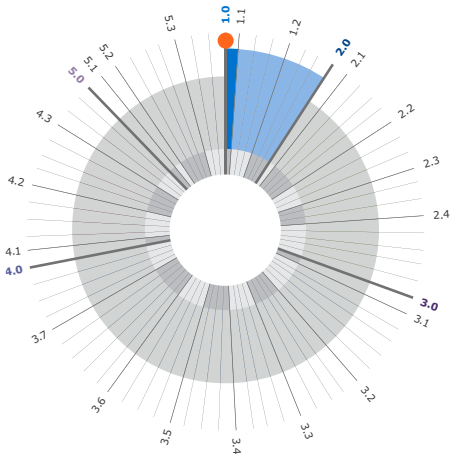
4.0 Track and manage the project
4.1 Manage the project plan
4.2 Manage issues, changes and risks
4.2 Manage the communication processes

5.0 Close out the project
5.1 Complete the transition activities
5.2 Conduct project close-out reviews
5.3 Complete administrative close-out

Initiate the project



1.0 Initiate the project



Definitions

Proposal – A structured document defining the high level rationale and objectives of project.

Project proposal information – The type of data that would be used in a project proposal

Overview

- This step assumes that:
  - A project sponsor and project manager have already been identified.
  - Another entity is responsible for creating the project proposal, if a proposal is to exist at all.

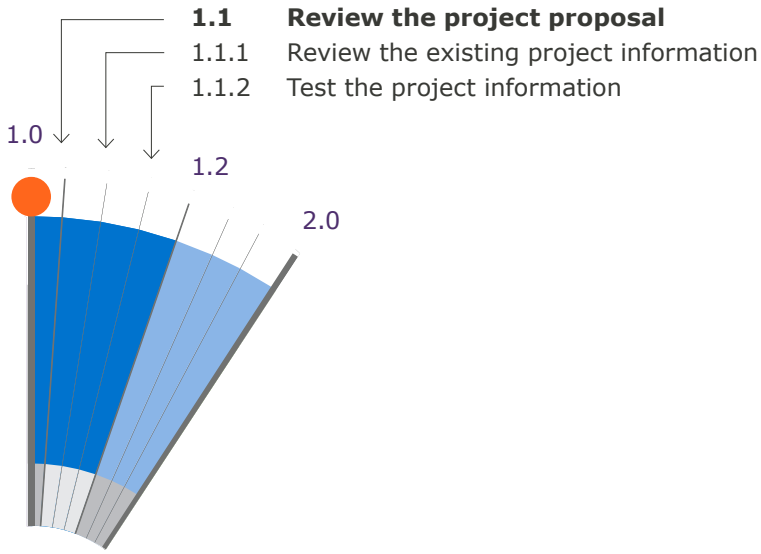
- A successful project begins with a clear understanding of the purpose. Projects will experience stops and starts when a strong basis has not been established at the beginning.

- Structured proposals provide the mechanism for consistently defining projects within an organization.

- Proposals should describe projects in terms of the project portfolio prioritization criteria used in the project selection process.

- In some cases, the project sponsor may decide to forego a formal proposal in favor of responding immediately to an opportunity. These cases still require the establishment of high level project objectives; as well as an understanding that the less formal approach adds risk to the project definition.

1.1 Review the project proposal



Purpose

The project manager compiles and reviews the high level project information prior to the initiation of the Define and Organize phase. This helps to ensure that the business case has been clearly articulated and the project team has a clear high-level target
for their project planning.

1.1.1 Review the existing project information

The project manager reviews all of the existing high-level project information for gaps in required data. This helps to ensure that the project starts with the documentation deemed appropriate for initiation.

1.1.2 Test the project information

The project manager checks to make sure that the existing project information is still valid and then identifies any additional assumptions, issues, and risks. This helps to ensure that the project team will be using the best data available when commencing with the define and organize the project phase.

1.1.1 Review the existing project information

Purpose

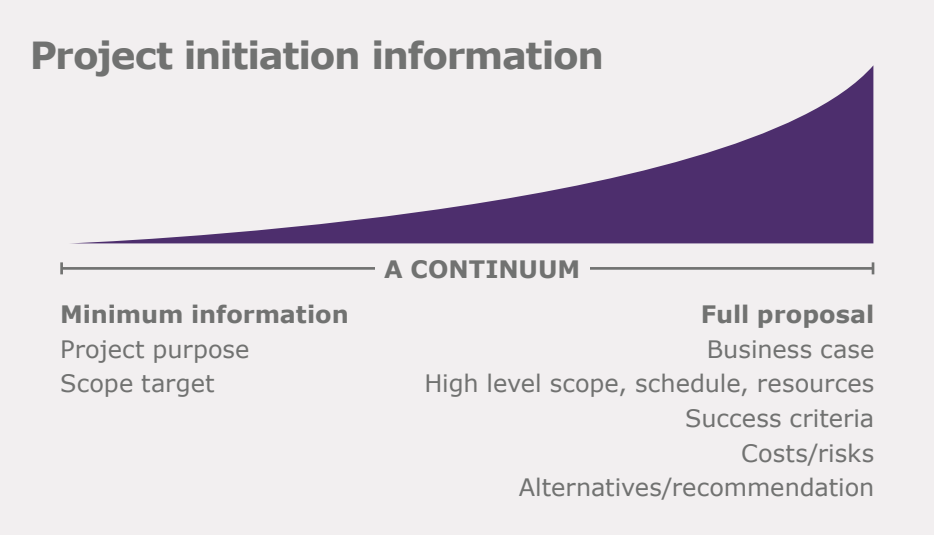
The project manager reviews all of the existing high-level project information for gaps in required data. This helps to ensure that the project starts with the documentation deemed appropriate for initiation.

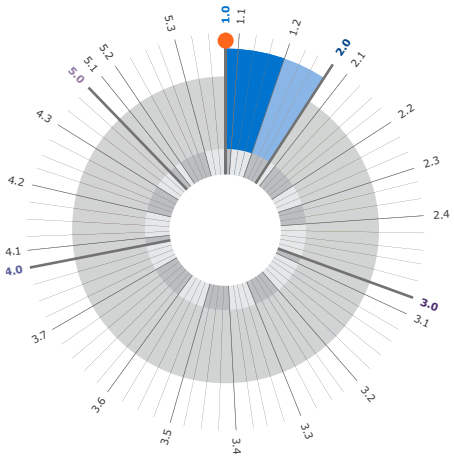
Definitions

Project sponsor – The senior manager who authorizes the project. This person, for example, could be a functional manager or an administrative manager.
Project manager – The individual who will lead the project team.
Project management office – Center of competence for enabling organizational mastery of project management.
Extreme project – A project whose definition and scope are very much in flux and can be characterized by a highly aggressive schedule, high risk, high stress, and significant open issues.
Program Description Document (PDD) – The document that represents the definition of the program. The PDD contains a program objective statement, major deliverables, a flexibility matrix and other descriptive information about the project.
Project proposal – A document describing a project from a business and customer perspective.

Best practices

Review the existing project information





- A complete, best case project proposal would contain the following categories:
  - Business case
  - Market requirements
  - Financial analysis
  - Success criteria
  - High level scope and requirements
  - High level schedule
  - High level resources
  - Risks
  - Alternatives
  - Recommendations

- On the other end of the spectrum (such as for "extreme projects"), the proposal-type data may only consist of:
  - Some information on the purpose of the project
  - High level scope

- Each project within an organization may vary in the amount of its proposal-type information. The project sponsor and project manager need to come to an agreement as to what is sufficient to proceed to define and organize the project.

Determine whether a proposal already exists

- A formal proposal may not exist for a number of reasons:
  - The project is part of a program. The project proposal-type information will be included in the program description document.
  - The project is of an "extreme" nature where the urgent demands of the organization do not allow for the development of a formal proposal.

- If a formal proposal does not exist, determine whether a proposal needs to be written.
  - If a proposal needs to be written, the project sponsor must take the action to determine who will be tasked.
  - If a proposal will not be written, the project sponsor and project manager must determine what subset of information will be required.

Identify the gaps between which documents exist and which documents are still needed

- Create a list of all of the documents required in order to proceed to define and organize. The list should include which documents exist and which documents are incomplete or are still needed. Include who has the action to complete the missing documents.

Who does this?

The project manager assembles the project information and identifies the gaps. The project sponsor may assist with identifying who needs to be contacted to fill any gaps.

Completion criteria

The list of project information documents and gaps has been created. The individuals who are tasked to fill any gaps have committed to completion dates.

Process considerations

Stand alone project

Management teams may find it easy to convince themselves that writing a formal proposal is not warranted due to the urgent nature of the project.

There is a continuum of information detail depending on the project complexity, speed of change, perceived importance, etc. The sponsor and project manager need to define the minimum set of information required.

The categories of the proposal should be consistent with the decision criteria used by the portfolio management team.

If a Project Management Office (PMO) exists, they typically…

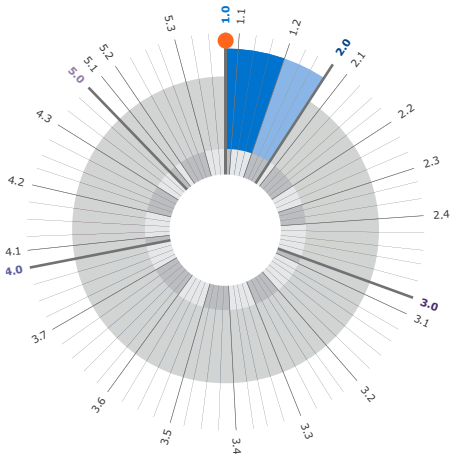
- Define the proposal categories.
- Store information on existing and past projects.

As part of a program

Review the program description document as part of the information gathering.

Make sure that the program data satisfies the needs of the project proposal.

1.1.2 Test the project information



Purpose

The project manager checks to make sure that the existing project information is still valid and then identifies any additional assumptions, issues, and risks. This helps to ensure that the project team will be using the best data available when commencing with the define and organize the project phase.

Definitions

Issues Log – A table containing both open and closed issues and actions, the individuals responsible for resolving the issues/actions, and due dates.

Best Practices

Review the project information

Review project initiation information

Test for:

- All the right components of information
- Validity/current relevance–many months could have elapsed since project approval
- Update where necessary
- Validate with the sponsor

Assess the information for:
- Validity
- Current relevance

- Many months could have elapsed between the time the project was approved until the time it was initiated.

- Update any information that is no longer accurate/out-of-date.
  - May require working within the organization to uncover the most recent data/status.

- Update any previously defined assumptions, issues and risks in the project proposal document(s).
  - Existing assumptions and risks should be contained in the proposal documents; the issues should be in the Issues Log.

- Identify additional assumptions, issues and risks, especially in light of any recent changes in the market, business, etc.

Who does this?

The project manager completes the analysis of the project information.

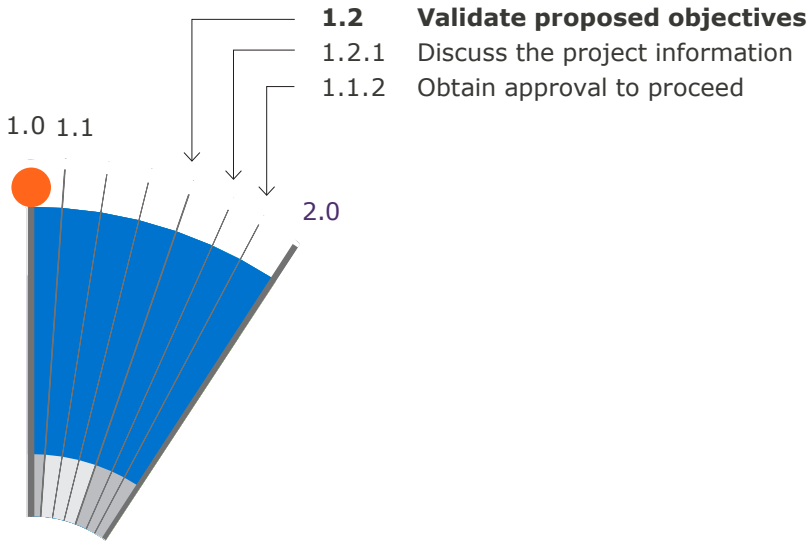
Completion criteria

An updated proposal or project information has been created. Open issues have been identified in an Issues Log.

Process considerations

Stand alone project	As part of a program
Many months could elapse between the time a project is approved and the time the project actually is initiated. Potential team members are excellent candidates for the information review.	

1.2 Validate proposed objectives



Purpose

The project sponsor approves or disapproves the project prior to moving forward into the define and organize phase. This helps to ensure that the project team will be working on a viable, valuable project.

1.2.1 Discuss the project information

The project manager presents the current project information as well as the assumptions, issues, and risks to the project sponsor. The discussion that follows results in the decision of whether to go ahead with the project.

1.2.2 Obtain approval to proceed

The project sponsor decides whether the project is approved, sent back for more development, or cancelled.

1.2.1 Discuss the project information

Purpose

The project manager presents the current project information as well as the assumptions, issues, and risks to the project sponsor. The discussion that follows results in the decision of whether to go ahead with the project.

Definitions

Project information – Any material that contributes to the understanding of the project from a business and customer perspective. If a proposal exists, it should contain most of the project information.

Best practices

Present the project information to the project sponsor

- Cover the appropriate material, which should include:
  - Business case
  - High-level scope, schedule and resources

- …and may include
  - Success criteria
  - Costs
  - Risks
  - Alternatives
  - Recommendations

- Provide an advance copy of the updated project proposal/information. If an advance copy is provided, the review could be streamlined by addressing only the sponsor's exceptions and issues instead of reviewing the whole package in one meeting.

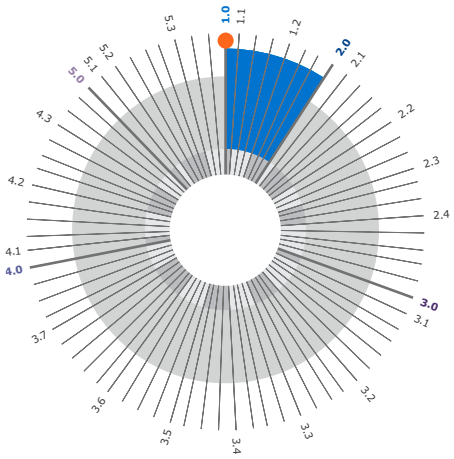
Who does this?

The proposal manager is responsible to make sure that a complete project information package is prepared.

Completion criteria

The meeting with the project sponsor has been completed and the sponsor is satisfied with the amount and content of project proposal data.

1.2.2 Obtain approval to proceed



Purpose

The project sponsor decides whether the project is approved, sent back for more development, or cancelled.

Definitions

Cycle of validation – A "meeting-of-the-minds" process, assuring that the project team understands the intent/expectations of the sponsor.

Best practices

Assure project sponsor's acceptance of the project information.

- Clarify any project information with the sponsor so that the sponsor ends up with a clear understanding of what the information says.
- Document all assumptions, issues and risks.
- Obtain project sponsor's concurrence/validation.
- Approval to move forward to the define and organize phase of the project planning process.

Who does this?

The project manager arranges the meeting with the project sponsor. The project sponsor makes the decision of whether to proceed to the define and organize phase of the project.

Completion criteria

If the project sponsor agreed to proceed with the project, the project description document has been initiated and the project proposal data has been saved in it.

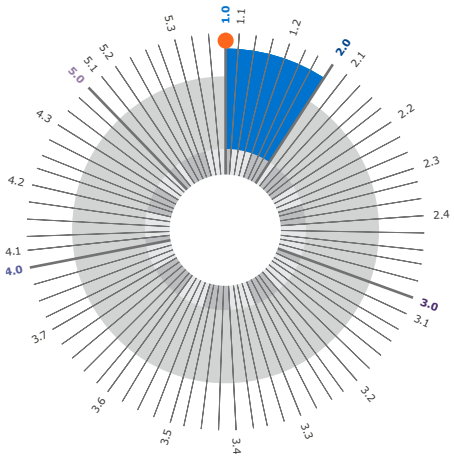
If the project sponsor wanted additional information, the remaining requirements have been documented by the project manager and he/she has returned to 1.1 of this project management model.

If the project sponsor decided to cancel the project, the project information has been archived and a letter is sent to all stakeholders.

Process considerations

Stand alone project	As part of a program
The cycle of validation is much more effective if the sponsor receives an advance copy of the project information prior to the actual meeting.	

Do differently



1.0 Initiate the project
1.1 Review the project proposal
1.2 Validate proposed objectives

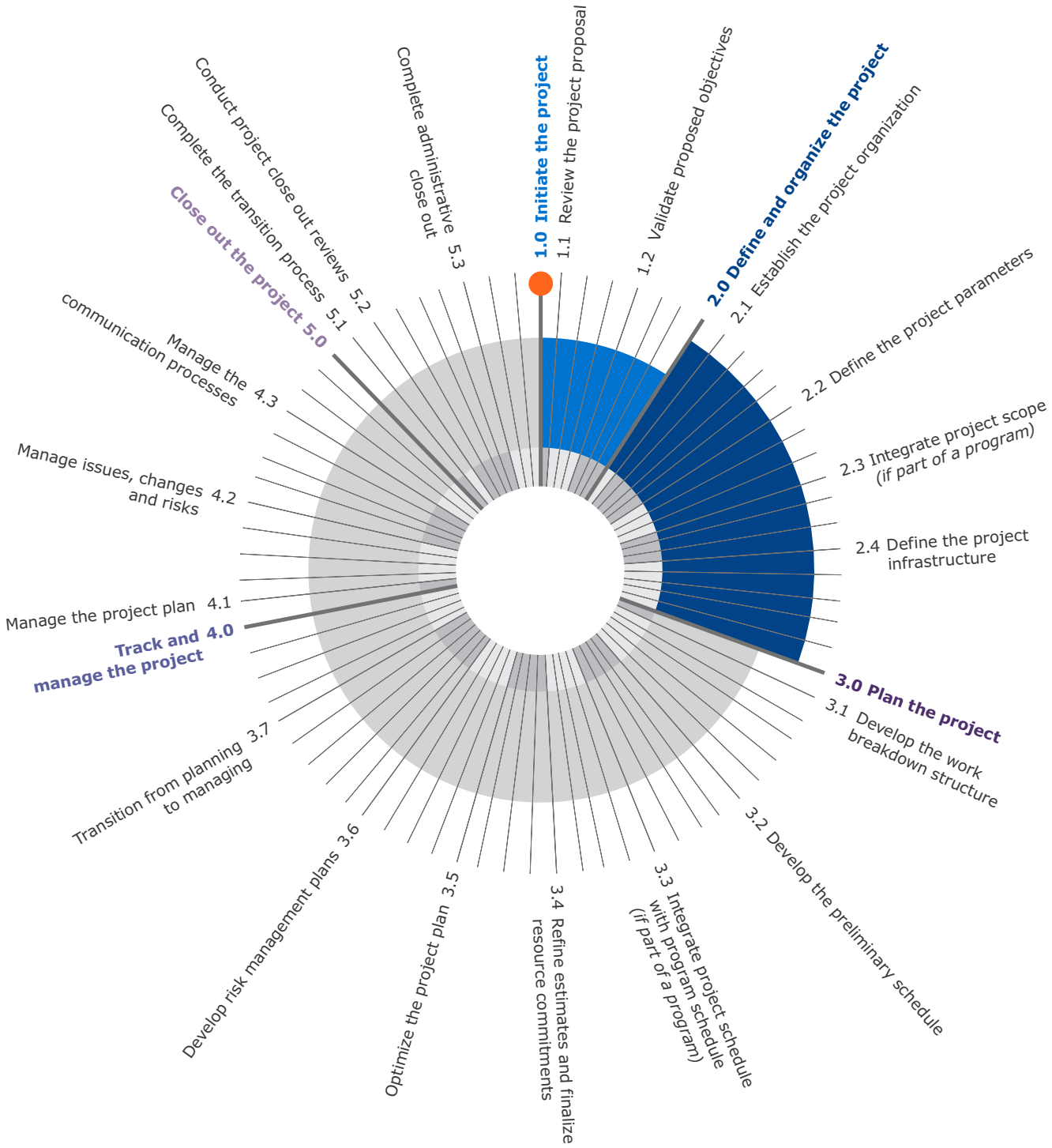
2.0 Define and organize the project
2.1 Establish the project organization
2.2 Define the project parameters
2.3 Integrate project scope *(if part of a program)*
2.4 Define the project infrastructure

3.0 Plan the project
3.1 Develop the Work Breakdown Structure (WBS)
3.2 Develop the preliminary schedule
3.3 Integrate project schedule with program schedule *(if part of a program)*
3.4 Refine estimates and finalize resource commitments
3.5 Optimize the project plan
3.6 Develop risk management plans
3.7 Transition from planning to managing

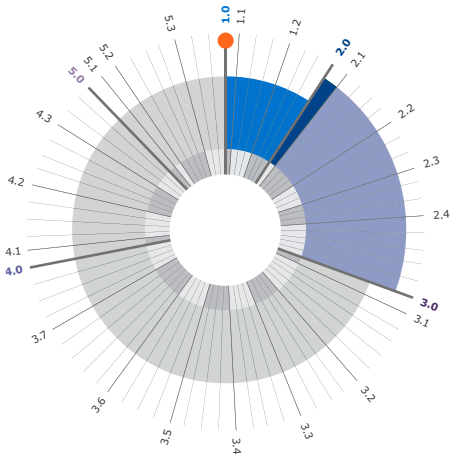
4.0 Track and manage the project
4.1 Manage the project plan
4.2 Manage issues, changes and risks
4.2 Manage the communication processes

5.0 Close out the project
5.1 Complete the transition activities
5.2 Conduct project close-out reviews
5.3 Complete administrative close-out

Define and organize the project



2.0 Define and organize the project



Definitions

Project organization – The team established to achieve the objectives of the project, including the sponsor, project manager, core team and extended team.

Project description document – The collection of all documents used to define the project.

Project parameters – The definition of project objectives, success criteria, decision flexibility, and major deliverables.

Processes and procedures – The set of procedural practices that the project team puts in place for the implementation and management of the project activities. Another name for this is "framework".

Overview

Define and organize the project

- Many project teams start up a project by proceeding to the planning process without ever clearly defining **who** is on the project, **what** they are expected to achieve, and **how** they are going to operate as a team. As a result, time is wasted later as team members proceed in different directions or in a direction that is different than what the project leadership expected.
- The define and organize phase is where the project team, the expectations of the project, and the project team rules are identified, documented and validated with the management.
- These three steps are often active and iterating at the same time. After the project team is initially defined, changes are made to the team roster as the project definition is developed. In the same way, the definition of the project team rules (processes and procedures) can start fairly early in this phase and be modified throughout.
- After the team has completed these steps they will be better prepared to develop the detailed plan in 3.0 plan the project.
- Some initial steps are recommended in order to effectively transition into define and organize the project:

Transition to define and organize

- **Determine** the means for collaboration
- **Initiate** the project web site
- **Perform** project startup activities
- **Assemble** the project artifacts

Establish quality project team communication

Review project initiation information

Internet tools

- Interactive meetings
- Central PM sites
- Combinations

Internet collaboration tips

- Limit sessions to less than 2 hours
- Complete tasks between sessions
- Educate, support

- Key to the project team's success is setting up effective communication systems.
- The advancement of communication technology can make geographically dispersed project teams a competitive advantage.
- Consider internet collaboration tools, video conferencing, etc.
- Update processes and procedures decisions.

Get the project moving right away

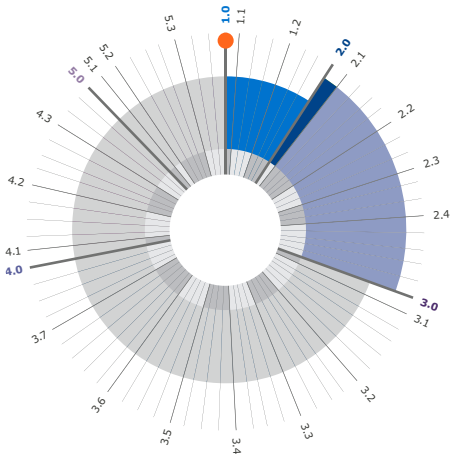
- Reduce the "fuzzy front end."

Start the project off right

- Hold a project planning workshop
- Initiate the project notebook
- Establish the process for managing issues, actions, assumptions and risks
- Obstain "lession learned" files
- Initiate "lessons learned" file

Project planning workshop

- Project Objective Statement (POS)
- Success criteria
- Assumptions
- Team roster
- Roles and responsibilites
- Flexibility matrix
- Major deliverables with is / is not lists
- Framework checklist
- Preliminary schedule
- Optimization ideas
- Risk plans
- Issues log



Initiate the project notebook

- Initiate a project notebook (soft or hard copy) to store all of the project planning documents.

- The project manager assures that this project notebook is kept current throughout the life of the project.

- The project team decides early on how project information will be organized.

- The keys are to start it early and keep it up-to-date.

- Sample contents:
  - Project proposal or information on the project's purpose
  - Project description document
  - Schedules
  - Issues log
  - Meeting reports
  - Contracts

Establish how issues, actions, assumptions, and risks will be documented and managed

- Allow for all team members to contribute to the identification of issues, required actions, assumptions, and risks.

- Whether or not the project team will take action on any of these in the near term, the items should be logged.
  - Initiate an issues/action log (see 2.4 develop the project processes and procedures).
  - Log assumptions and risks in the project description document (see 2.2 define the project parameters)

- Suggestion: post flip charts as "parking lots" for "issues", "actions", "assumptions" and "risks" within the team's meeting area or web site.

- Decide early how the team will respond to these items, especially issues and risks (also, see 2.4 develop the project processes and procedures).

Benefit from lessons learned of previous projects

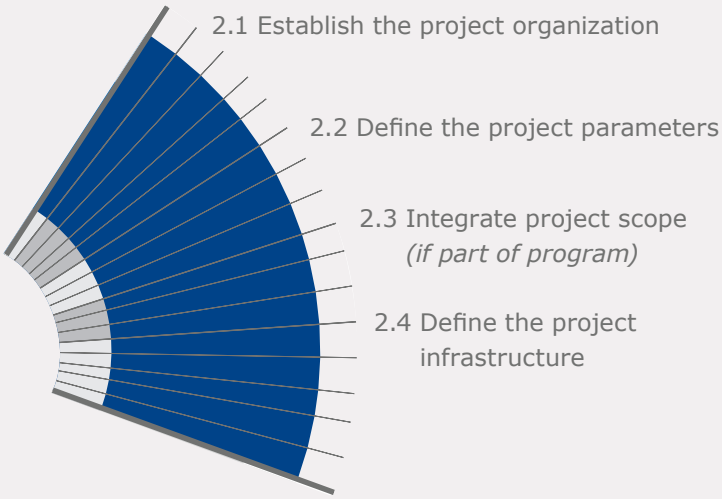
- Obtain the lessons learned file from previous projects.
  - Project files
  - Project management office

Start a lessons learned file

- Begin the capture of lessons learned.
- Avoid forgetting key learnings from the beginning of the project.

Define and organize

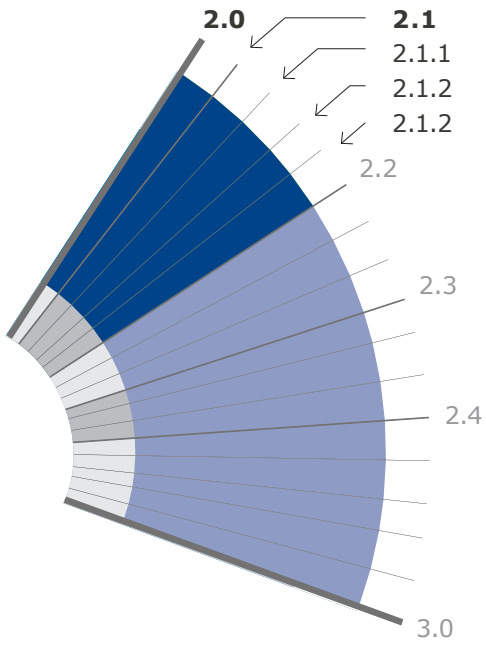
These 3 steps are iterative throughout planning



Benefits of defining and organizing

- A common understanding of the project objectives
- A solid project organization
- An infrastructure for team interaction and project processes

2.1 Establish the project organization



2.1 Establish the project organization
2.1.1 Identify the sponsor
2.1.2 Appoint the project manager
2.1.2 Identify the project team

Purpose

The first step in organizing the project is to clearly identify the project team. This helps to ensure that everyone understands their roles and responsibilities. Once the project team is defined, the project manager will communicate the project team roster.

2.1.1 Identify the project sponsor

Identify the individual who will approve and authorize the work of the project. The sponsor champions the project through the rest of the organization and provides the strategic and project portfolio connection.

2.1.2 Appoint the project manager

Identify the individual who will achieve the project objectives by leading the project team.

2.1.3 Identify the project team

Establish a multi-functional project team responsible for working with the project manager in the planning, managing, and operation of the project. The project team members play different roles which need to be defined and documented.

2.1.1 Identify the project sponsor

Purpose

Identify the individual who will approve and authorize the work of the project. The sponsor champions the project through the rest of the organization and provides the strategic and project portfolio connection.

Definitions

Project sponsor – A member of management who represents and supports the project team throughout the organization. The sponsor owns the project and approves all project plans.

Best practices

Define the project sponsor's role

Project sponsor roles

- Key Resonsibilites
  - Authorizes project
  - Appoints PM
  - Authorizes team
  - Protects/mentors/supports team
  - Approves plan
- Social contract with team
- Know your sponsor!

- Provides official backing, resources, strategic direction and approval for the project.

- Focal point for project decisions beyond the project manager's scope of authority.

- Typical responsibilities of project sponsor
  - Appoint the project manager.
  - Approve scope and objectives, including schedule and budget.
  - Obtain resources.
  - Issue directives as appropriate.
  - Monitor project environment.
  - Approve project changes, review progress and provide strategic direction.
  - Set priorities and resolve conflicts.

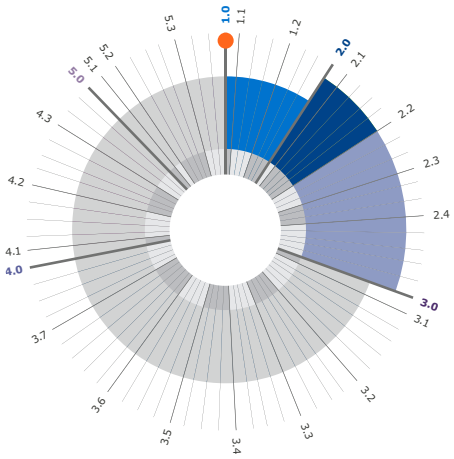
Identify the project sponsor

- Sometimes it’s hard to identify the sponsor – not obvious.

- Ask:
  - Who approves the plan?
  - Who approves the budget?
  - Who will the team go to for support?

- In matrix environment, there may be multiple sponsors (project and functional).

- Multiple sponsors can cause conflict.
  - Identify sponsors.
  - List specific roles and responsibilities.
  - Define a reconciliation process.



Who does this?

Depending on the organization, the sponsor is identified by the senior management team or individual which decides on the portfolio of projects. In some organizations the project portfolio management team names the sponsor; in other organizations
it may be a VP, for example.

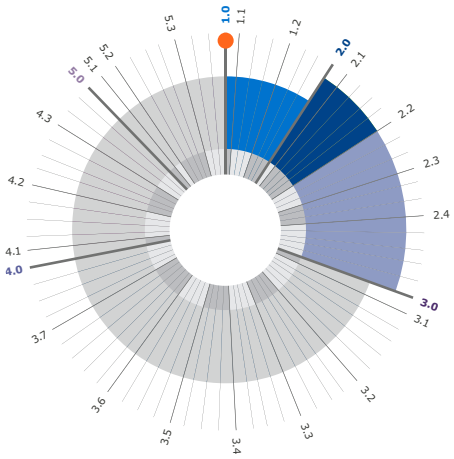
Completion criteria

The sponsor position has been formalized in a letter to all involved groups. The role and responsibilities of sponsor and project manager has been agreed to by the sponsor.

Process considerations

Stand alone project	As part of a program
The sponsor needs to be someone who will be accessible to the project manager and the team. Sponsors vary in how they interact with the project manager and team – from quite connected to hands-off. The project manager needs to work with the sponsor to determine how they will relate to each other. The project manager needs to insist on the type of support they need. Ideally, the sponsor needs to be someone in the company where the project resides. Sometimes an organization may refer to the "sponsor" as someone who is outside of that organization (such as an external customer). That outside person will usually have less ability to assist the project manager and team in resolving logistical and inter-departmental issues, among others. A preferred view is to have the project sponsor be internal and then, if necessary, have a "customer sponsor", with clear roles and responsibilities delineated. Global distribution and organization need to be considered in determining the best sponsor structure. Large, global projects may require regional sponsors, making coordination and decision-making a bit more difficult.	The project sponsor needs to be strategically aligned with the program sponsor. Very often the program manager is the sponsor of the projects within a program. In the case where the program manager is not the project sponsor, the project sponsor needs to remain connected with the other project sponsors within the program to assure that the project is defined appropriately.

2.1.2 Appoint the project manager



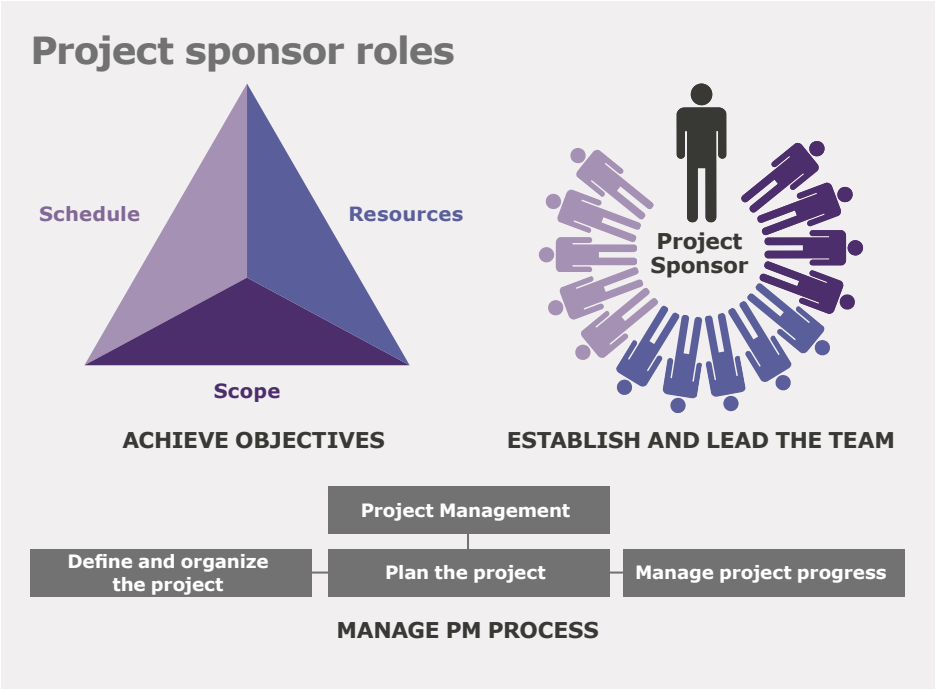
Purpose

Identify the individual who will achieve the project objectives by leading the project team.

Definitions

Project manager – The person responsible for achieving the project objectives. The project manager typically leads a project team.
Appointment letter – Media used to communicate the appointment and authority of the project manager and the project sponsor.

Best practices



Define the project manager's role

- Define the project management process.
- Prepare and obtain management approval of the project plan.
- Assure that all team members understand and accept their responsibilities.
- Expend project resources according to the approved project plan.
- Analyze the actual performance against the plan.
- Assure timely adaptive action is taken.
- Negotiate the performance of activities with team members and their managers.
- Establish priorities among project activities.
- Provide periodic status reports and information.

- Coordinate management and technical decisions.
- Arbitrate and resolve conflict and interface problems within the project.
- Provide input on the performance of project team members to their supervisors.

Characteristics of a successful project manager

- Totally problem oriented; sees the "big picture"
- Good motivator and team leader
- Effective communicator
- Familiar with company practices and processes
- Understands the project management process
- Maintains team player attitude
- Generalist rather than specialist
- Good organizer
- Goal oriented
- Willing to challenge internal/external obstacles
- Has an understanding of the technology involved in the project
- Is committed to the project's success
- Well respected by peers

Communicate the appointment of the project manager

- A written appointment minimizes confusion.
- Usually written by project manager for signature of the sponsor.
- Useful tool for the project manager to clarify responsibilities and create accountability.
- A written appointment makes a "public" statement about the project manager's role.
- The appointment is communicated to all groups and other stakeholders that are involved with the project.

POPULATION
HEALTH PARTNERS

Population Health Partners
8 Sylvan Way
Parsippany, NJ 07054 USA

Month XX, 20XX

Ron Woods
General Manager

All Users (list by name)

Effective January 2, 20xx, Jim Remick will serve as Project Manager of the Aries Project. Jim continues to report to Nicol Cellis during this assignment.

I will sponsor this project, and in that capacity, will approve the project plans. Jim is authorized by me to coordinate and manage this work. He is also authorized to issue directives relating to the project. His full responsiblites and authorities are outlined in the attachment.

Project team members in your departments will be responsible for managing their project activities so that they are completed under Jim's direction within the agreed-to scope, schedule and resource commitments. It is their responsiblity to inform Jim if they forecast and communicated as early as possible so that adaptive actions can be developed and implemented.

Please join me in welcoming Jim to this assignment. I know you will give him your full cooperation during all phases of this project and the support required to successfully complete the effort.

Sincerely,

Ron Woods

Attachment
(cc: Project Stakeholders, listed by name)

Position description

Project manager

Position Description

The project manager has primary responsibility for defining, planning, tracking and managing the project they are assigned. He/she is responsible for identifying key resources and providing the direction required to meet the project objectives. He/she is also responsible for ensuring appropriate management customer and supplier involvement throughout the life of the project.

Qualifications and skills of the project manager include an ability to lead and motivate people and encourage teamwork, an ability to communicate effectively with senior management, and a clear vision of what determines a successful product for the customer and for the company. In addition, the project manager must have a technical background sufficient to understand the technologies and technical issues involved with the product, to be able to identify critical technical obstacles, and to make accurate technology decisions.

The project manager also must be able to manage project schedule and task details and utilize project management tools such as reports, tracking charts, checklists, and project scheduling software and to delegate appropriately.

A detailed list of the project manager's responsibilities and authorities is included on the following page.

Who does this?

The project sponsor has the responsibility of identifying and announcing the project manager. The project manager may elect to author the appointment letter for the sponsor's signature.

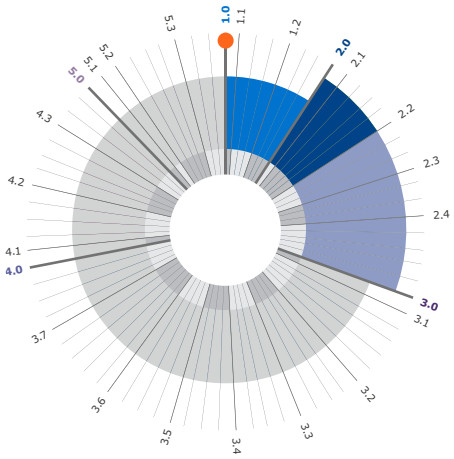
Completion criteria

A written project management appointment letter has been sent to all involved groups. Agreement has been obtained from the candidate's manager that he/she has the time available to manage the project.

Process considerations

Stand alone project	Additionally, as part of a program
The project manager must be proactive in determining how best to interact with the project sponsor.	The project manager may be a core team member of the program and/or other projects in the program.

2.1.3 Identify the project team



Purpose

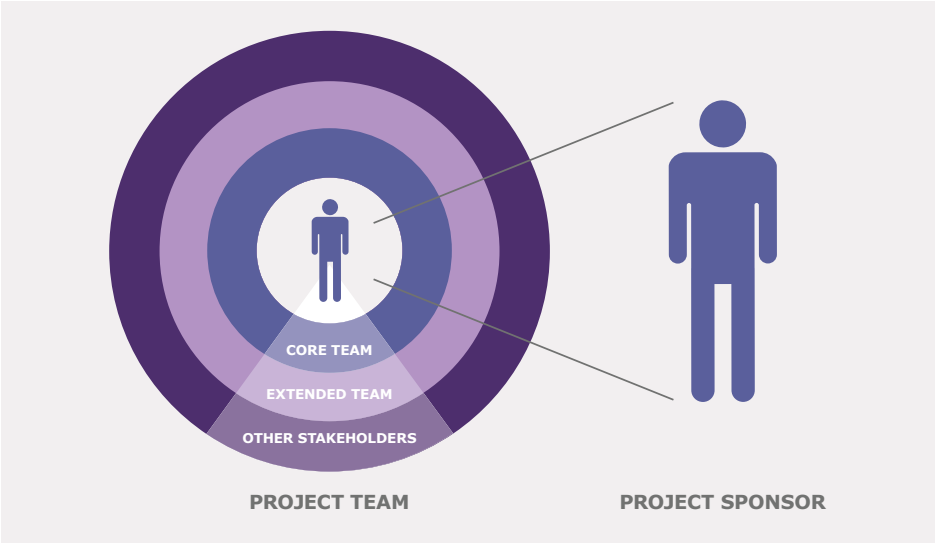
Establish a multi-functional project team responsible for working with the project manager in the planning, managing, and operation of the project. The project team members play different roles which need to be defined and documented.

Definitions

Project team – Anyone associated with the project, including the sponsor, project manager, core team, extended team, and those who will be performing tasks.
Core team – Individuals, representing different project functions, who are responsible for project planning and making project decisions. Typically, the core team is made up of the best available 5 to 7 individuals who are each representing one or more of the functions that are most affected by, or that most affect, the success of the project.
Extended team – Individuals who perform project work or whose expertise may be needed during the life of a project.
Team roster – A document showing the members of the project team and their contact information.

Best practices

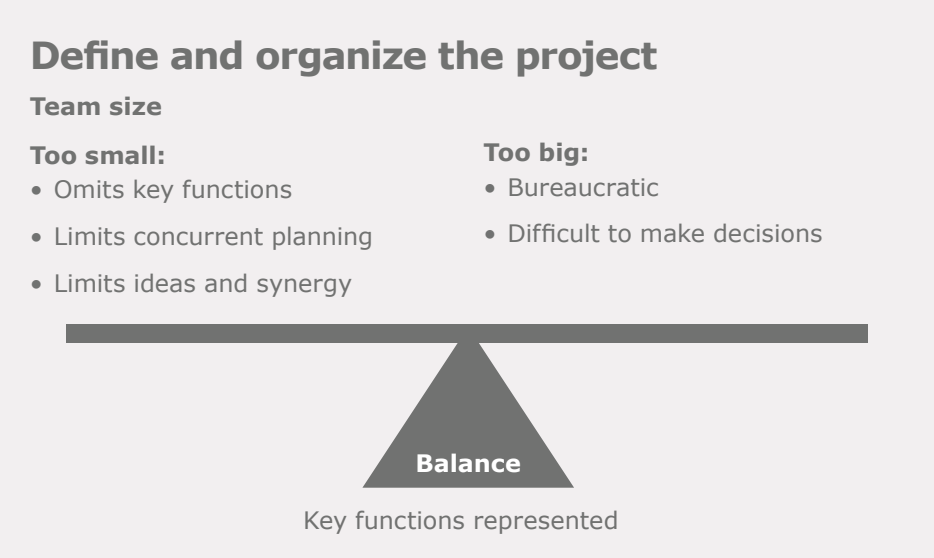
Identify project team/organization



- Determine what organizations need to be involved.
  - Review preliminary project description.
  - Consider both internal and external groups.
  - Include customer(s) if applicable.
  - Include groups from all phases of the project.

- Select core members from each identified organization .
  - Get commitment and buy-in from their managers.
  - Ensure that they have the time required for the project.
  - Get their commitment to the project.
  - Ensure that they can make decisions and commitments for their organization.

Define the core/extended team



- The project team consists of core members and extended members.
- Core members make major decisions and recommendations regarding the project.
- Extended members are either:
  - Identified individuals who will provide specific expertise to the project team (such as subject matter experts or a human resource representative).
  - Anyone else that will be working on tasks within the project.
- **Typically, the list of extended team members will grow through the planning process.**

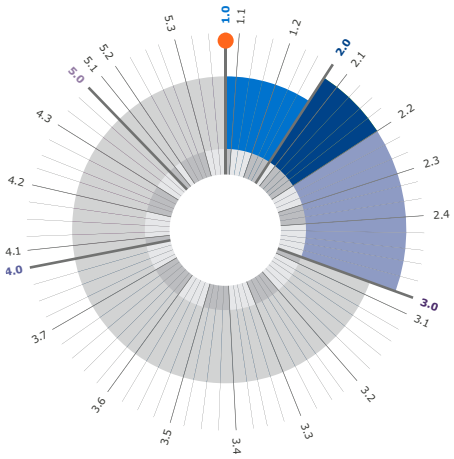
Define the team member roles

- Team members must take ownership of all project activities.
- Along with the project manager, they are directly responsible for the successful completion of the project.
- Thoroughly discuss the roles and responsibilities of every team member, including the sponsor.

Define the team member skills

- They must rely on each other and work well as a team.
- They must be personally committed to the success of the project.
- They must be technically competent in the area of their responsibility.

- Their skills must complement others in the group.
- Overlapping skills allow for changes in assignments at a later date.
- Critical skills which are missing will cause serious problems at some point in the project.
- Look for potential in addition to demonstrated ability.
  - The project manager is responsible for facilitating the development of team member skills where appropriate.
  - Ideally, each project should be a growth experience for all team members.



Project team roster

NAME	FUNCTIONAL ORGANIZATION	ROLE	RESPONSIBILITIES	SKILLS	% AVAILABLE	OTHER PROJECTS	EMAIL/PHONE

Create the project team roster

- Everyone associated with the project can be included in the member roster.
- Roles can be approver, team member, expert, customer, manager, stakeholder, etc.
- Roster can also contain other information such as responsibilities, percent allocation to this project, other projects assigned to, skills, etc.
- Consider initiating a project web-site – especially useful for geographically dispersed project teams.
  - Include team member photos, hobbies.
  - Eventually use for project plan communication and in track and manage.

Who does this?

The project manager is usually responsible for defining the project team; although sometimes the project sponsor will take that responsibility.

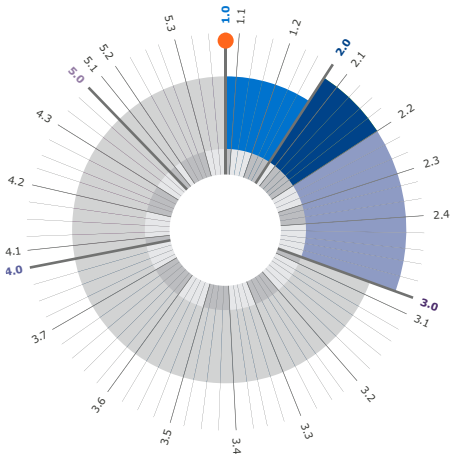
Completion criteria

Sponsor, project manager, core team and extended team members have been identified from each group involved in the project. Project team roster has been distributed. Any issues identified by functional managers relative to individuals participating on the team have been resolved. The current, approved project team roster has been placed in the project notebook.

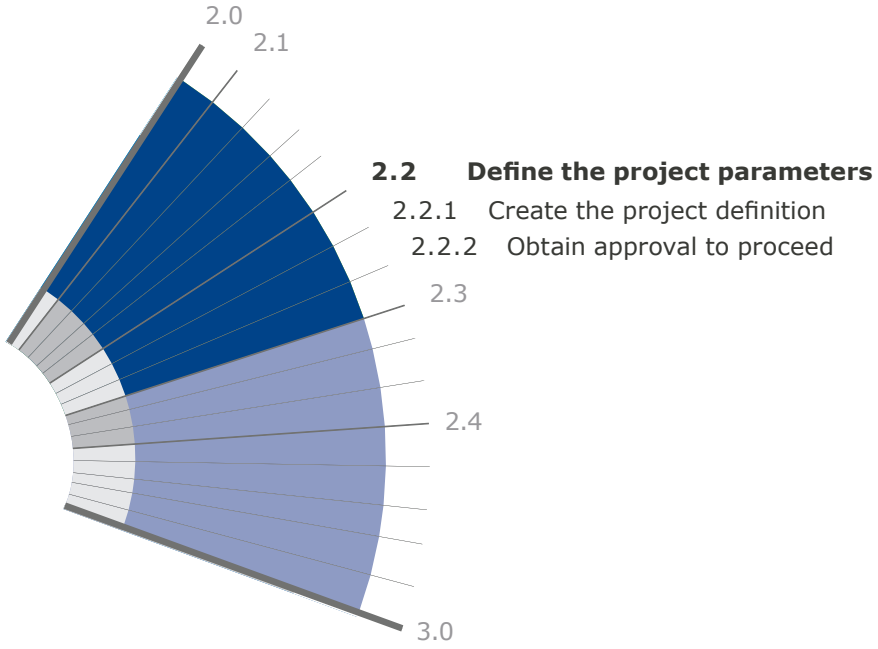
Process considerations

Stand alone project	Additionally, as part of a program
The project manager must get approval from functional managers in order to assign their people to the project team. Sending out the team roster to the functional managers for approval is one way to accomplish this. The team members need to have a desire in participating on the team. If they are not motivated to perform well, the rest of the team will suffer. External customers/suppliers could be core team members. Constructing the project team takes more time as the project complexity increases. Cross-organizational/ cross-functional teams require careful construction.	Core team members may be project managers for other projects within the program.

Do differently



2.2 Define the project parameters



Purpose

Once the project team is defined, their first task is to develop and ensure a common understanding of the project and objectives among all team members and with the project sponsor. The documents created need to include sufficient information about the project to support the subsequent planning process.

2.2.1 Create the project definition

Document the project team's understanding of the sponsor's project expectations. This documentation is used to clarify expectations with the sponsor and also to guide the project planning process later on.

2.2.2 Obtain approval to proceed

Gain the sponsor's approval to proceed to the planning phase of the project.

2.2.1 Create the project definition

Purpose

Document the project team's understanding of the sponsor's project expectations. This documentation is used to clarify expectations with the sponsor and also to guide the project planning process later on.

Definitions

Project Description Document (PDD) – The collection of documents that define the project.
Project Objective Statement (POS) – A short statement of the project's target scope, schedule, and resources.
Success criteria – A tool used to differentiate between what is included versus what is not included in the definition of success for a project.
Flexibility matrix – A matrix indicating how the project team should address changes in scope, schedule, and resources if project definition changes need to occur. The team will apply the matrix as a tool to guide recommendations regarding trade-offs in planning as well as guiding recommendations in dealing with issues during execution.
Major deliverable – A key project output. The major deliverables of a project are tangible items that are created as a result of the project work and that fulfill needs of internal and/or external customers.
Is / is not list – A tool used to differentiate between what is included versus what is not included in the scope of a deliverable or any other item being defined.
Customer – A customer is anyone who is a user of the project deliverables. Customers can be internal or external. Customers can be existing or targeted.

Best practices

Produce the sections of the Project Description Document (PDD) that define the project

Project description document (PDD)

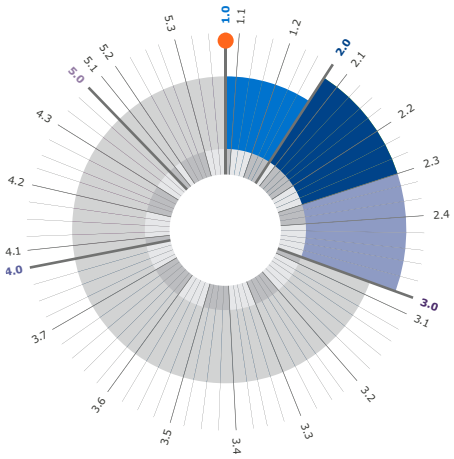
Project Objective Statement (POS)

Success criteria

Flexibility matrix

Major deliverables with is / is not lists

Other documents that add to the definition of the project



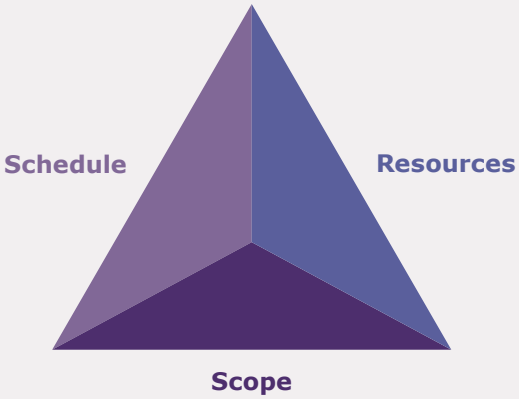
Define the project parameters immediately

- Avoid the "fuzzy front end".
- Concentrate the project teams efforts using focused meetings like workshops.

Create the Project Objective Statement (POS)

Project objective statement (POS)

- Concise
  - 25 words or less
- Clear
  - No ambiguity
  - Precise language
- Complete
  - Schedule, scope and resource targets



- The POS states the project targets.
  - **Scope:** What the project will accomplish
  - **Schedule:** When the project will start and finish
  - **Resources:** How much will be spent (people, money, etc.)
- The POS defines the targets for the project team's planning – these are not commitments.
- The POS does not state **why** the project exists – that was defined in the proposal.
- The POS provides clarity and focus for the project team.
  - It should be less than 25 words.
  - Use ordinary english (do not use technical jargon, buzzwords, or expertise specific phrases).
  - Remove ambiguity in the three project parameters.

Define the success criteria

Success criteria

What defines a successful project completion?

Standalone project	Standalone project
• Commercializing existing manufacturing technology • Ability to tune the laser beam to precision of 3.2 (on the LaserSharp scale) • Prominent position on the corporate home page • A premium version of the 5-P product	Standalone project • Laser technology development • Innovation and manufacturing technology • Upgrading 5-Ps currently owned by customers

- The success criteria define the requirements for project success.
  - What needs to be included?
  - What does not need to be included?
- May have already been created in the proposal document.

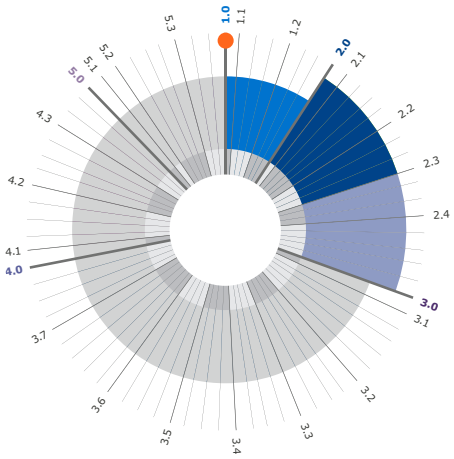
Project flexibility matrix

	Scope	Schedule	Resources
Least			
Moderately			
Most			

Using the flexibility matrix

	Scope	Schedule	Resources
Least	X		
Moderately			X
Most		X	

- Discussion and clarification with sponsor and key stakeholders
- May change over time and require validation
- Requires a conscious business decision to change

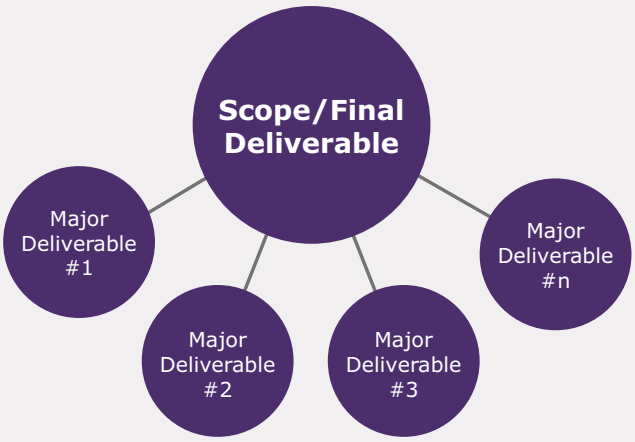


Create the flexibility matrix

- A project flexibility matrix helps the team determine the trade-off among scope, schedule and resources.
- When problems are encountered, which objective is the least flexible, which is moderately flexible, and which is most flexible.
  - Least flexible means this is the last element to be exceeded.
  - Moderately flexible means either maximized or minimized within project objectives.
  - Most flexible means that management is willing to exceed the original goal if necessary (this is not a license to go over budget or ignore the schedule!).
- The flexibility matrix explicitly states the basis for decision making.
- The matrix reflects flexibility at this point (no detailed planning has been done yet).
- The matrix will be reviewed again after preliminary planning is done.
- The matrix may change during the life of the project, but changes should always be formally defined and recorded.
- You need to describe the rationale used to determine why scope, schedule and resources are least, moderately or most flexible.

Define the major deliverables

Major deliverables



- Identify major, tangible deliverables from project
- Typically 3 to 10; 2 per quarter
- Describe completely including:
  - Is / is not list
  - Completion criteria
  - Date constraints

- The "deliverables" of a project are tangible items that are created as a result of the project work and that fulfill needs of internal and/or external customers.
- The Major Deliverables will define what the project is expected to produce.
- A common understanding of Major Deliverables provides scope and boundaries for the project team and serves to reduce rework cycles.

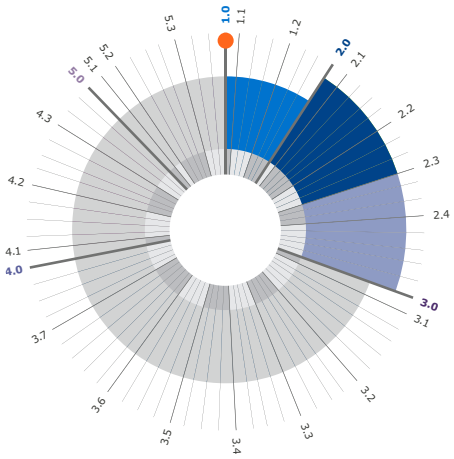
Use the is / is not list to clarify the deliverables

IS/IS NOT list

- POS: Implement an integrated employee systems database by 12/31/XX for $20 million
- Deliverables: hardware, software, training, documentation

SW – IS/IS NOT

IS:	IS NOT:
• Payroll system for active employees • Time reporting required to support payroll • Employee data (SSN, HMO, deductions, etc.) • User acceptance signed by VP of HR	• For employees on benefits • Project time data • Data for retired employees • Data > 3 years



- The is / is not list is a communication tool constructed of an "is" column and an "is not" column. The is / is not list is designed to define a deliverable in a binary way; i.e., each item is or is not included in the deliverable – there is no middle ground.
- Makes the deliverables tangible.
- Helps to manage expectations.
- You may also think of this as includes/excludes, in scope/not in scope.
- The is / is not list is also useful in applications where any item needs to be defined—not just for deliverables.

Identify customers and suppliers

- A customer is anyone who is a user of the project deliverables.
  - Customers can be internal or external.
  - Customers can be existing or targeted.
  - Suppliers are also customers.
- Each customer needs to be represented.
- The needs of all customers must be defined, including the individuals who:
  - Will actually use the project deliverable(s) on a daily basis.
  - Are responsible for the results produced by using the project deliverable(s).
  - Will make the financial decision of whether or not to purchase this project deliverable(s).
  - Are in the sales chain for the project deliverable(s).
- Once defined, customers and suppliers can be added to the project team roster (see previous section).
- Customers and suppliers might already be identified in the proposal. If that's the case, validate the list.

Identify customer and supplier requirements

- Use interviewing as a way to ask customers what their requirements are for major deliverables.
- While asking questions, distinguish between needs and wishes.
- Use is / is not list technique to define the scope of each major deliverable.
- Ask what is and is not included.
- Define completion criteria and date constraints for each deliverable.
- Document all collected information.
- State the needs in quantifiable terms and define why they are of benefit to the customer.
- The thoroughness of this step will directly impact the success of the project.
- The requirements of the customers and suppliers might already be identified in the proposal. If that's the case, validate the requirements.

Assemble the Project Description Document (PDD).

- The PDD is the collection of documents that have to do with the definition of the project. In addition to the documents created in 2.2 Define the project parameters, the PDD will eventually include high level milestone targets from the baseline plan.

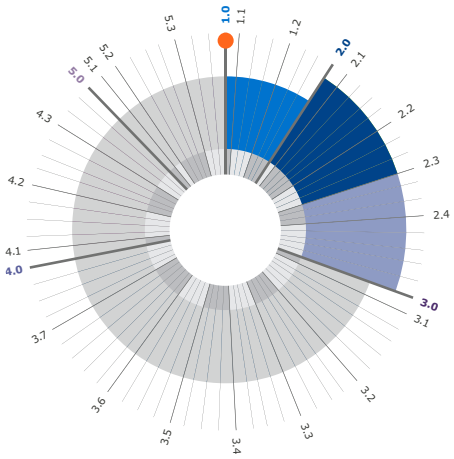
- At this point, the PDD should contain:
  - The POS
  - Success criteria
  - Major deliverables, with is / is not lists
  - Flexibility matrix, and its description
  - High level schedule targets
  - Assumptions

Update the project notebook

- At this point the project notebook should contain:
  - PDD
  - Proposal data
  - Team roster
  - Strategic alignment (why are we taking on this project at this time)
  - Dependencies (committed dates, commitments to/from other projects), if available
  - Target customer(s)
  - Staffing (in terms of skills and balance of experience)
  - Hardware and software required
  - Risk of doing project vs. not doing (impact assessment)
  - Cost/benefit analysis
  - Technology required
- More documents will eventually be added to the project notebook:
  - Processes and procedures
  - Detailed plans
- Questions to assist in developing the project description:
  - What are the objectives and constraints?
  - Why do we want this project done? Why now?
  - How will we know that the project is complete?
  - How will we know if it is successful?
  - What are the risks?
  - What assumptions are we making?
  - What implementation constraints are there?

Who does this?

The project manager and the core team are the primary contributors to the project parameters. This group may invite other individuals, such as extended team members or functional managers, to participate in the creation of these documents.



Completion criteria

A project description document has been created that includes the following documents as a minimum:

- Project Objective Statement (POS)
- Success criteria
- Flexibility matrix
- Major deliverables
  - Is / is not lists

The project notebook has been updated to include:

- Team roster

Process considerations

Stand alone project

Some project teams tend to define the project parameters as what they want them to be or what they think they can actually achieve on the project. The parameters should be a description of what the sponsor wants. This can be an indicator that the team is not using the proposal as a starting point.

The project parameters are the team's conception of what the sponsor expects as a result of the project work. They are a refinement of the project definition contained in the proposal.

Begin the collection and tracking of "assumptions", "issues", "actions", and "risks" as soon as the team starts to meet.

Additionally, if part of a program

The project manager/team must obtain (if not participate in the creation of) the program parameters prior to establishing the project parameters (see section 2.3). Then, once completed, the project team needs to integrate their project parameters with that of the other projects within the program.

This integration includes identifying what you need from other projects in the program (input) and responding to requests for deliverables from other projects in the program (output).

2.2.2 Obtain approval to proceed

Purpose

Gain the sponsor's approval to proceed to the planning phase of the project.

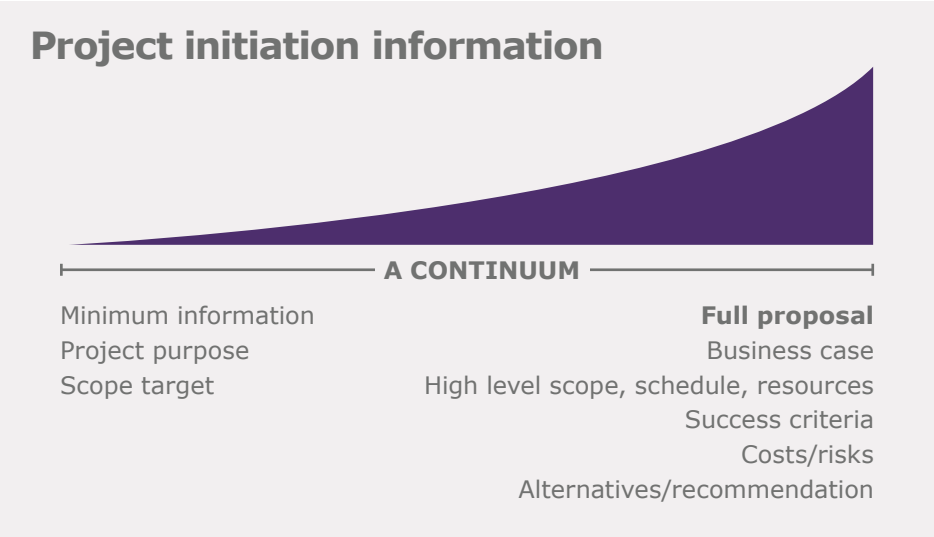
Definitions

Cycle of validation – A "meeting-of-the-minds", a process to assure that the project team understands the intent/expectations of the sponsor.
Key validation point – A point in the project management model where the project team needs to validate its progress-to-date with the sponsor before moving to the next process step.

Best practices

Obtain team concurrence/validation

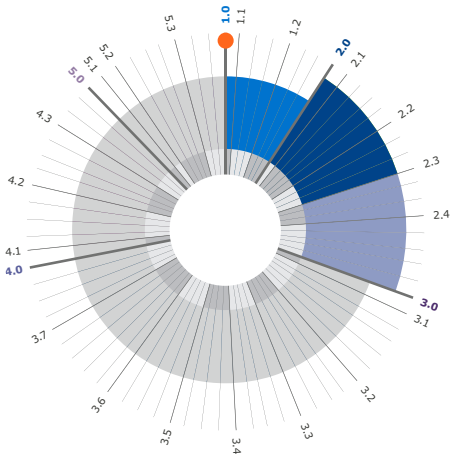
- All parties involved must participate and approve of the project definition.
- Document all assumptions.
- A clear common understanding of the project description and priorities is essential to the success of the project.



Obtain management concurrence/validation

- Present the team roster, project objective statement, major deliverables and flexibility matrix (plus any other documentation that helps to describe the project) to management and get approval to proceed.
- Approval solidifies understanding of the top down goals and sets expectations.
- This is the second key sponsor validation point (the first was in initiating the project). The project team is not recommended to move on to planning prior to completing this step. The "is / is not" of this key validation point:

IS:	IS NOT:
• Anchoring of the objective • An approval to plan up through at least optimization • An alignment step between the team & sponsor (objective only) • An alignment step for flexibility matrix and is/is nots • A step that may indicate iteration is necessary	• An approval to proceed with the whole project • A commitment to deliver the objective • A presentation of the whole plan



Who does this?

The project manager, with appropriate support from the project team, holds the necessary meetings and gathers/creates the materials, in preparation for the first cycle of validation with the sponsor. The project manager (with the core team, if possible) meets with the sponsor in a cycle of validation. The sponsor either approves, sends the team back for more work, or cancels the project altogether.

Completion criteria

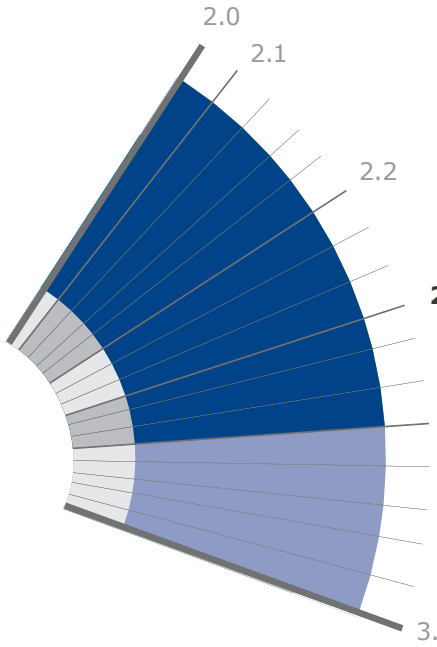
The sponsor-approved project description document, including the project objective statement, major deliverables with is / is not lists, and flexibility matrix, as well as possibly other documents, has been saved in the project files.

Process considerations

Stand alone project	(Extra) If part of a program
The dycle of validation is much more effective if the sponsor receives an advanced copy of the project description document prior to the actual meeting. Some sponsors will prefer to receive a one-to-two page summary prior to the review. This is especially important for fast-moving projects where key decisions need to be made over a period of days.	The project team may have to meet multiple times with the project sponsor while the program-driven project requirements/objectives are developed and approved.

Do differently

2.3 Integrate project scope



2.3 Integrate project scope

2.3.1 Integrate project parameters into program parameters

2.3.2 Update and finalize project parameters

Purpose

Note: this project management model step is performed only when the project is part of a program.

When the project is one of other projects in a program, the project team makes sure that their project definition is consistent with the program scope prior to working on the detailed project planning. This ensures that the project team will be using the appropriate targets for their plan.

2.3.1 Integrate project parameters into program parameters

Once completed with the project parameters (section 2.2), the project team works with the program team in ensuring that the project parameters are consistent with the program parameters.

2.3.2 Update and finalize project parameters

The project team makes any changes to the project parameters documents and validates the project parameters with the project sponsor.

2.3.1 Integrate project parameters into program parameters

Purpose

Once completed with their project parameters (section 2.2), the project team works with the program team in ensuring that the project parameters are consistent with the program parameters.

Definitions

Program definition workshop – An organized, facilitator-led session used to define a program.

Program parameters – A set of documents including:

- Program objective statement
- Program success criteria
- Program flexibility matrix
- Program deliverables, with is / is not lists

Best practices

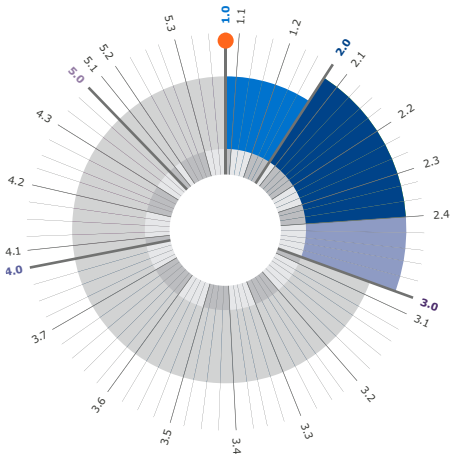
Participate in the program parameter definition process

Review project initation information

Test for:

- All the right components of information
- Validity/current relevance – many months could have elapsed since project approval
- Update where necessary
- Validate with the sponsor

- Prior to completing define the project parameters (2.2), participate with the program manager and other program team members in defining the program parameters.
- Make sure that the program parameters are defined clearly enough to develop the project parameters later on.



Validate project objectives resulting from the program parameter definition process

- Prior to defining the project parameters, meet with the project sponsor to validate the high level project objectives.
- Close any issues that the project sponsor may have with the project objectives.

Participate in the program scope integration process

- Participate with the program manager and other program team members in integrating the project scope in with the other projects of the program. A workshop format is quite effective.
- During the integration process, make sure that the information generated is sufficient to develop the project parameters.

Who does this?

The project manager interfaces with the program manager in arranging for the participation in the program scope integration process. Selected members from the project team may be asked to help.

Completion criteria

The project manager and the project sponsor have successfully completed a cycle of validation on the high level project objectives.

Process considerations

- Insist on best practices for integrating program scope.
- Test your understanding of the project scope for your project prior to leaving the program scope integration session.

2.3.2 Update and finalize project parameters

Purpose

The project team makes any changes to the project parameters documents and validates the project parameters with the project sponsor.

Best practices

Update all project documents to reflect the decisions made in the scope integration sessions

- Make sure that the final project parameters are consistent/compatible with the program parameters.
- Make sure that all copies of the old project parameter documents are replaced with updates.

Validate project objectives resulting from the program parameter definition process

- Validate the project objectives with the project sponsor.
- Document/resolve any issues that the project sponsor may have with the project objectives.

Who does this?

The project manager is responsible for assuring that the project parameter documents are updated.

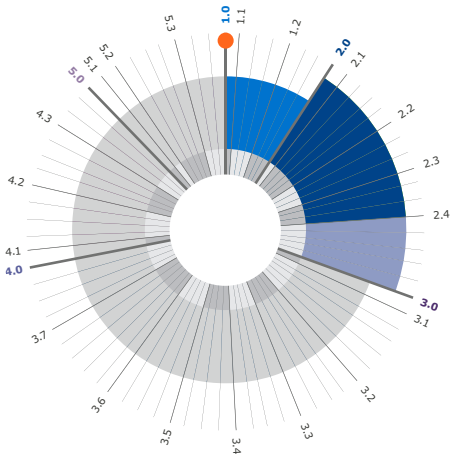
Completion criteria

All project parameter documents have been updated and stored in the project file.

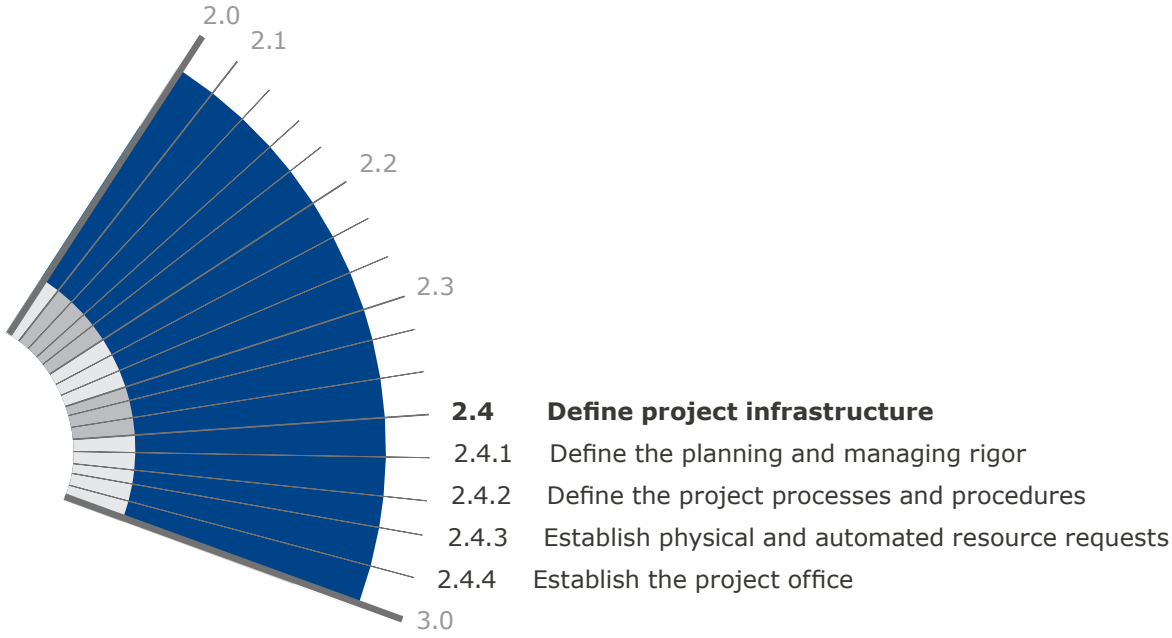
Process considerations

Project teams may have a tendency to move ahead with project planning prior to finalizing the project parameters.

Do differently



2.4 Define the project infrastructure



Purpose

The project manager and team establish the project infrastructure that will provide an effective environment for maximum project success. The infrastructure requirements will vary based on the unique project needs and whether a centralized project management office exists.

2.4.1 Define the planning and managing rigor

The project manager defines the "rigor" with which the project team will plan and manage the project. The rigor is determined by factoring in a number organizational, business and project forces.

2.4.2 Define the project processes and procedures

The project processes and procedures define the planning, tracking, practices and relationship decisions made by the project team. The project team needs to contribute to these decisions and the decisions then need to be documented and communicated throughout the project community.

2.4.3 Establish physical and automated resource requirements

Establishing the physical resources is essential to the success of the project. Facilities and office equipment, computer-based infrastructure, and any other unique requirements need to be identified and installed.

2.4.4 Establish the project office

If necessary, a project office is created to provide the administrative aspects of planning, tracking and communication within the project community.

2.4.1 Define the planning and managing rigor

Purpose

The project manager defines the "rigor" with which the project team will plan and manage the project. The rigor is determined by factoring in a number organizational, business and project forces.

Definitions

Scalability – A characteristic of the PM model where it can be applied to all projects – many or few tasks, high or low cost, many or few contributors, etc.
Rigor – The extent of precision or flexibility with which each process step in the project management model is applied.

Overview

One of the key characteristics of the planning and managing projects model is its scalability based on the nature of the project work. By scalability we mean the model can be applied to all projects —many or few tasks, many or few contributors, high or low cost, complex or simple deliverables, new invention or familiar project work, etc. This, then, raises the question of how to scale the process appropriately for any given project.

Scalability of the process is achieved by applying more or less rigor to the process steps in planning, tracking, and managing the project. By rigor, we mean the extent of precision or flexibility with which each process step is applied.

In determining the appropriate planning rigor, we consider a number of project factors as well as the priority of the project objectives (flexibility matrix). An appropriate degree of rigor can be determined for the overall planning and managing processes, and within the overall process, appropriate rigor can be applied through specific techniques to maximize the efficiency of planning and managing to the priority of the project objectives.

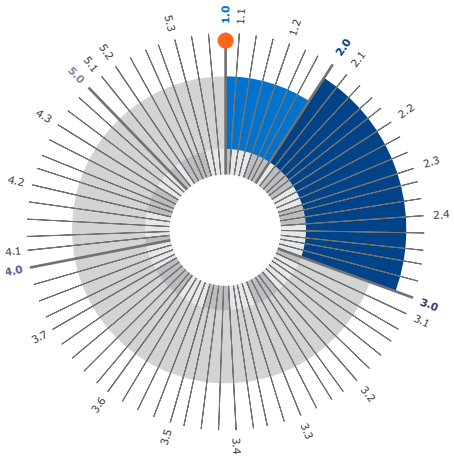
Additionally, note that for any given project, some steps in the model may require, say, high rigor; where other steps may require low rigor.

Best practices

Use the rigor criteria in establishing the planning and managing rigor

Establish the project planning and managing rigor

- Determine the rigor of planning and managing for the project
  - The extent of precision or flexibility with which each process step is applied
  - Based on multiple considerations
- This determination of rigor will greatly influence the planning and managing steps



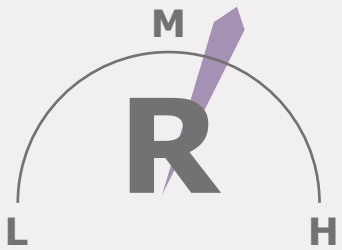
- "Rigor" refers to the extent of precision or flexibility with which each process step in the project management model is applied.
- Within the same project, the rigor of one PM model step might be different than the rigor of another.
  - For example, for an urgent (one month) but highly visible project, the rigor of defining all of the project tasks might be low; but the rigor in communication during tracking and managing might be high.
- The rigor criteria will be different for each organization.
- The portfolio management team or the project management office may be responsible for developing and maintaining the criteria.

- An example of rigor criteria from one company is shown here:

Project characteristics for determining leve of project planning required	**Level of overall project planning complexity**		
	tier 1	tier 2	tier 3
Level of risk	Low	Medium	High
Strategic importance	Low	Medium	High
Customer-facing	No	Yes, at low level	Yes, at high level
Complexity	Low	Medium	High
# People involved	<5	5-8	>7
# External resources involved	0	1-2	>2
# Physical locations	1-2	2-3	>3
# Interfaces with other parts of the organization	Low	Medium	High
Importance of speed to execution	Low	Medium	High
Estimated $$ involved	<$25k	$25k-$75k	>$75k-$100k
Estimated length	<3 months	>3 months	>6 months
Involves technologies new to the organization	No	Yes	Yes
Invovles technologies new to the team	No	Yes	Yes
Scope / requirements definition	High	Medium	Low
Level of upward management interfaces	Director/Manager	VP-SVP	SVP-CEO
Sponsor level	Director/Manager	VP-SVP	SVP-CEO
% of project manager's time required to manage project itself	Very Low	Medium	High
Tier Selection			

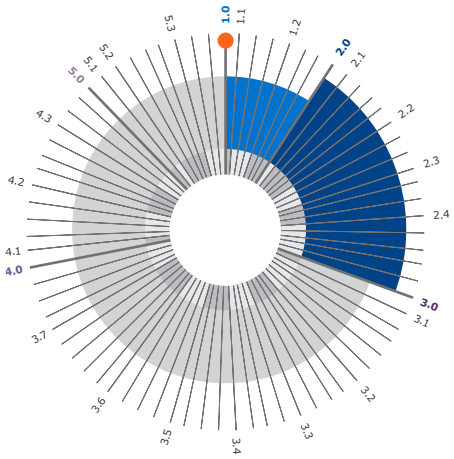
NOTE: This is not an averaging exercise. If "strategic importance" is HIGH, and the "speed of execution" is HIGH, then the project may need to be managed as a Tier 3.

Planning and managing rigor



The "Rigorometer"

	H	M	L
Cost			
Potential Revenue			
Complexity of Solution			
Public Visibility			
Political Sensitivity			
Customer Criticality			
Number of Interfaces			
Global Team Dispersion			
Extent of "Invention"			



Discuss the rigor criteria with the project team

- Make sure that all members of the team, including the sponsor, have contributed to the understanding of how the values of the criteria were defined and how they will be applied to the planning and managing steps.
- Resolve any issues that may develop.

Who does this?

The project manager fills in the matrix and discusses it with the project team and the sponsor.

Completion criteria

The rigor criteria has been discussed with the project team and the sponsor; and any issues have been resolved or documented.

Process considerations

Stand alone project	Additionally, if part of a program
Discussing the rigor criteria with the sponsor is an excellent way to understand and validate how the sponsor approaches certain project issues – part of "getting to know your sponsor". Involve the Project Management Office (PMO) in the rigor criteria discussion. Build an organizational mastery around constructing and analyzing rigor criteria.	Discuss the rigor criteria with the program team to make sure everyone is consistent with how they will be managing their planning and managing.

2.4.2 Define the project processes and procedures

Purpose

The project processes and procedures define the planning, tracking, practices and relationship decisions made by the project team. The project team needs to contribute to these decisions and the decisions then need to be documented and communicated throughout the project community.

Definitions

Processes and procedures checklist – An organized list of questions used by the project team to decide on procedures and practices.

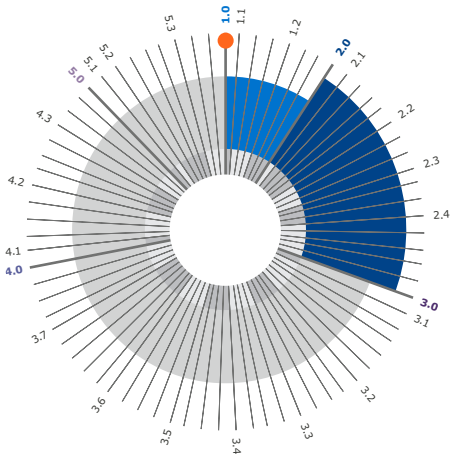
Best practices

Processes and procedures categories

Planning	Tracking	Practices	Relationships
Development	Tracking	Project file	Ownership
Deliverables	Reporting	Managing change	Communication
Tools	Meetings	Continuous improvement	Escalation
		Lifecycle	

Create and follow a processes and procedures decision checklist process

- The checklist is only a guide.
- All categories should be reviewed.
- Develop a draft checklist for your project.
- Prepare draft answers where appropriate.
- Ensure that critical information is included.
- Encourage shorter meetings.
- The project manager must look at the “big picture”.
- Write down reasons for each decision.
- Write down all assumptions.
- Add or delete items from the checklist as needed.
  - Project
  - Organization
  - Environment
  - Customer



Research the information sources

- Sources of information.
  - Historical information
  - Past project reviews
  - Other project managers
- Solicit input from the project team members.
  - Build from their experiences.
  - Get their buy-in on decisions.

Establish a central location for processes and procedures decisions common to many projects

- A document that defines certain processes and procedures decisions across all projects within an organization.
  - Change management process
  - Project scheduling tool
  - Etc.
- Excellent role for a Project Management Office (PMO).

Discuss the processes and procedures questions and decisions with team members

- Discuss each item on your processes and procedures decisions checklist.
- Encourage discussion of alternative processes.
  - The team will have to live within the processes and procedures it creates.
  - Build a sense of team accountability for decisions.
  - Reach agreement.
- Make clear which items have been constrained by others.
  - Discuss reasons for constraint.
  - Gain buy-in to decisions made or if strong objections persist, consider further discussions outside of the meeting.
- Write down all unresolved issues, assign an owner and determine a due date for resolution.

Follow an effective review process to finalize the processes and procedures decisions

- Keep decisions in the project file for reference.
- Be sure each team member has a copy.
- If modifications are requested, get agreement, update documents and reissue.

Who does this?

The project manager is responsible for finalizing the processes and procedures decisions. The project manager is responsible for assuring the understanding of all team members. The project manager is responsible for identifying where the processes and procedures decisions master document will be kept, and assuring that it has been placed there. The project manager also assures that each member has a copy of the processes and procedures decisions.

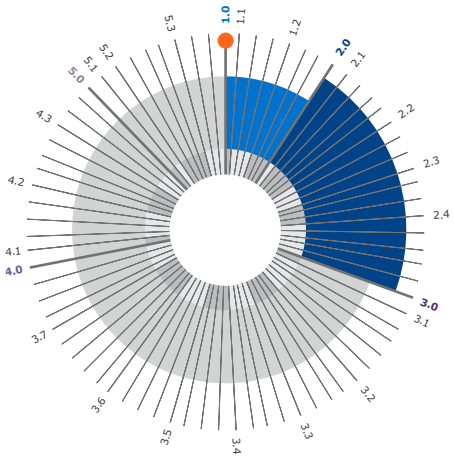
Completion criteria

The completed processes and procedures decisions has been distributed. The processes and procedures decisions document has been filed in the project notebook for reference.

Process considerations

Stand alone project	Additionally, if part of a program
Project teams may want to hurry through this step - or skip it altogether. Help them stay consistent with the process. Processes and procedures decisions may need to change during the life of a project. Be aware of when a change is necessary, then follow the change process in modifying the processes and procedures decisions, and communicate the change.	The project processes and procedures decisions must be compatible with the program processes and procedures. The program processes and procedures decisions take precedence over the project processes and procedures decisions. Some proposed changes to the project processes and procedures may affect the program. The program processes and procedures take precedence.

The processes and procedures planning checklist



Planning decisions

Development

- ☐ Who is responsible for developing the project plan?
  - If more than one person, who should be involved?
  - What are the specific roles and responsibilities of each participant?
- ☐ What does the plan include?
  - Does it meet customer's/management's needs?
  - What product or service life cycle will it follow?
- ☐ Will meetings/workshops be needed to define the project plan?
  - When and where should they be held?
  - Who will attend?
- ☐ Who needs to be informed of decisions made?
  - How will they be kept informed?
  - Will a list of terms be distributed for better comprehension?
- ☐ Is there a plan to continuously improve our management of the project?
  - Is there past experience on similar projects?
  - How can we use it?

Planning output

- ☐ What are the outputs from the planning process?
  - In what format will they be presented?
  - How detailed should they be?
  - Who needs to receive them?
  - Who is responsible for them?
- ☐ How will we know that each output is completed?
  - Who will assess the quality of each output?
  - Who needs to approve and sign off at the completion of each output?
  - How will we know that it has been signed off?

PM tools

- ☐ What project management tool(s) are we going to use?
- ☐ What equipment is required to support the tool(s)?
  - Will all sub-projects use the same tool?
- ☐ Who will operate the chosen tool?
  - Who will enter planning and tracking information?
  - Who will need training to operate the tool?
  - Who will provide technical support for the users of the tool?
- ☐ What additional software do we need in order to support the project management tool?
  - For financial related issues
  - For action items, follow-up, etc.
  - For documentation

Technology

- ☐ How does the proposed technology meet the organization's needs?
  - Business needs
  - Mastery needs
  - User needs
- ☐ How would the proposed technology promote and support best practices?
- ☐ What specific efficiency or productivity gains can be expected?
  - Collaboration
  - Execution
  - Resources
- ☐ How would the proposed tool enable individuals and teams to perform their tasks better?
- ☐ How do you access, maintain, and analyze:
  - Data
  - Information
  - Knowledge
- ☐ What implementation support should we seek?
  - Systems integration
  - Customization
  - Scalability
  - Security
- ☐ How will this technology enable us to generate additional revenue?

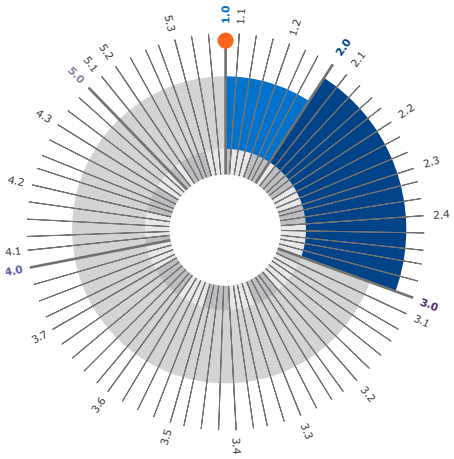
Tracking decisions

Tracking

- ☐ How will we assess progress?
- ☐ How will we get data from the project team members and others about the progress of each activity?
- ☐ How often will we get this data?
- ☐ At what level of detail will we track the project?
- ☐ Who will assess the impact of each variance?

Progress review meetings

- ☐ What types of meetings will we hold? (E.g., general, top level, activity specific, etc.)
  - Where will they be held?
  - How often will they be held?
- ☐ Who will define the strategy and method for managing meetings effectively?
  - Who will run these meetings?
  - Who will produce an agenda to be distributed before each meeting?
- ☐ Who should be included in each type of meeting?
  - In what format should the meeting information be presented?
- ☐ Who will keep minutes of the meetings?
  - Who will produce them?
  - To whom should they be distributed?



Reporting

- ☐ What reports will be generated?
  - Who will generate, analyze and distribute them?
  - To whom should they be distributed?
- ☐ What content is appropriate for each audience?
  - How detailed should status reports be for each audience?
  - What formats (tabular, narrative, graphic) communicate best to each audience?
- ☐ What criteria will we use to define an exception for exception reporting (e.g., deviation, spot light, urgent action, etc.)?
  - Who initiates these reports?
  - Who will receive and analyze exceptions reports?

Note: Exceptions may be defined differently depending on the roles and levels of people to whom they are addressed.

Practices decisions

The project file

- ☐ What should the project file contain?
  - How will all project information be kept?
  - Who will create the project file?
  - Who will update and maintain it? Will changes to the file be allowed?
  - If so, by whom? Has a filing system been set up for all documents?
  - Where will the file be located (on-line, paper copy, library, etc.)?
  - Who will have access to the file (to update, change for information only, etc.)?
- ☐ For how long will the file be kept after project completion?
  - Who will keep it after project completion?
  - How will it be used?
  - Where will it be stored?

Managing change

- ☐ When will the plan baseline be frozen?
  - Who will make the decision to freeze the plan?
  - What will the decision to freeze it be based on?
- ☐ What criteria will we use to define change (e.g., design changes, baseline changes, schedule changes, etc.)?
  - Who will define the change management process we will use?
  - Who will maintain the change log?
- ☐ Who will have change approval authority?
  - What documents will be presented for change approval?
  - How will we document approved plan changes?☐ How will we assess the impact of changes?
  - Who will set adaptive actions?
  - How will we track the effectiveness of these adaptive actions?
- ☐ How will we decide whether to update the baseline plan?
  - How much deviation from the plan are we willing to accept before doing a total reschedule?
  - How will we link revision to the change management process?

Continuous improvement/project assessment

- ☐ Will a project assessment meeting be held?
  - Who will attend?
  - What subjects will be addressed?
  - How often during the project life will an assessment be done?
- ☐ How will we document the project assessment so that others can learn from our experience?
  - What information should be kept to provide a historical basis for continuous improvement?

Project lifecycle

- ☐ Which lifecycle will be used?
  - Is there a standard (common) lifecycle?
  - Are we going to define one for this project?
  - Who is responsible for defining it?
  - By when should it be fully defined?
- ☐ What is the release plan process for this project?
  - Is the product release part of this project?
  - Who owns the release plan?
  - By when should the plan be fully defined?
  - Who has the authority to approve it?

Relationship decisions

Ownership

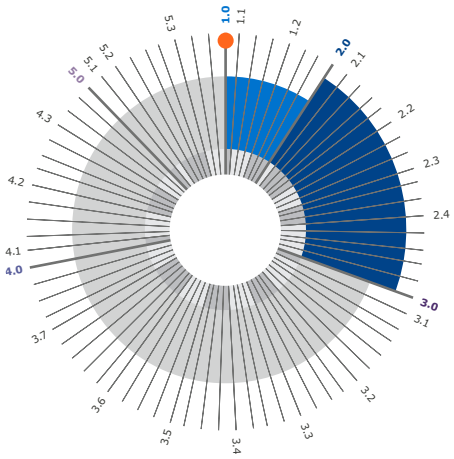
- ☐ What departments or organizations will we need to interact with during the life of the project?
- ☐ What are the roles and responsibilities of each organization (reviewer, approver, creator, etc.)

Communication

- ☐ How do we communicate?
  - Among ourselves (project team) and with others outside the team?
  - How frequently do we need to communicate?
- ☐ How will we keep all involved parties informed of deliverables, schedule dates, expectations, problem areas, etc.?
  - Are there specific communication milestone dates or intervals?
  - What information will and will not be exchanged?
- ☐ How will we resolve geographical communication problems?
  - Will we make use of video conferencing?
  - Will we need Collaboration Tools; i.e., Internet viewing of meeting documents?
  - How will we resolve any issues around different languages and cultures?

Escalation

- ☐ What is the process we will use to resolve disagreement?
  - What is the conflict resolution process?
  - What is the standard decision making process?
- ☐ What is the escalation process we will use for making decisions?
  - Who has final decision making authority?
  - Who decides when to escalate a problem?



2.4.3 Establish physical and automated resource requirements

Purpose

Establishing the physical resources is essential to the success of the project. Facilities and office equipment, computer-based infrastructure, and any other unique requirements need to be identified and installed.

Definitions

Physical needs – Any non-computing office requirements, such as desks, office space, etc.
Automation needs – Any computing-related office requirements, such as computer hardware/software, Inter/intranet connectivity, etc.

Best practices

Team logistics

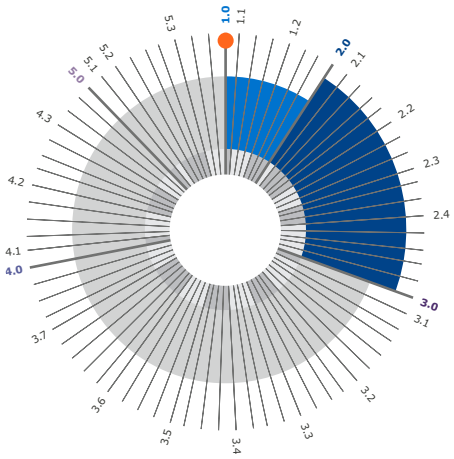
Physical needs

- Facilities
- Office equipment
- Communication equipment and infrastructure
- Furniture

Automation needs

- Hardware
- Software
- Intranet
- Networks
- Website

Define the physical needs of the project team
- Meeting rooms; i.e., "War Room"
- Co-location space
- Visitors space
- Labs
- Telephones, network lines
- Office furniture



Define the automation needs of the project team

- Hardware
- Software
- Networks
- Intranet
- Project web-site

Develop and implement the plan to fulfill the physical and automation needs of the project team

- Validate with the sponsor.
- Obtain commitments from providers.

Who does this?

The project manager is responsible for defining and implementing the project physical and automation requirements.

Completion criteria

An infrastructure plan has been approved by the project sponsor; and commitments have been gained by the providers.

Process considerations

Stand alone project	Additionally, if part of a program
The physical and automated resource requirements need to be addressed very early in the project definition phase due to potential long lead items, like finding office space or purchasing computing equipment.	

2.4.4 Establish the project office

Purpose

If necessary, a project office is created to provide the administrative aspects of planning, tracking and communication within the project community.

Definitions

Project office – A project office is a single organizational entity established to be the focal point of all project management and communication functions. The project office is different from a project management office, which is usually the name
for a general support function for all projects within an organization.

Best practices

Project office

Determine need

- Large
- Complex
- High visibility
- Urgent

Establish the project office

- Communicate purpose
- Communicate processes

Determine if a project office is appropriate for the project

- A project office may be recommended when the amount of information and the speed of change requires a central location for planning, tracking and communication:
  - The project is high urgency, high visibility and/or high complexity.
  - The project sponsor is heavily involved with the management of the project.
  - The project team members have little experience on projects or have not demonstrated the ability to independently manage their portion of the project.

Establish the project office

- Communicate the purpose.
- Communicate the logistical information.
  - Physical location
  - Telephone number
  - Web address

Who does this?

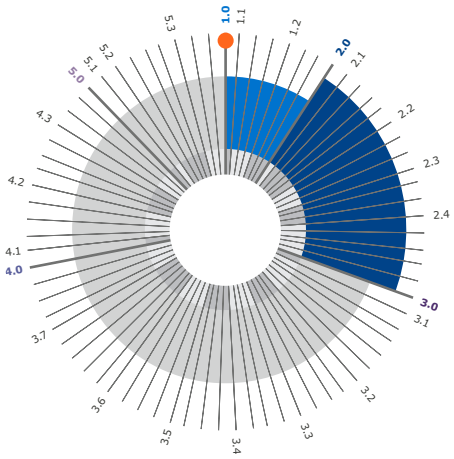
The project manager considers the option of establishing a project office. The decision may be in the hands of the project sponsor.

Completion criteria

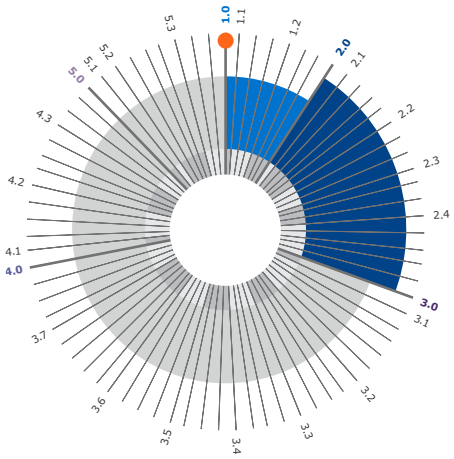
The project office has been established and the communication as to how to interface with it has been completed.

Process considerations

Stand alone project	Additionally, if part of a program
Take advantage of existing support functions such as a project management office (PMO).	The project office needs to be in close collaboration with the program office.



Do differently


1.0
1.1
1.2
2.0
2.1
2.2
2.3
2.4
3.0
3.1
3.2
3.3
3.4
3.5
3.6
3.7
4.0
4.1
4.2
4.3
5.0
5.1
5.2
5.3

1.0 Initiate the project
1.1 Review the project proposal
1.2 Validate proposed objectives

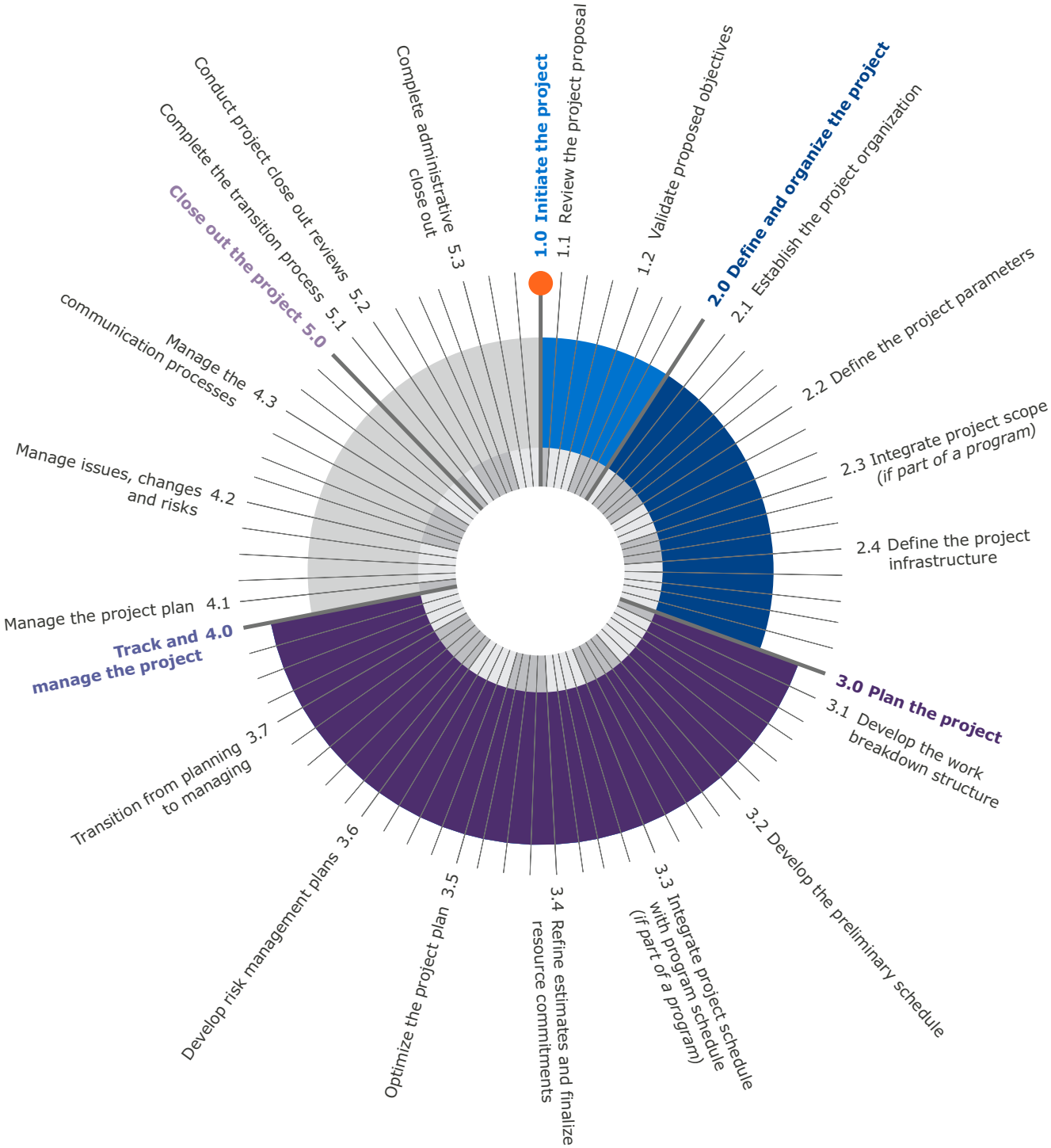
2.0 Define and organize the project
2.1 Establish the project organization
2.2 Define the project parameters
2.3 Integrate project scope *(if part of a program)*
2.4 Define the project infrastructure

3.0 Plan the project
3.1 Develop the Work Breakdown Structure (WBS)
3.2 Develop the preliminary schedule
3.3 Integrate project schedule with program schedule *(if part of a program)*
3.4 Refine estimates and finalize resource commitments
3.5 Optimize the project plan
3.6 Develop risk management plans
3.7 Transition from planning to managing

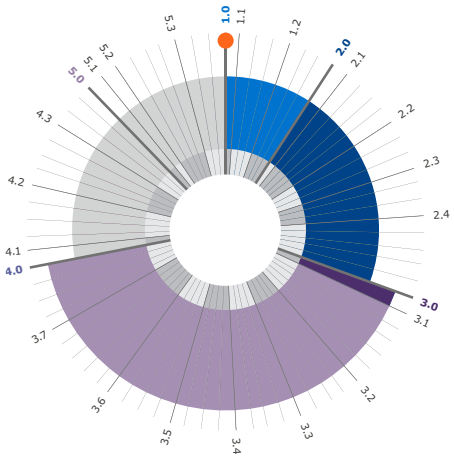
4.0 Track and manage the project
4.1 Manage the project plan
4.2 Manage issues, changes and risks
4.2 Manage the communication processes

5.0 Close out the project
5.1 Complete the transition activities
5.2 Conduct project close-out reviews
5.3 Complete administrative close-out

Plan the project



3.0 Plan the project



Definitions

Phase planning – A planning methodology where detailed planning is only completed for the next life cycle phase. Phases further out are treated only at a high level (e.g., milestones).

Concurrent planning – A planning methodology where some project work commences while planning is still underway.

Overview

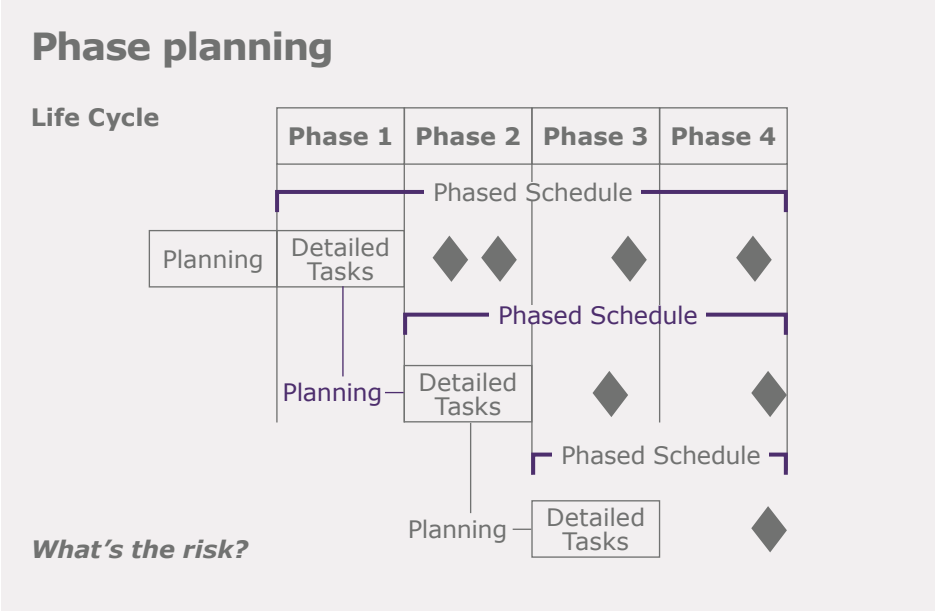
Benefits of planning

Lays the foundation for:

- Improved communication
- Minimized rework
- Improved schedule predictability
- Quality solutions on time
- Visualizing the project
- Achieving organizational mastery

Recognize the need for planning

- Establish fact-based decisions for what work needs to occur and in what sequence.
- Make plan visible for all stakeholders to acquire agreement/consensus.
- Make future changes easier to evaluate.



Determine if phase planning is appropriate for the project

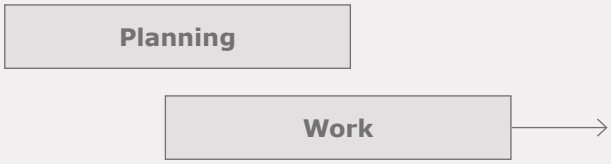
- Near term project activities will be clear and easier to define. Activities in later phases will be less clear and subject to change.
- Later phases can be planned at a summary, or master schedule level.
- As each phase is completed, a more detailed plan for the subsequent phases can be developed. Major milestones are unlikely to change.
- A major deliverable from each phase must be a detailed plan for (at least) the next phase.
- Phase planning is also called "successive" planning because detailed planning progresses through the project.

Understand the risks of phase planning

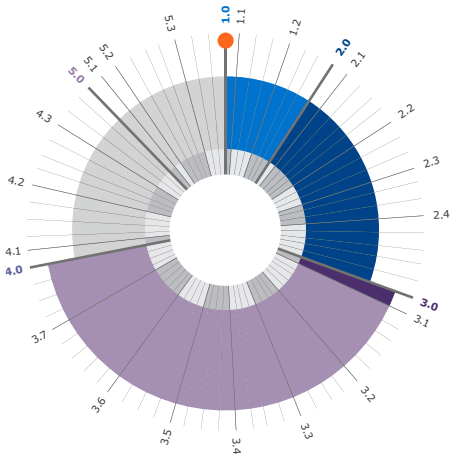
- Detailed planning for the subsequent phase(s) may be forgotten or ignored.
- Resources for later phases may not be allocated.
- Team might be disrupted at phase transition.
- Long lead time items may not be accounted for appropriately.

Concurrent planning

Begin working on tasks while planning continues



What's the risk?



Determine if concurrent planning is appropriate for the project

- Concurrent planning allows the project to move forward while the plan is being developed.
  - Often, come of the project tasks will be well understood before planning is done.
  - If the schedule is very aggressive, the team may believe there is not enough time for planning.
- Care must be taken to ensure that only essential work is undertaken during the planning phase. Essential means work that must be started due to narrow time windows, long leads or similar circumstances.
- The planning effort must be monitored carefully.
  - Because the focus may be diverted away from planning, the plan may never be completed.
  - Monitoring the planning effort will help ensure its completion and therefore the full benefit of the planning effort will be realized.

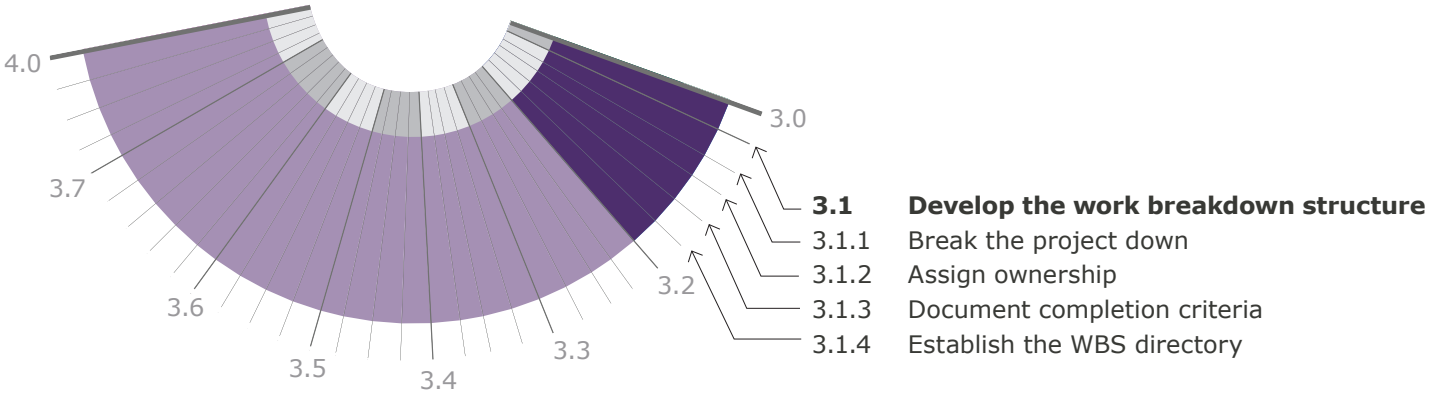
Understand the risks of concurrent planning

- Like concurrent engineering, concurrent planning has risks associated with it. Additional rework may be required or unnecessary work may have been started.

Perform the initial planning steps based on project scope

- Leave the POS date and POS resources out of consideration for as long as possible – make the plan fact-based.
- Do not build the plan backwards from a pre-determined date.

3.1 Develope the Work Breakdown Structure (WBS)



Purpose

All of the tasks necessary to achieve the project objectives are identified, defined in detail, and assigned owners. A Work Breakdown Structure (WBS) is a comprehensive, systematic means of defining project work. The process facilitates the team in understanding the magnitude of the total effort, as well as each individual's effort, to complete the project.

3.1.1 Break the project down

The tasks required to achieve the project objectives are identified and organized in a hierarchical format. This forms the basis for understanding all of the work in the project.

3.1.2 Assign ownership

An owner is assigned to each task. This reduces the potential confusion of who is responsible/accountable for making sure that work is accomplished.

3.1.3 Document completion criteria

The task owners specify the definition of completeness for each task for which they are an owner. The completion criteria ensures that the tasks are well thought out and it provides a way for the task owners to communicate to the task customers.

3.1.4 Establish the work breakdown structure dictionary

The project manager creates a single document that contains key information about each task in the project. The work breakdown structure dictionary provides a single source of task information and helps to assure that the appropriate information is defined for each task.

3.1.1 Break the project down

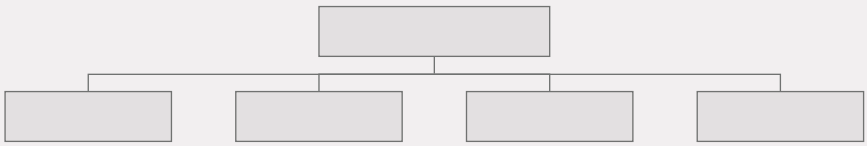
Purpose

The tasks required to achieve the project objectives are identified and organized in a hierarchical format. This forms the basis for understanding all of the work in the project.

Definitions

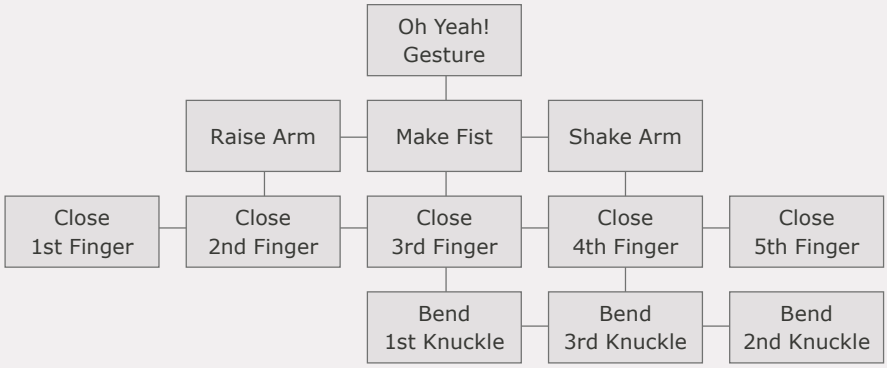
Work Breakdown Structure (WBS) – A hierarchical, systematic structure for defining project work.
Task owner – The individual who plans and manages a task – not necessarily the person who performs the task.
Completion criteria – The definition of a task's output - clear and binary.
WBS dictionary – A table for documenting information about tasks.

Work breakdown structure

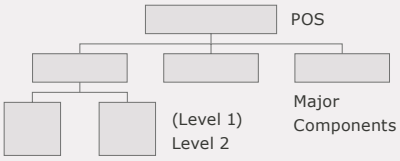


- Tool for identifying project work
- Hierarchical, logical structuring of project work
- Comprehensive methodology

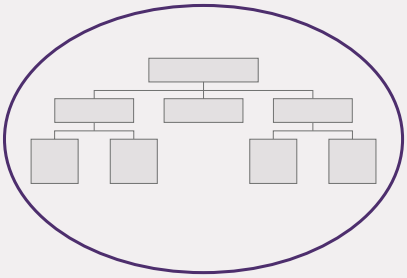
Work breakdown structure



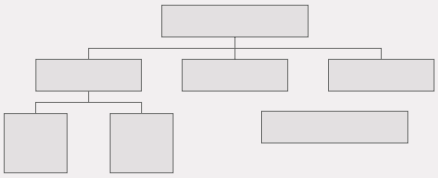
WBS key concepts



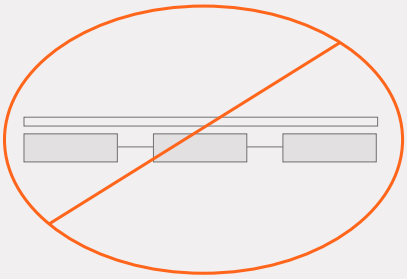
LEVELS



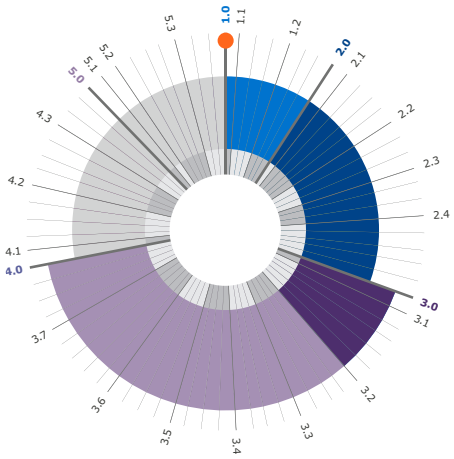
COMPLETENESS



AGGREGATION



NOT SEQUENCE



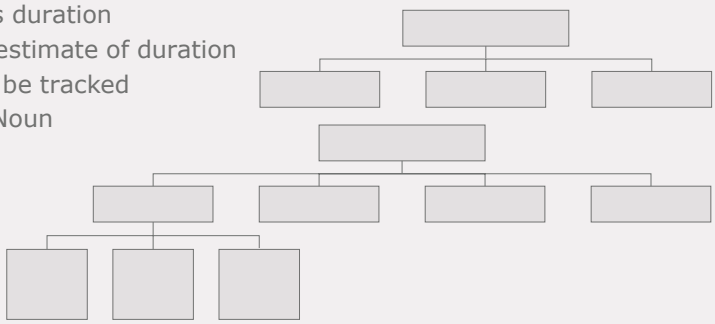
Best practices

Follow proven process steps

WBS recommended process – top down

Have the team:

1. Identify 4-7 major components of work (how you will manage work)
2. Identify Level 2 tasks for each grouping
3. Repeat the process until a task has:
   - One ownder (may be multiple doers)
   - Clear deliverable
   - 2-20 days duration
   - Credible estimate of duration
   - Ability to be tracked
4. Use Verb-Noun



WBS process – bottom up

Have the team:

1. Brainstorm all tasks
2. Organize tasks into 4-7 major groupings reflecting how the project wil be managed

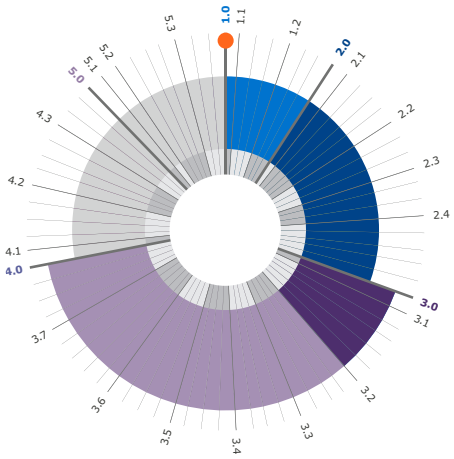
Use a top-down approach to identify four to seven major components of work

- The major components are the highest level or first level WBS.
- Consider that major components of work can be grouped by:
  - Product deliverables
  - Lifecycle phases
  - Organizational responsibility
  - Geographical location
- Identify intermediate deliverables for each major component.
- Each task should have both a verb and noun.
- Use continuous improvement concepts to generate the detailed task list.
- This is a team process — it should not be done by the project manager alone.
- Information can be gathered from:
  - Other team members
  - Other project managers who have done similar work
  - Previous project reviews
  - Other appropriate groups
  - Existing WBS templates

Define the WBS to the appropriate level of detail

- Break each major component down to an appropriate level of detail.
  - Details under one component may break into 3 or 4 levels.
  - Other components may only require one additional level of detail.
- More levels of detail are generally required for projects which are:
  - Larger
  - More risky
  - Dissimilar to past projects
  - Difficult to define (susceptible to change)
  - Performed by internal work groups
  - Planned for the near future

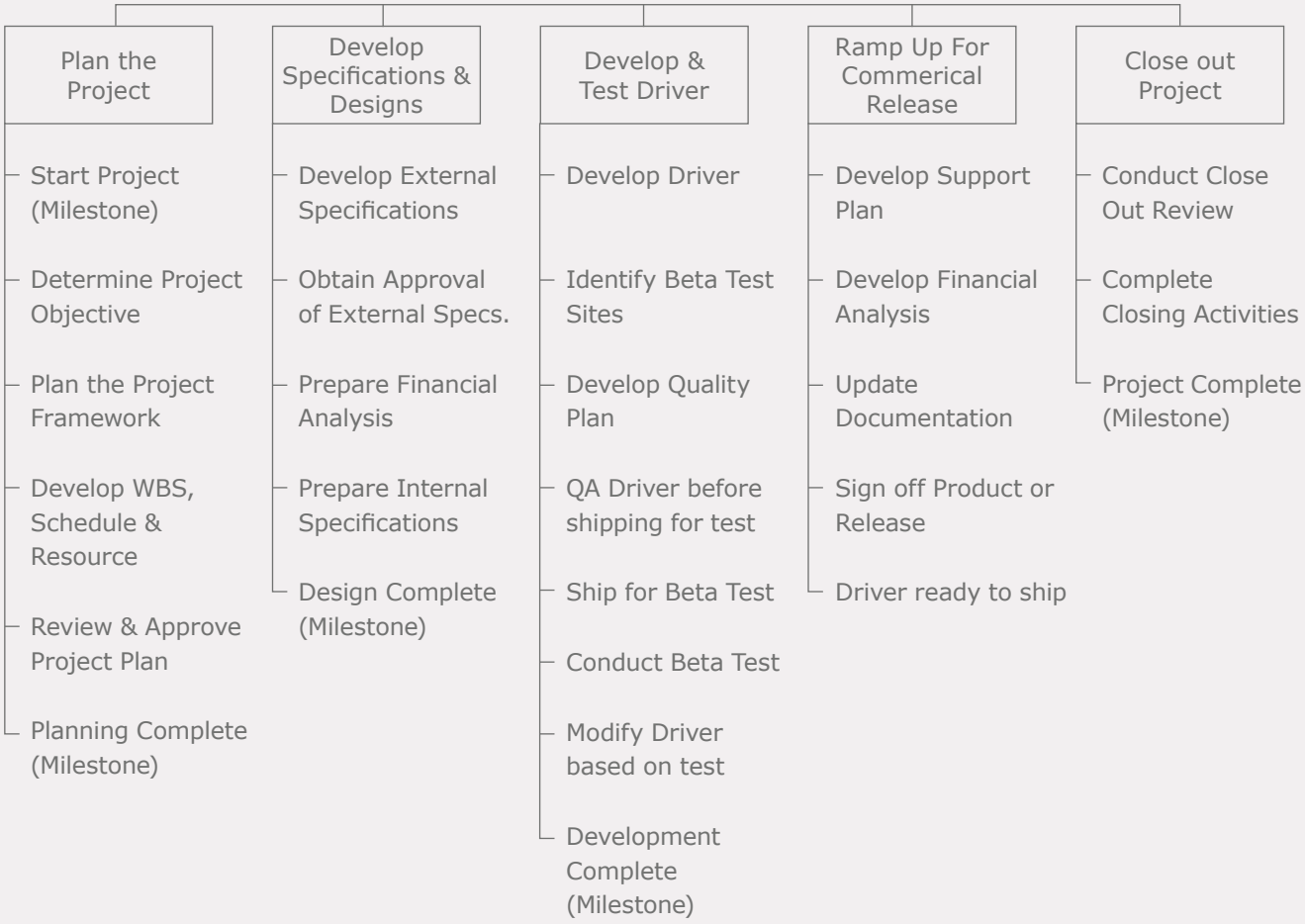
- Continue to break the work down until a task list is developed which meets the following criteria:
  - One (and only one) owner can be assigned to each of the lowest level tasks.
  - Clearly defined outputs are evident for each task.
  - Quality can be monitored through performance criteria associated with each output.
  - The tasks communicate the work to be accomplished to the person who is accountable.
  - The likelihood that a task is omitted or work flow forgotten is minimized.
  - Each task is well enough defined and small enough so that estimates of duration are credible.
  - The project is broken down to the level at which you want to track.
  - As a general rule, the lowest level tasks should have durations between two and twenty days and effort that equates to not more than 1 person week.



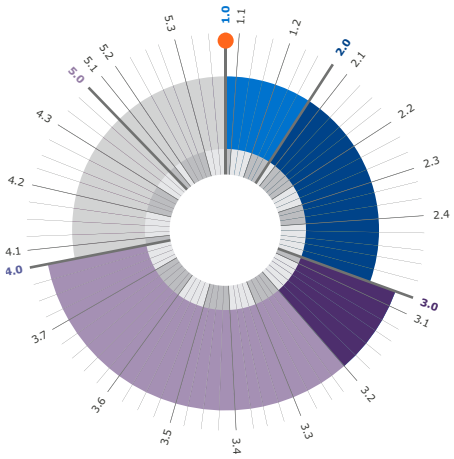
Consider often forgotten tasks

- Project delays are often caused by forgotten tasks, rather than inaccurate estimates.
- Remember to include tasks for:
  - Planning the project
  - Approval cycles
  - Key project meetings
  - Management/customer interfaces
  - Quality inspections/fixing defects
  - Training
  - Project management
  - Test planning, development and execution
  - Project reviews and project closing

Clinical Trial Management System (CTMS) Build



Clinical trial management system (CTMS) build project



1. Plan the project

1.1 Start project (milestone)
1.2 Determine project objective
1.3 Plan the project framework
1.4 Develop WBS, schedule & resource plan
1.5 Review & approve project plan
1.6 Planning complete (milestone)

2. Develop specification & design

2.1 Develop external specifications
2.2 Obtain approval of external specifications
2.3 Prepare financial analysis
2.4 Prepare internal specifications
2.5 Design complete (milestone)

3. Develop & test driver

3.1 Develop driver
3.2 Identify beta test sites
3.3 Develop quality plan
3.4 QA driver before shipping for beta test
3.5 Ship for beta test
3.6 Conduct beta test
3.7 Modify driver based on test
3.8 Development complete (milestone)

4. Ramp up for commercial release

4.1 Develop support plan
4.2 Develop financial analysis
4.3 Update documentation
4.4 Sign off product for release
4.5 Driver ready for shipping (milestone)

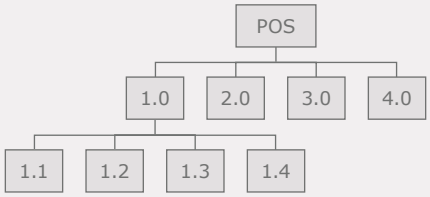
5. Close out project

5.1 Conduct close out review
5.2 Complete closing activities
5.3 Project complete (milestone)

Assure that tasks are coded

WBS coding formats

Graphical
As with Post-it notes



Outline
As with computer tools

POS
Task 1.0
  Task 1.1
  Task 1.2
  Task 1.3
  Task 1.4
Task 2.0
Task 3.0
Task 4.0

- Coding usually flows WBS
- Automatically assigned by some systems

- Allows for easy reference.
- Reduces confusion when discussing tasks (especially over the phone).
- Typical coding structures are numeric (1.2.3) or alphanumeric (A1b2) schemes.

Who does this?

Typically, the project manager and the core team complete the WBS. The team can decide to enhance the WBS by engaging other experts. The task owners complete the individual task completion criteria.

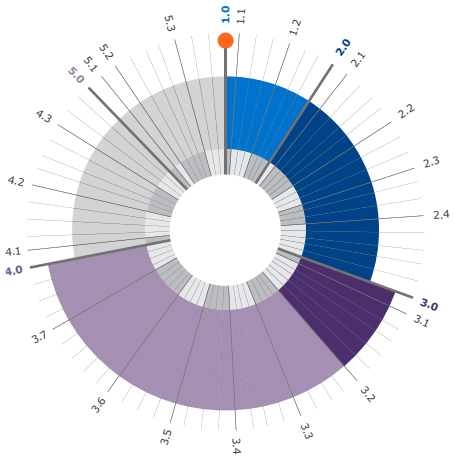
Completion criteria

The WBS dictionary, or the file that contains all of the task information created to this point, is stored in the project file. (Note that the WBS dictionary content is very fluid throughout the project planning process.)

Process considerations

Stand alone project	Additionally, if part of a program
Some teams will tend to go into too much detail, while others will not get to enough detail. If a task is broken down into smaller tasks, the owner needs to define all of the work underneath that higher order task – not just some of the work. If you break a task down into smaller tasks, you must define a minimum of two tasks. A quick review at the end by non-team members who are familiar with the project activities may result in the identification of missing work.	The project manager needs to assure that the project WBS is compatible with the program WBS. This is usually a function of whether the program manager intends to eventually roll-up all of the project data into one look. Having members from the other projects within the program review your project's WBS can uncover missing work in your project WBS as well as the other projects' WBS. Project planning decisions about phase planning must be consistent with the program decisions.

3.1.2 Assign ownership



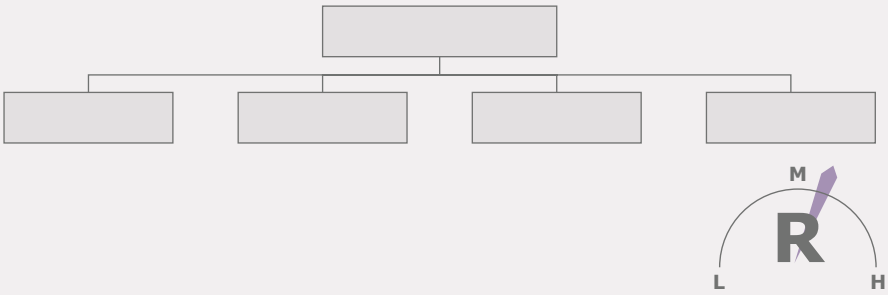
Purpose

An owner is assigned to each task. This reduces the potential confusion of who is responsible/accountable for making sure that work is accomplished.

Definitions

Task owner – The individual who has the responsibility of planning and managing a task.

Work breakdown structure (WBS)



Best practices

Owner responsibilities

Task owners

- Plan and manage the work
- Identify requisite skill sets
- Estimate task duration
- Act as point-of-contact until resources are assigned
- Ensure work is to specifications and within schedule

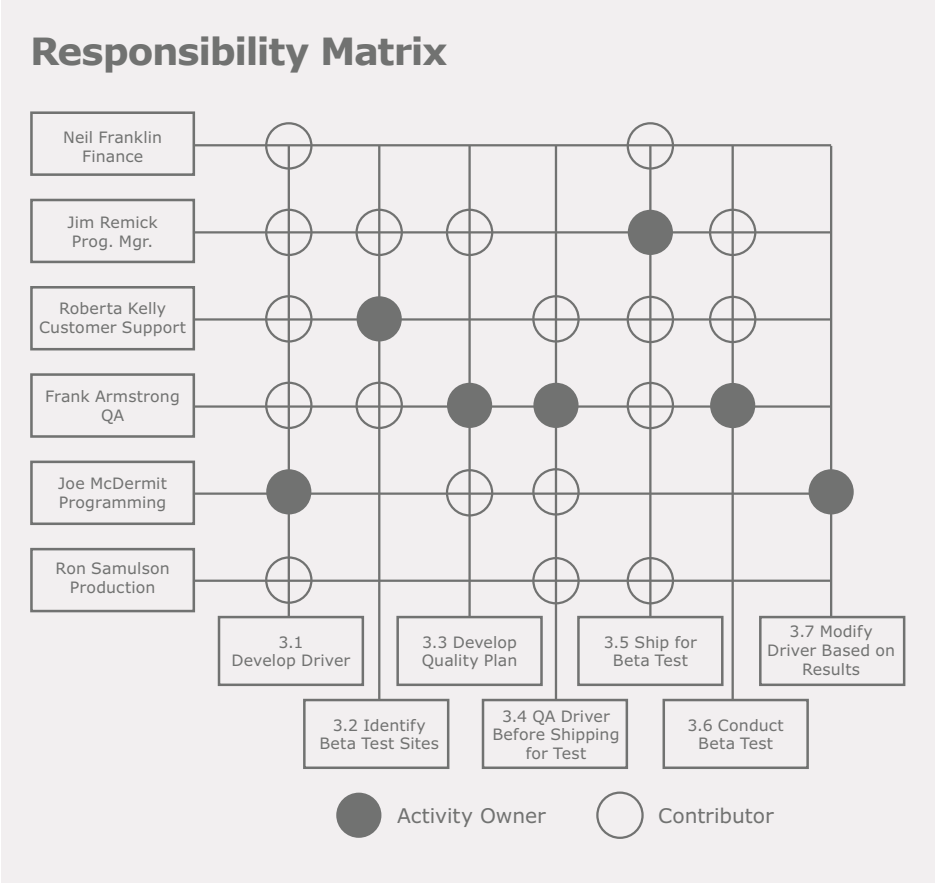
- Each lowest level task must have one, and only one, assigned owner.
- The task owner is not necessarily the one who will perform the work.
- The owner is responsible for ensuring that the work gets done to specifications and within agreed to schedule and resource constraints.
- Each task owner should determine who is involved with their tasks.
- Use a responsibility matrix to determine and communicate task ownership.
- Once determined, use a WBS Dictionary to document ownership.

From the perspective of the project, consider the following for each potential owner:

- Current functional responsibilities.
- Skills that are needed versus the skills available.
- What training is needed.
- The availability of equipment/software.

From the perspective of the team, consider the following for each potential owner:

- Their individual capabilities.
- The speed at which each works.
- The accuracy of their work.
- The potential of their creativity.
- Past experience.
- Their desires and career goals.
- Who could back up whom on what.
- Personality conflicts.
- Individual work styles (alone, in groups).



Who does this?

The project manager is ultimately responsible for assuring that task owners are assigned. Usually the assignment of task ownership occurs among the team while developing the WBS.

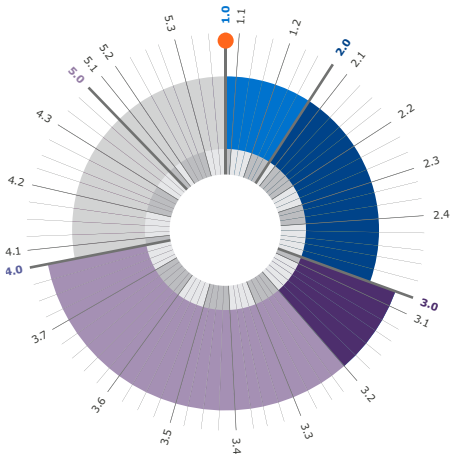
Completion criteria

An owner has been identified for each task in the WBS.

Process considerations

Stand alone project	Additionally, if part of a program
Ownership of each task must be given to one, and only one, person by name.	
For tasks that are planned to be performed well in the future, the task owner may not be known at the time of initial planning. For these cases, either a functional manager or the project manager is the task owner until the real task owner is assigned.	
The owner is not necessarily the doer of a task.	
Obtain buy-in from team members and their supervisor.	
Great care must be taken when assigning ownership of tasks to individuals who are not present in the room.	

3.1.3 Document completion criteria



Purpose

The task owners specify the definition of completeness for each task for which they are an owner. The completion criteria ensures that the tasks are well thought out and it provides a way for the task owners to communicate to the task customers.

Definitions

Completion criteria – A clear and binary definition of a task's output. The completion criteria defines what "done" looks like.

Completion criteria

- Specific definition of task output
- Needs to be clear and binary (you did or you did not)
- Extremely important for interfaces and tracking

Best practices

Sample completion criteria

1.2.3	ID Best Test Sites	Owner

Signed letters of agreement and confidentiality forms on file in the legal department from 12 beta test sites, selected per criteria established in task 1.2.1; single point of contact identified for each site

What is the evidence?

Define the completion criteria with the following characteristics
- Specifically defines the task output.
- Needs to be clear and binary.
- Output should be defined in an unambiguous, measurable way.
- Provides means by which each output will be judged.
- Avoid the use of acronyms and technical jargon.

Ensure task owners follow an effective process
- The owner of each lowest level task is the one that defines the completion criteria.
- Completion criteria should be reviewed according to the framework planning decisions.
- The team may decide to only complete the completion criteria for tasks within the next phase of the project.
- Document a WBS dictionary - see 3.1.4 establish the WBS dictionary.

Who does this?

The task owner defines the completion criteria for each of their tasks.

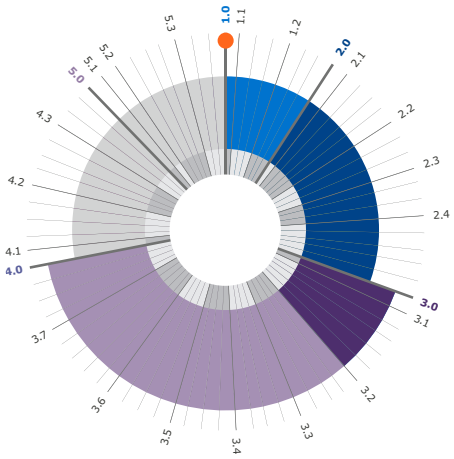
Completion criteria

The completion criteria section of WBS dictionary has been completed.

Process considerations

Stand alone project	Additionally, if part of a program
Development of completion criteria is often a step the project team members try to skip. The project manager needs to exhibit leadership in convincing the team to stay with the process. The completion criteria does not describe how the task will be accomplished. It describes what is available when the task is completed. The Project Management Office (PMO) can maintain a file of task completion criteria from previous projects. In this way, the organization can improve over time the criteria for common project tasks.	Completion criteria are crucial to complete and accurate understanding of expectations for interfaces between projects in a program. Sharing task completion criteria with members of the other projects in the program may uncover some opportunities for enhancement.

3.1.4 Establish the work breakdown structure dictionary



Purpose

The project manager creates a single document that contains key information about each task in the project. The work breakdown structure dictionary provides a single source of task information and helps to assure that the appropriate information is defined for each task.

Definitions

Work breakdown structure dictionary – A collection of information about tasks in the project.

WBS dictionary

WBS Code	Task Name	Completion Criteria	Task Owner	Resources

Consider other columns:

- Duration estimates
- Assumptions
- Predecessors
- Successors

Best practices

Set up the WBS dictionary in a tool

- Project management scheduling tool
  - Use notes field to document the completion criteria.
  - Entering task data at this point may be awkward if the task data would not normally be entered into the scheduling tool until the dependency diagram is completed.
- Word processor
  - Create a table with the applicable columns.
  - May be the preferred method if task information will not be entered into the project management scheduling tool until after the dependency diagram is complete.

Populate the WBS dictionary

- Task owners assure that the required task data for each of their tasks is entered in the WBS dictionary.
- Data will be entered and changed throughout the life of the project.
- Document a WBS dictionary - include parameters for all tasks.

WBS dictionary example

WBS Code	Name	Completion Criteria	Owner
3.1	Develop driver	Three master copies of the completed Clinical Trial Management System (CTMS) Build meeting all requirements listed in the specification ready for QA testing.	Joe McDermit
3.2	Identify beta test sites	Signed letters of agreement and confidentiality forms on file from the twelve beta test sites selected. Single point of contact identified for each site.	Roberta Kelly
3.3	Develop quality plan	Beta test and production quality assurance plans documented and approved by engineering, marketing, and quality assurance.	Frank Armstrong
3.4	Ship of beta test	All features of driver tested, defects noted and programmers notified, "Fatal" defects corrected and re-tested, "Non-fatal" defects noted and workarounds documented for beta test sites.	Frank Armstrong
3.5	Ship for beta test	Beta test copies mailed to contact at all beta test sites.	Jim Remick
3.6	Conduct beta test	Twenty day beta test complete, all comments compiled, summarized and sent to programming. Thank you letters sent to all beta test sites.	Frank Armstrong
3.7	Modify driver based on results	Final driver master (three copies), including all modification, sent to production.	Joe McDermit

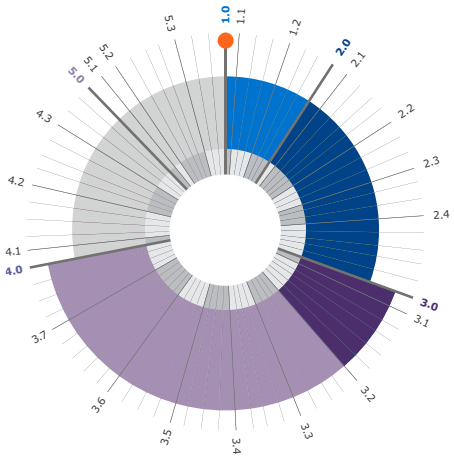
Who does this?

The project manager identifies the file to contain the WBS dictionary. The task owners enter their task information into the dictionary.

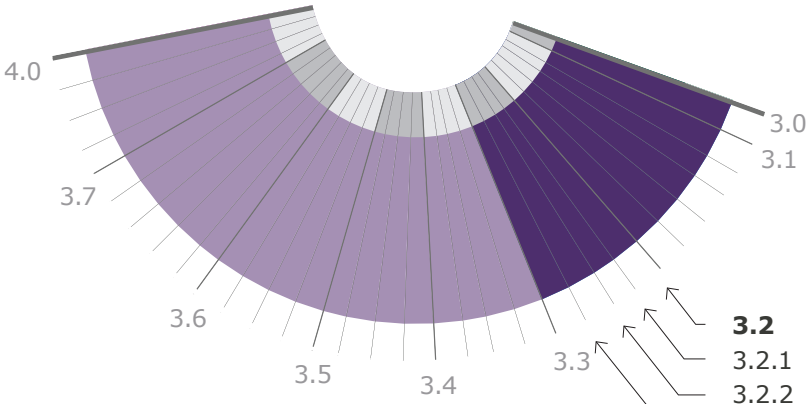
Completion criteria

The WBS dictionary has been completed and stored in the appropriate site.

Do differently



3.2 Develop the preliminary schedule



3.2 Develop the preliminary project schedule
3.2.1 Determine logical dependencies
3.2.2 Assign approximate task durations
3.2.3 Analyze the preliminary schedule

Purpose

The team creates and analyzes the first-pass schedule, using analysis techniques such as critical path and late schedule. This ensures that the preliminary schedule has no obvious errors and is ready for consideration of resource and time constraints.

3.2.1 Determine logical dependencies

The tasks in the WBS are laid out in their logical sequence – indicating when tasks can start based on task dependencies, without regard to perceived resource or time constraints. This assures that schedule concessions are not made before it is appropriate (resource and time constraints are considered later on the in the project planning process).

3.2.2 Assign approximate task durations

The task owners estimate the duration of each of their tasks. This helps to ensure that the task owners buy into the task duration estimates.

3.2.3 Analyze the preliminary schedule

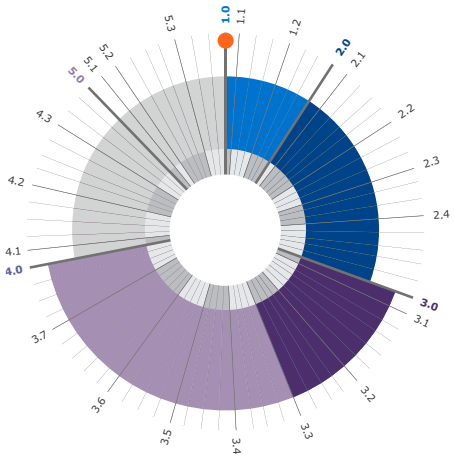
The project manager and core team analyze the resulting network of tasks, usually in the form of a Gantt chart, to determine the overall length of the project (preliminary) and to uncover issues needing attention in subsequent planning steps.

Preliminary schedule

Requires...

Logical relationships
+ Task duration estimates

3.2.1 Determine logical dependencies



Purpose

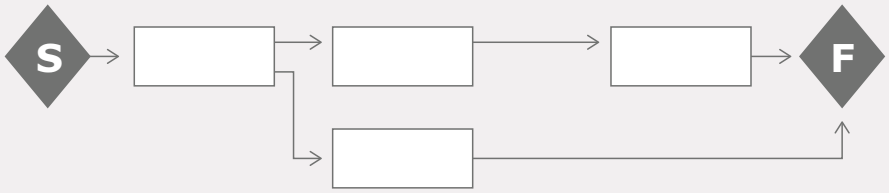
The tasks in the WBS are laid out in their logical sequence – indicating when tasks can start based on task dependencies, without regard to perceived resource or time constraints. This assures that schedule concessions are not made before it is appropriate (resource and time constraints are considered later on the in the project planning process).

Definitions

Predecessors – The tasks that effect the beginning of a given task.
Successors – The tasks that are dependent on the finish of a given task.
Dependencies – The logical relationships between tasks.
Milestone – A point in time, marking a key event or accomplishment.
Interface – A special type of dependency that exists between projects or deliverables.

Best practices

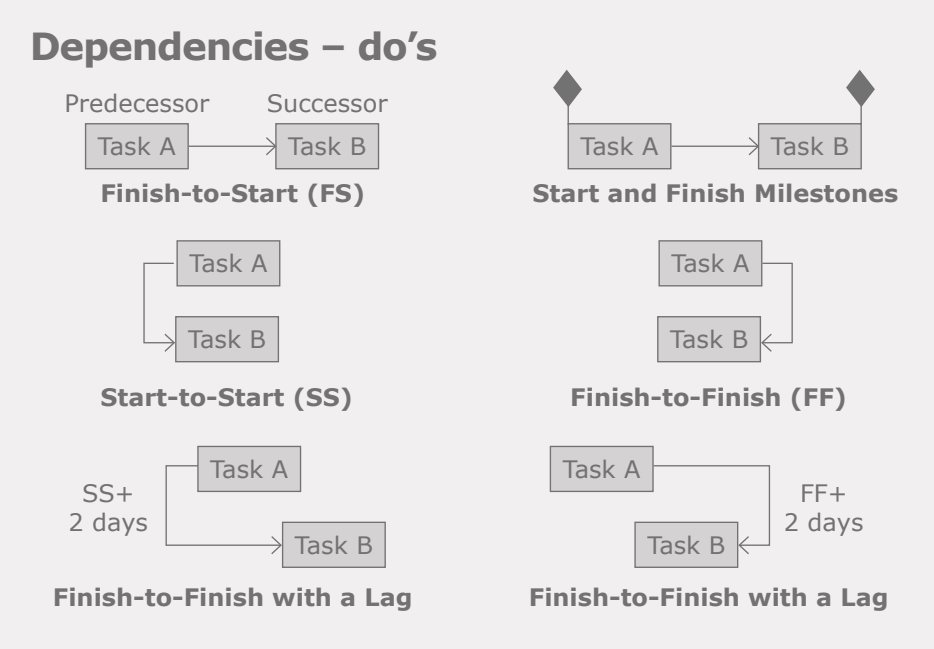
Dependencies – definition



- Presents flow/sequence of work
- Frequently based on judgement about sequence
- No dates yet
- Terminology: dependency diagram, logical networks, PERT, network diagram

Identification

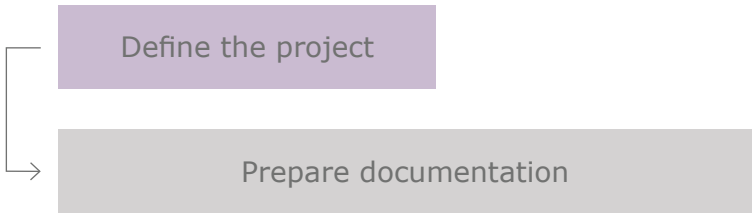
- Most tasks are dependent on the start or completion of other tasks (they are logically dependent on other tasks).
- Each task must have a predecessor and a successor (no “dangling” tasks).
- Focus exclusively on logical dependencies, not resource dependencies.
- Use outputs to help determine logical dependencies.
- The dependency follows the flow of work.
- A list of dependencies for each task should be kept in the project file (with the WBS dictionary).



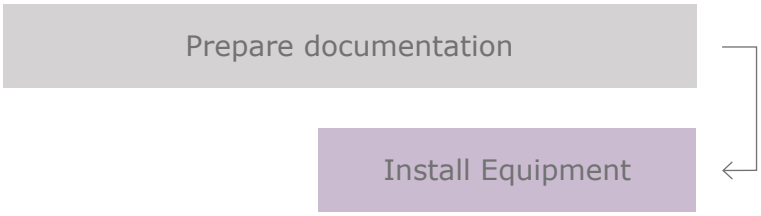
Types of dependency

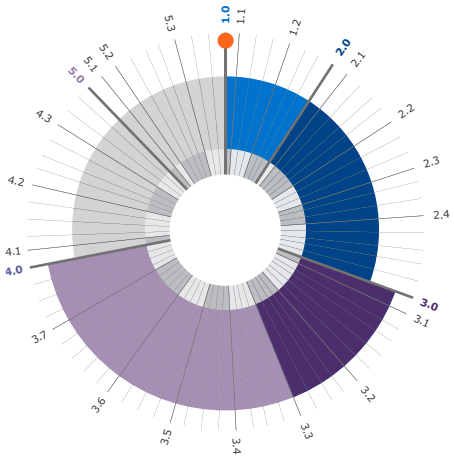
- Finish-to-start (FS)
  - Definition: the predecessor task must be 100% complete before the successor can begin.
  - Example: the electricity must be installed before the equipment is tested.

- Start-to-start (SS)
  - Definition: the start of the successor is constrained by the start of the predecessor.
  - Example: preparation of documentation can begin as soon as project definition begins.



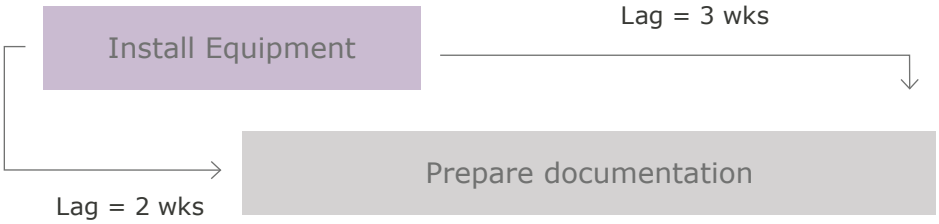
- Finish-to-finish (FF)
  - Definition: the finish of the successor is constrained by the completion of the predecessor.
  - Example: installation can only finish once all documentation has been completed.
  - Generally, start-to-start and finish-to-finish relationships are used in pairs.



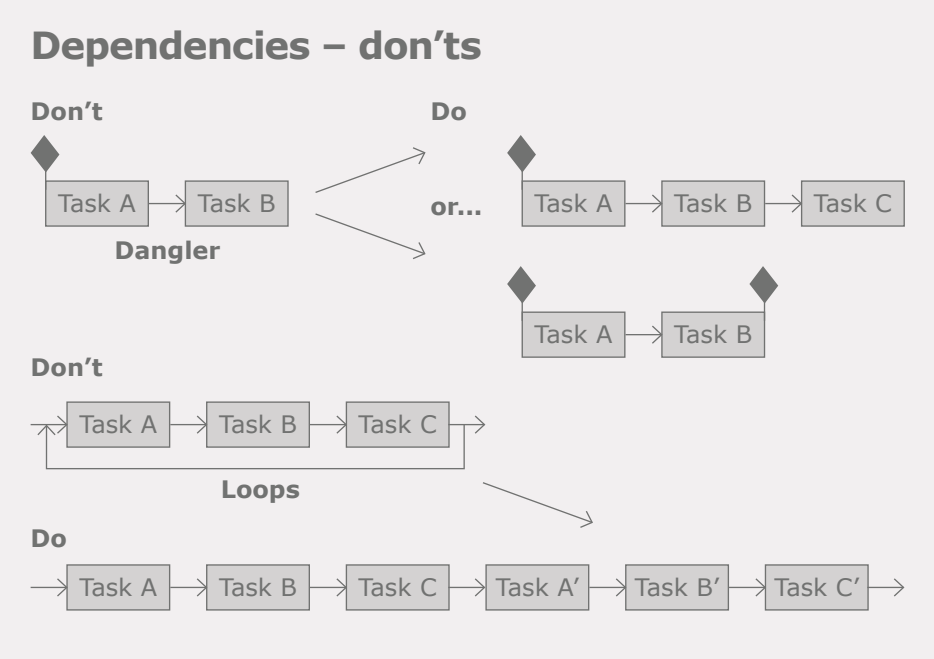


Other considerations

- Lags
  - Definition: a delay between tasks.
  - Example: program testing can start no earlier than 2 weeks after program coding starts. Program coding must finish at least 3 weeks before program testing can be completed.



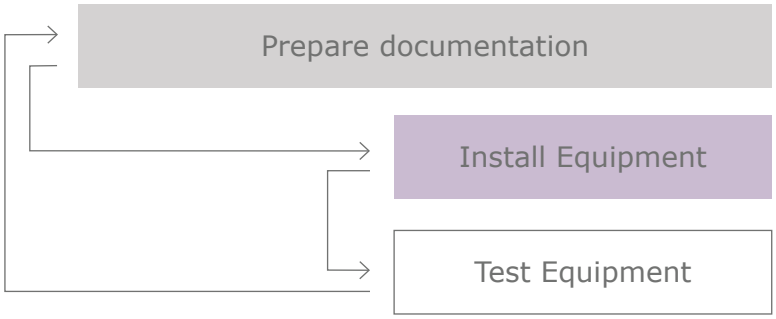
- Use lags with discretion.
  - Visibility of logic flow is lost.
  - Duration of lags will be constant regardless of schedule changes.



Loops

- Definition: an incorrect, circular logical flow between activities.
- Example: installation of equipment can begin after document preparation starts, testing can begin when installation starts, and document preparation can begin as soon as testing starts.

- All logical dependencies must be checked for loops.
  - A loop will render your schedule invalid.
  - All project management software tools provide a check for logical loops.



Milestones

Milestones – a point in time

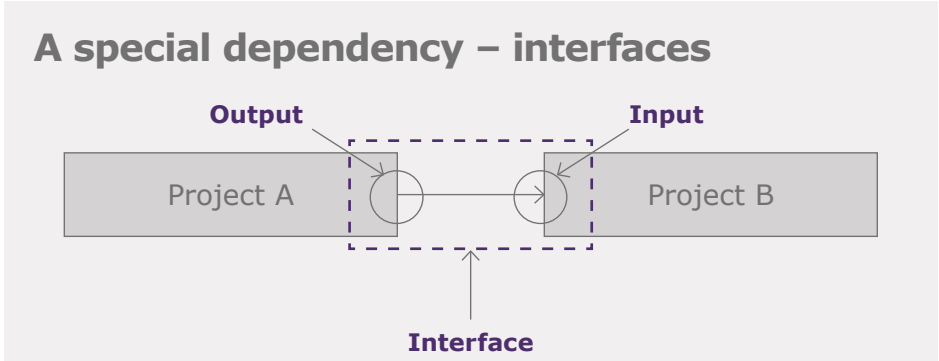
No duration or work

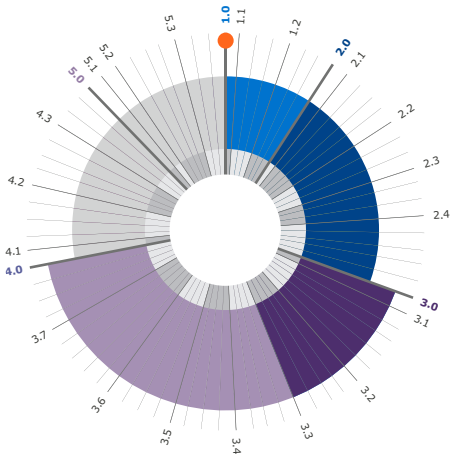
- Start/finish
- Significant events (e.g., trade shows)
- External dependencies/deliverables

- Major accomplishments
- Phase signoffs
- Intermediate checkpoints
- Status reporting periods

- Once the dependency diagram has stabilized, define project milestones.
- Milestones mark the start or completion of significant (or groups of significant) tasks.
- Milestones can be used to note external dependencies.
- Milestones can have different levels of importance within the same project.
- Normally, milestones are used for summary monitoring and reporting.
- Ensure that milestones exist for key checkpoints.

Interfaces





- A dependency that exists between two separate deliverables or projects.
- An interface usually will need more formal definition than a simple dependency since the communication between the customer and supplier is typically more challenged.

Who does this?

The project manager, core team, and anyone else asked to participate, complete the dependency diagram.

Completion criteria

A dependency diagram has been completed which shows the relationship of all lowest level tasks to each other.

Process considerations

Stand alone project	Additionally, if part of a program
Identify locations to add milestones for clarity when eventually producing high-level reports. Look for merge nodes and burst nodes.	Be sure to insert any required program-level milestones.

3.2.2 Approximate duration

Purpose

The task owners estimate the duration of each of their tasks. This helps to ensure that the task owners buy into the task duration estimates.

Definitions

Effort – The amount of person-time required to complete a task.
Duration – The elapsed time to complete a task.
Management reserve – A scheduling buffer used to account for unforeseen delays in a project phase.

Best practices

Understand the causes of poor estimating

Estimating mythology

- Haven't defined what we mean by "Estimate"
- Don't have an estimating process
- Experience political/client pressures
- Observe excessive optimism/pessimism
- Confuse effort for progress
- Don't apply past experiences
- Haven't fully defined the task expectations

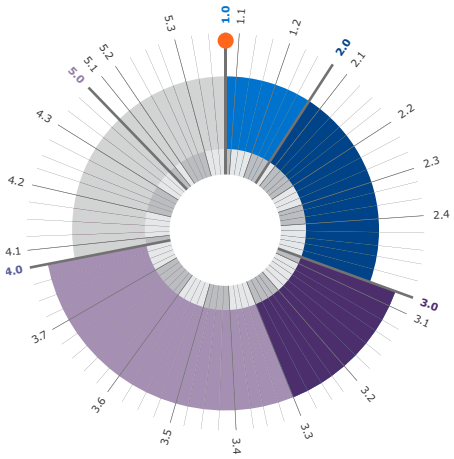
- Set up the organizational infrastructure to estimate well.
  - Sponsor support
  - Project management office
- Watch out for assumptions.

Apply the key elements of successful estimating

- Estimating well is a learned skill.

Key elements of successful estimating do these...

- Follow the PM process
- Consider the number of people
- Consider productivity
- Equal probability that actual duration will be longer or shorter than estimate
- Document assumptions

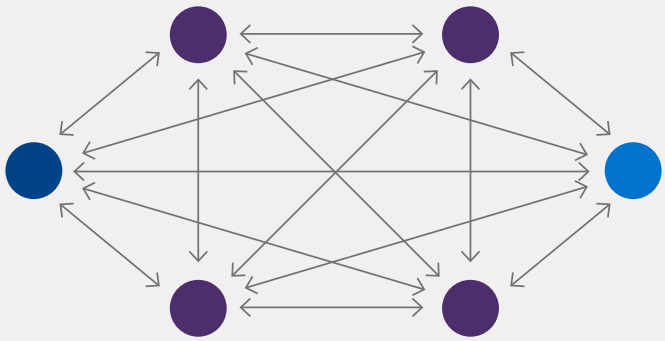


Follow the PM process

- Assure excellent WBS
- Negotiate and agree on task completion criteria
- Assure 2 to 20 days task duration
- Understand and validate your assumptions

Consider the number of people

40-hour task



$$\frac{n(n-1)}{2}$$

Number of People	Hours/Person	Communication Lines
4	10	6
5	8	10
6	6.7	15
10	4	45

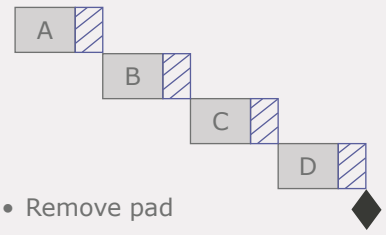
Key elements of successful estimating *do* these…

- Use multi-approaches – compare results
- Perform peer reviews
- Watch for overly optimistic/pessimistic estimates
- Apply more intensity for critical path tasks

Key elements of successful estimating *don't do* these…

- No padding – use Management Reserve
- No fractional days
- No task duration greater than 10% of project phase
- Managers: Don't arbitrarily alter estimates
- Estimators: Don't just give in to pressure

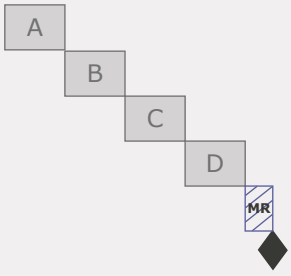
No padding



What the Task Owner really thinks it will take

"Pad"

- Remove pad
- Add management reserve



MR **Management Reserve**

- Historically based
- 10%-35% of phase
- Sponsor approval

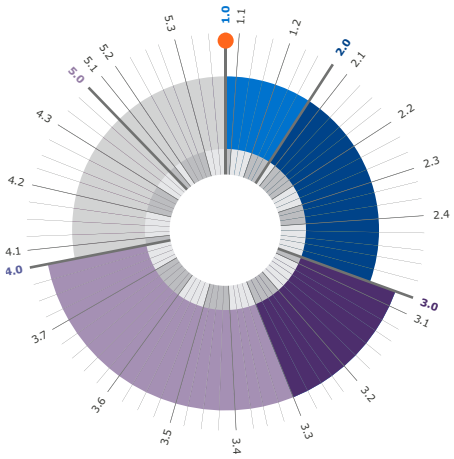
Eliminate padding

- "Padding" is additional time added out of fear of failure.
- Insert management reserve task prior to a milestone; e.g., design complete.
  - Historically-based estimate of the amount of days of unforeseen events that cause delays in the project.

For example:

- Intranet down-time
- Supplier delay
- Customer validation delay
- Usually 1 management reserve task per life cycle phase.
- 10% - 35% of the phase.
- Need sponsor approval.

- Base estimates on what you really think the task will take. There should be an equal chance that the task duration estimate will either end up less than the actual duration or more than the actual duration.



Select the appropriate rigor for estimating

Rigors of estimating

- No/low rigor estimating
- Medium rigor estimating
- Maximum rigor estimating

No/low rigor estimating

- Just use the last estimate
- Add an “allowable” slip to the previous estimate
- What does the boss want to hear?
- Subtract the past slip from the new estimate

Medium rigor estimating

- Apply historical data
- Apply rules of thumb
- Gather expert input
- Break large tasks into smaller ones
- Complete a portion, then extrapolate

Maximum rigor estimating

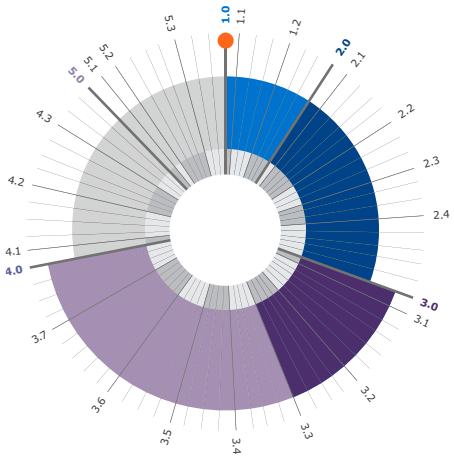
- PERT
- COCOMO
- Delphi Method

PERT estimation (performance evaluation review technique)

Optimistic estimate (t_o) = 5 days
Pessimistic estimate (t_p) = 17 days
Most Likely estimate (t_{ML}) = 8 days

$$\text{Final estimate} = \frac{t_o + t_p + 4(t_{ML})}{6}$$

$$\text{Final estimate} = \frac{5+17+4(8)}{6} = \textbf{9 days}$$



COCOMO

(COstructive COst MOdel)

- An estimating procedure/model based on measurements made from hundreds of projects at TRW in the 1970s.

Effort = a * SIZE b (>3 people)
Effort = a * SIZE + b (>3 people)

- a and b are empirically developed constants
- SIZE is measure of project size (e.g., number of objects)

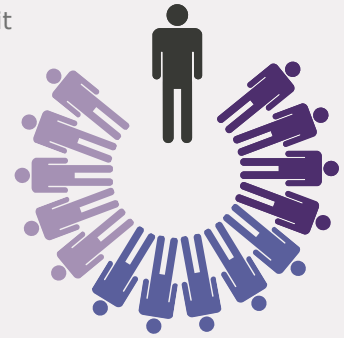
Delphi estimation methodology

- Assemble the estimating team
- Review the process ad expected outcomes
- Discuss the task in question
- Each individual provide their duration estimate
- Sort the estimate into “Best,” “Likely,” “Worst”
- Discuss averages
- Repeat process until consensus is acheived

Strive for continuous organizational improvement

Continuous organizational improvement

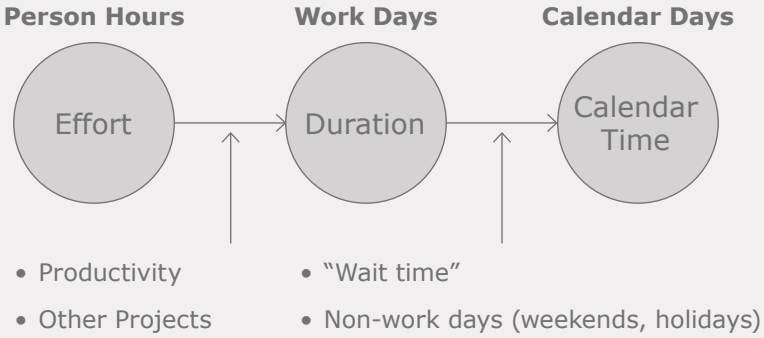
- Build historical database and learn from it
- Understand your estimating bias
- Consistent process
- Project-end review

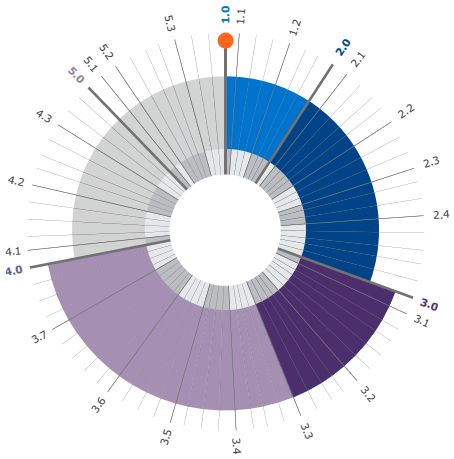


- Organizational support and learning will help to increase the accuracy of estimates.
  - Project management office
  - Sponsor and project manager support of task owners' estimates
  - Post-project analysis of initial estimates versus actual durations
- Share estimation tips from one project to the next.

Apply a consistent definition of how task time estimates are measured

Effort ≠ duration ≠ calendar time





- In general, "effort" is the amount of dedicated time (person-hours) a person would spend to complete a task if there were no other outside demands/duties.
- "Duration" is the number of work days elapsed while the task is completed.
- "Calendar" is the days of the week.

Assign an approximate duration

Task duration estimates

- Team selects unit of measure
- Owner assigns duration, documents, assumptions
- Initial estimates, refined later

- Each task owner approximates the duration for their task(s).
- Each owner must provide their best educated guess of the duration.
  - Do not "pad" the duration.
  - Use the most likely duration.
  - Document the assumptions.
  - For projects with greater than 50 tasks, assign tasks durations quickly – refine the estimates later.

Basis of Approximation

- All schedules are based on duration (i.e., elapsed time) not effort.
- At this point, duration is determined based on an approximation of effort modified by a reasonable set of assumptions.
- Rely on documented history to determine effort:
  - Project metric databases
  - Local historical data
  - Previous project reviews
- Rely on previous "people experience":
  - Experience of task owner
  - Experience of others who have done similar work

- Document all assumptions for later review.
  - Number of people working on each task
  - What training will be required
  - Portion of day that team members are allocated to the project

Who does this?

The task owner defines the duration for each of their tasks.

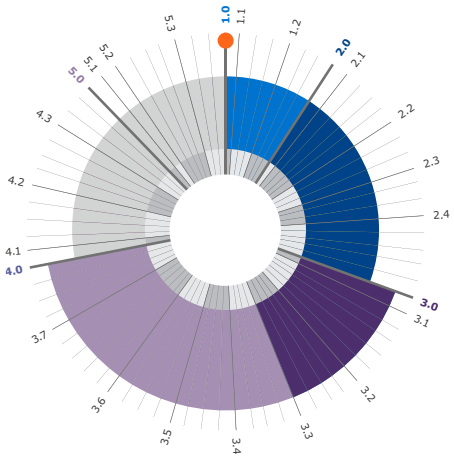
Completion criteria

Duration of each lowest level task has been approximated and added to WBS dictionary.

Process considerations

Stand alone project	Additionally, if part of a program
Educate and reinforce to all team members the meaning of "duration" (versus "effort"). Begin to eliminate fear in the organization in order to reduce "padding". Review with the team the various estimating techniques, and which techniques may be more appropriate for the project at hand. Some teams get bogged down here by fine-tuning their estimations of task duration. At the end of this step is when project data is entered into a scheduling tool. Make sure it is clear to those estimating tasks that estimates for near term tasks tend to be more detailed than longer term tasks.	

3.2.3 Analyze the preliminary schedule



Purpose

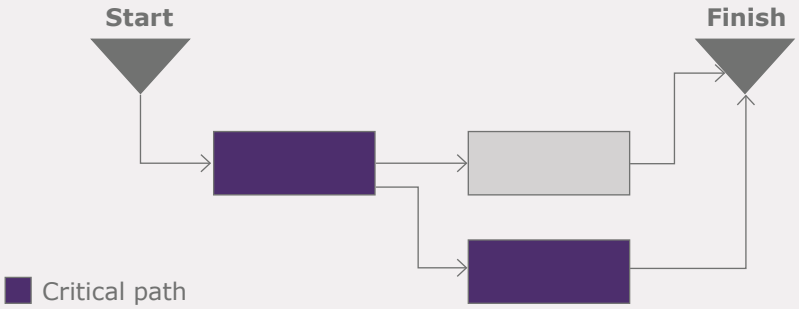
The project manager and core team analyze the resulting network of tasks, usually in the form of a Gantt chart, to determine the overall length of the project (preliminary) and to uncover issues needing attention in subsequent planning steps.

Definitions

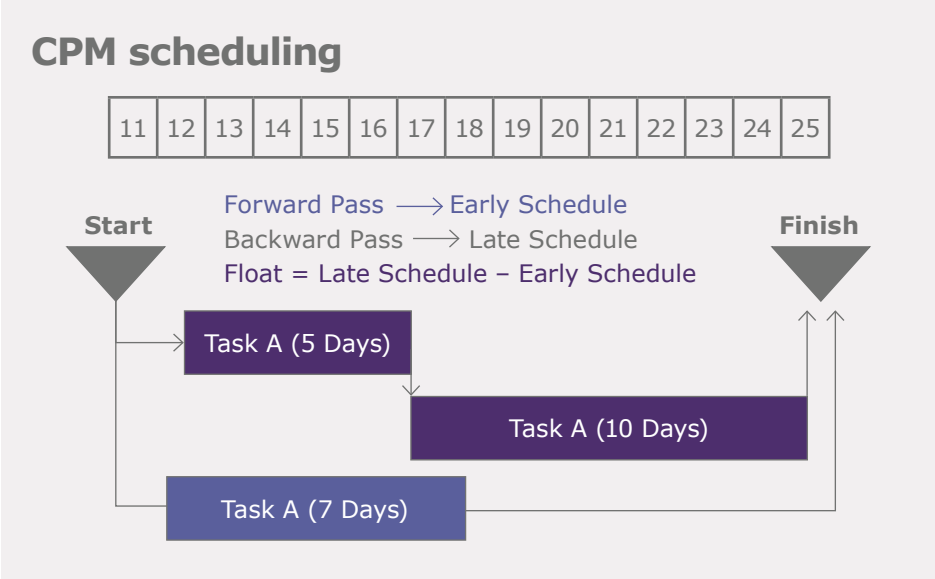
Gantt chart – A tool developed to visualize the sequencing of tasks on a project.
Critical path – The sequence of tasks on a project that have the greatest total duration.
Schedule non-critical task – A task that is not on the critical path.
Float – The calculated time that a schedule non-critical task can delay before it becomes a critical path task.
Slack – Another name for "float".
Late schedule – The schedule view that shows the latest that every schedule non-critical task can be delayed before it becomes a critical path task.

Best practices

Critical Path Method (CPM)



- Critical Path (CP) is longest and least flexible sequence
- Any slippage on critical path slips project
- Only way to shorten schedule is to shorten CP
- CP focuses management attention



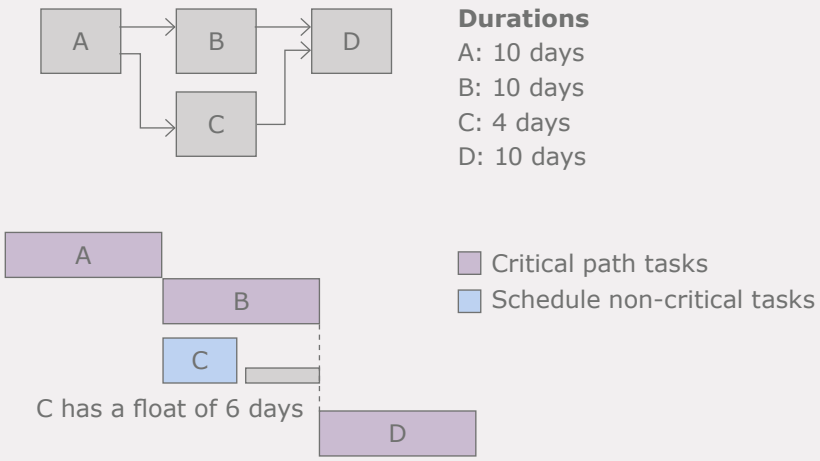
Determine the critical path

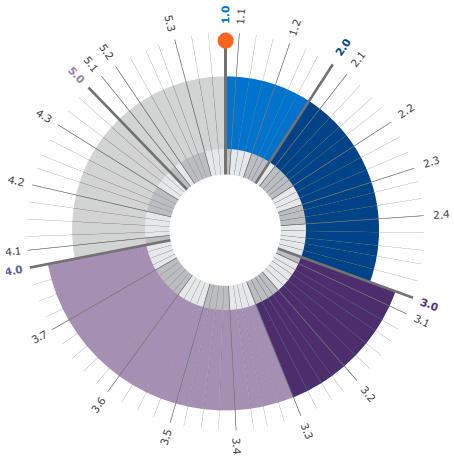
- Critical path method (CPM) scheduling uses task duration and logical dependencies to sequence tasks and determine:
  - Overall length of the project.
  - When each task can and must start (or finish).
  - The longest continuous path through the network (critical path).
  - How much each non-critical task can "float" or "slip" before it becomes critical.

Analyze scheduling reports

- All leading automated tools use CPM scheduling.
- Time scale network or PERT chart.
  - Best for discussing project work flow and dependencies.
  - Not good for determining exact start and finish dates of individual tasks.
- Gantt chart
  - Is a bar chart that conveys project schedule quickly.
  - Shows timing and concurrency.
  - Is simple to read.
- Tabular report
  - Provides start and finish dates for each activity.
  - Usually provides more detailed information than available on the time scaled network chart.
  - Doesn't show logical dependencies.
- Tabular and graphical reports should be used in combination.

Float

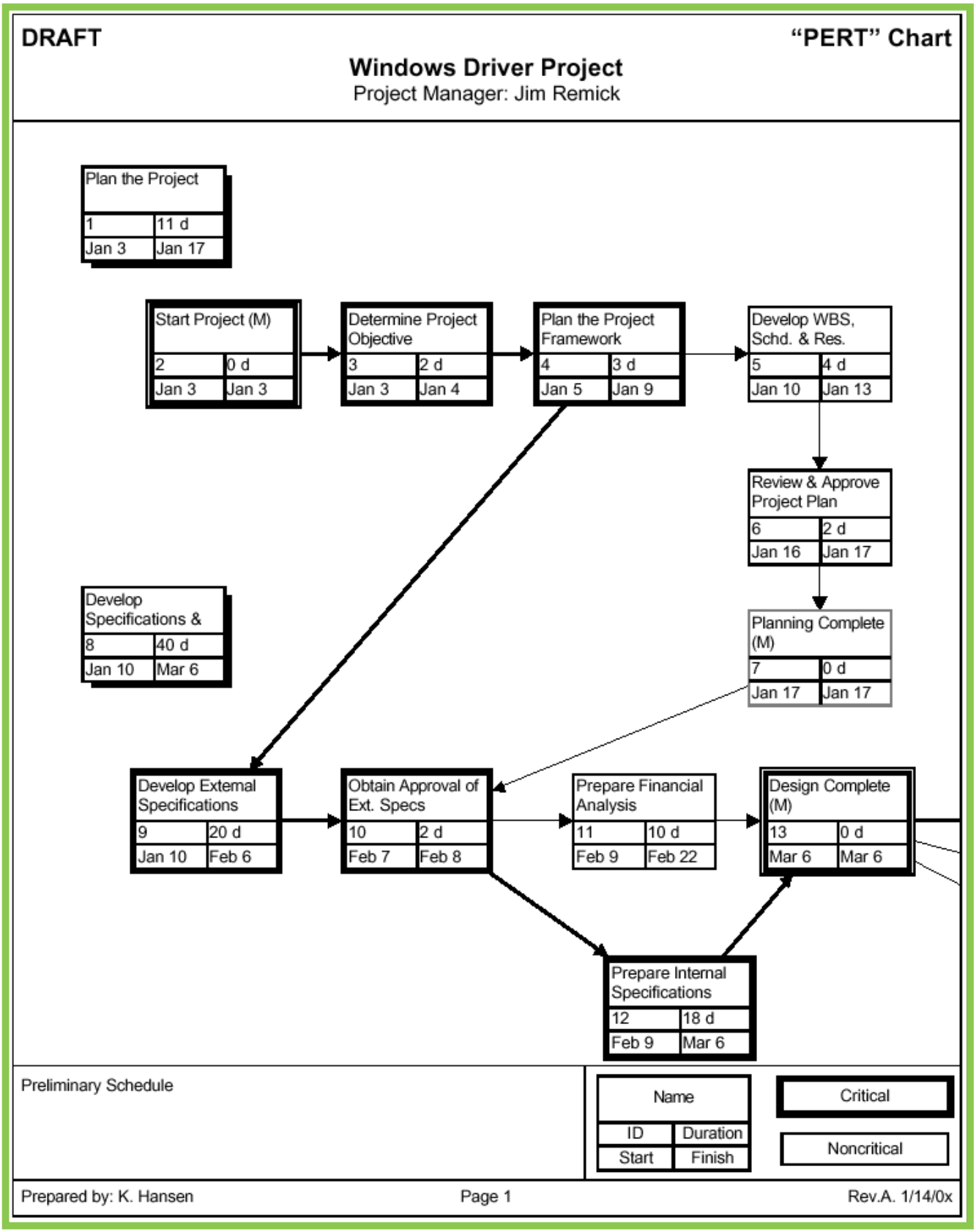




- "Float" or "slack"
  - Is the calculated time (days, weeks) that a schedule non-critical task can delay before it becomes a critical path task.
  - Is calculated by subtracting the earliest a task can start (or finish) from the latest that task can start (or finish).
  - Is a visual feature provided by project scheduling software – but you have to tell the software to show it!

Key issues

- Some dependencies may need to be re-evaluated because of conflicts.
- View just the critical path and assess whether it makes sense.
  - Does it make sense that those tasks would be on the critical path?
  - Does the flow from one critical path to the next make sense logically?
- Project length will be an approximation because only approximate durations were used.
  - Durations will be refined in the resource planning process.
  - The goal at this point is to determine the approximate start and finish date for each task and clearly understand the dependencies and work flow.
  - At this stage, the schedule is only preliminary.
  - Mark it "PRELIMINARY" or "DRAFT", attach assumptions, date it, and include the project name, project manager and preparer.

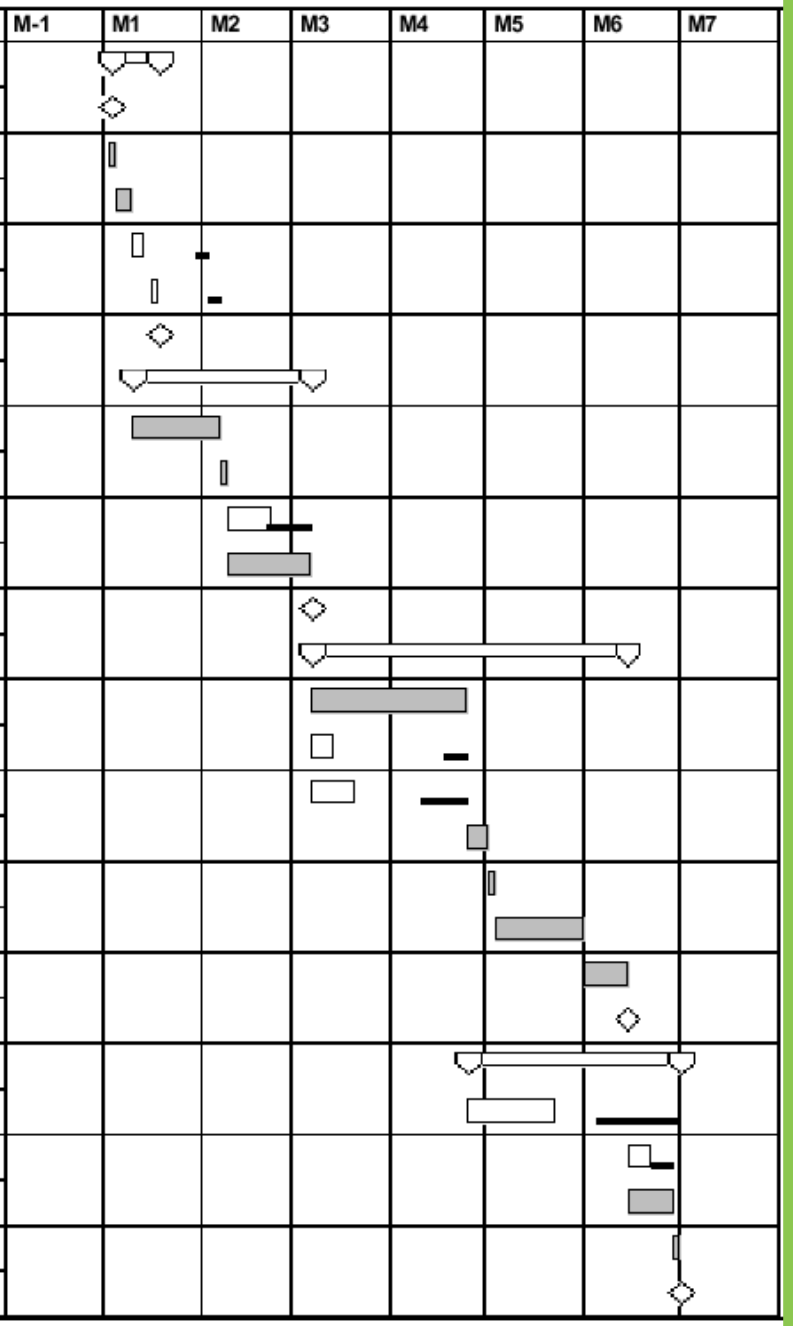

DRAFT
"PERT" Chart
Windows Driver Project
Project Manager: Jim Remick
Plan the Project
1
11 d
Jan 3
Jan 17
Start Project (M)
2
0 d
Jan 3
Jan 3
Determine Project Objective
3
2 d
Jan 3
Jan 4
Plan the Project Framework
4
3 d
Jan 5
Jan 9
Develop WBS, Schd. & Res.
5
4 d
Jan 10
Jan 13
Review & Approve Project Plan
6
2 d
Jan 16
Jan 17
Planning Complete (M)
7
0 d
Jan 17
Jan 17
Develop Specifications &
8
40 d
Jan 10
Mar 6
Develop External Specifications
9
20 d
Jan 10
Feb 6
Obtain Approval of Ext. Specs
10
2 d
Feb 7
Feb 8
Prepare Financial Analysis
11
10 d
Feb 9
Feb 22
Design Complete (M)
13
0 d
Mar 6
Mar 6
Prepare Internal Specifications
12
18 d
Feb 9
Mar 6
Preliminary Schedule
Name
ID
Duration
Start
Finish
Critical
Noncritical
Prepared by: K. Hansen
Page 1
Rev.A. 1/14/0x

DRAFT **Gantt Chart**

Windows Driver Project

Project Manager: Jim Remick

WBS	Task Name
1	**Plan the Project**
1.1	Start Project (M)
1.2	Determine Project Objective
1.3	Plan the Project Framework
1.4	Develop WBS, Schd. & Res. Plans
1.5	Review & Approve Project Plan
1.6	Planning Complete (M)
2	**Develop Specifications & Design**
2.1	Develop External Specifications
2.2	Obtain Approval of Ext. Specs
2.3	Prepare Financial Analysis
2.4	Prepare Internal Specifications
2.5	Design Complete (M)
3	**Develop & Test Driver**
3.1	Develop Driver
3.2	Identify Beta Test Sites
3.3	Develop Quality Plan
3.4	QA Driver Before Shipping
3.5	Ship for Beta Test
3.6	Conduct Beta Test
3.7	Modify Driver Based on Test
3.8	Development Complete (M)
4	**Ramp Up for Commercial Release**
4.1	Develop Support Plan
4.2	Develop Final Financial Analysis
4.3	Update Documentation
4.4	Sign off Product for Release
4.5	Driver Ready for Shipping (M)



Preliminary Schedule

Summary
Schedule Critical
Schedule Noncritical
Late Schedule
Milestone

Prepared by: K. Hansen Page 1 Rev. A. 1/14/0x

DRAFT

E=Early, L=Late

Tabular Report

Windows Driver Project

Project Manager: Jim Remick

WBS	Task Name	Dur	E Start	E Finish	L Start	L Finish	Slack
1	**Plan the Project**	**11 d**	**1/3**	**1/17**	**1/3**	**2/7**	**0 d**
1.1	Start Project (M)	0 d	1/3	1/3	1/3	1/3	0 d
1.2	Determine Project Objective	2 d	1/3	1/4	1/3	1/4	0 d
1.3	Plan the Project Framework	3 d	1/5	1/9	1/5	1/9	0 d
1.4	Develop WBS, Schd. & Res. Plans	4 d	1/10	1/13	1/30	2/2	14 d
1.5	Review & Approve Project Plan	2 d	1/16	1/17	2/3	2/6	14 d
1.6	Planning Complete (M)	0 d	1/17	1/17	2/7	2/7	14 d
2	**Develop Specifications & Design**	**40 d**	**1/10**	**3/6**	**1/10**	**3/7**	**0 d**
2.1	Develop External Specifications	20 d	1/10	2/6	1/10	2/6	0 d
2.2	Obtain Approval of Ext. Specs	2 d	2/7	2/8	2/7	2/8	0 d
2.3	Prepare Financial Analysis	10 d	2/9	2/22	2/21	3/6	8 d
2.4	Prepare Internal Specifications	18 d	2/9	3/6	2/9	3/6	0 d
2.5	Design Complete (M)	0 d	3/6	3/6	3/7	3/7	0 d
3	**Develop & Test Driver**	**72 d**	**3/7**	**6/14**	**3/7**	**6/15**	**0 d**
3.1	Develop Driver	35 d	3/7	4/24	3/7	4/24	0 d
3.2	Identify Beta Test Sites	5 d	3/7	3/13	4/18	4/24	30 d
3.3	Develop Quality Plan	10 d	3/7	3/20	4/11	4/24	25 d
3.4	QA Driver Before Shipping	5 d	4/25	5/1	4/25	5/1	0 d
3.5	Ship for Beta Test	2 d	5/2	5/3	5/2	5/3	0 d
3.6	Conduct Beta Test	20 d	5/4	5/31	5/4	5/31	0 d
3.7	Modify Driver Based on Test	10 d	6/1	6/14	6/1	6/14	0 d
3.8	Development Complete (M)	0 d	6/14	6/14	6/15	6/15	0 d
4	**Ramp Up for Commercial Release**	**49 d**	**4/25**	**6/30**	**6/5**	**7/3**	**0 d**
4.1	Develop Support Plan	20 d	4/25	5/22	6/5	6/30	29 d
4.2	Develop Final Financial Analysis	5 d	6/15	6/21	6/22	6/28	5 d
4.3	Update Documentation	10 d	6/15	6/28	6/15	6/28	0 d
4.4	Sign off Product for Release	2 d	6/29	6/30	6/29	6/30	0 d
4.5	Driver Ready for Shipping (M)	0 d	6/30	6/30	7/3	7/3	0 d
5	**Close Out Project**	**5 d**	**7/3**	**7/7**	**7/3**	**7/7**	**0 d**
5.1	Conduct Close Out Review	1 d	7/3	7/3	7/3	7/3	0 d
5.2	Complete Closing Activities	4 d	7/4	7/7	7/4	7/7	0 d
5.3	Project Complete (M)	0 d	7/7	7/7	7/7	7/7	0 d

Prepared by: K. Hansen | Page 1 | Rev. A. 1/14/0x

Who does this?

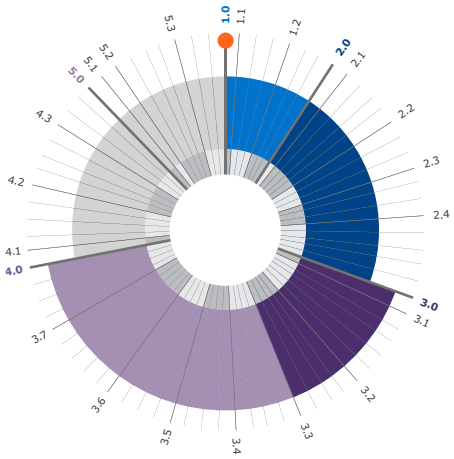
The project manager and core team analyze the preliminary schedule. Core team members will naturally focus on their area of responsibility/expertise.

Completion criteria

Schedule has been documented in the form of a Gantt chart and the critical path has been identified.

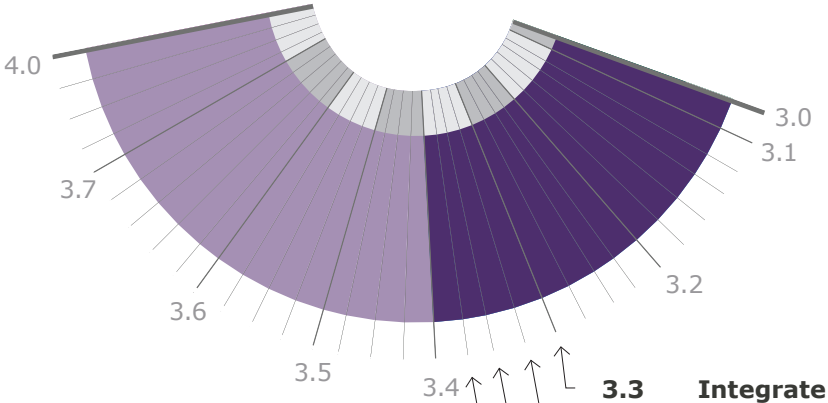
Process considerations

Stand alone project	Additionally, if part of a program
Become or identify a tool expert to make full use of the project management tool capacity.	The integration of the preliminary project schedule into the program schedule will provide a different set of constraints for the project manager to consider. See 3.3.



Do differently

3.3 Integrate project schedule with program schedule



3.3 Integrate project schedules
3.3.1 Integrate the project schedules
3.3.2 Determine the impact on the project
3.3.3 Update the project plan

Purpose

Note: This project management model step is performed only when the project is part of a program.

At this point, when the project is one of other projects in a program, the project team integrates their preliminary schedule with the preliminary schedules of the other projects in the program to create the program schedule.

3.3.1 Integrate the project schedules
Once the preliminary project schedule is completed (section 3.2), the project team meets with the rest of the program team to integrate all of the project schedules to create an overall program schedule.

3.3.2 Determine the impact on the project
The project team determines impact of the schedule integration process on their project's plan. Some adjustments may be necessary in order to satisfy the program and project objectives simultaneously.

3.3.3 Update the project plan
The project team makes any changes to the project plan as a result of the schedule integration process; and raises any issues to the project sponsor.

3.3.1 Integrate the project schedules

Purpose

Once the preliminary project schedule is completed (section 3.2), the project team meets with the rest of the program team to integrate all of the project schedules to create an overall program schedule.

Definitions

Schedule integration workshop – An organized, facilitator-led session used to integrate multiple project schedules into a program schedule.

Program management best practices

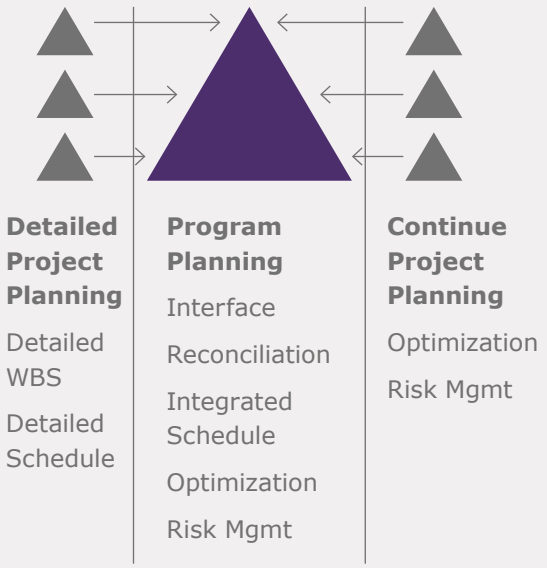
A set of best practices, similar to this process guide, but for programs.

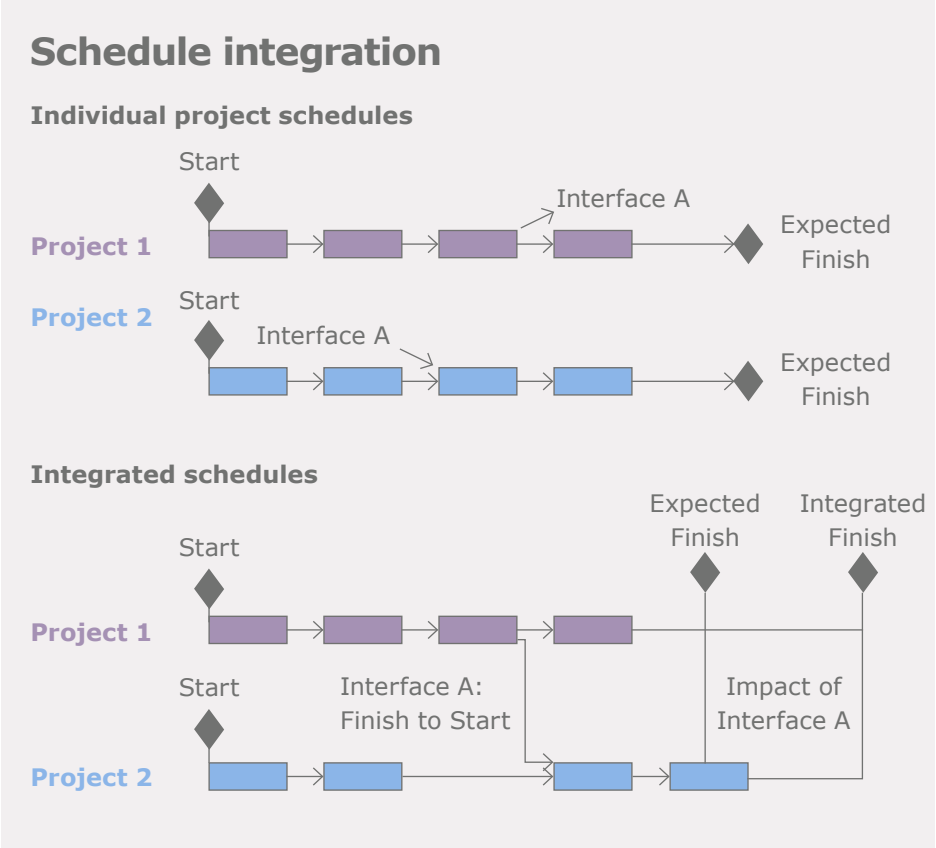
Best practices

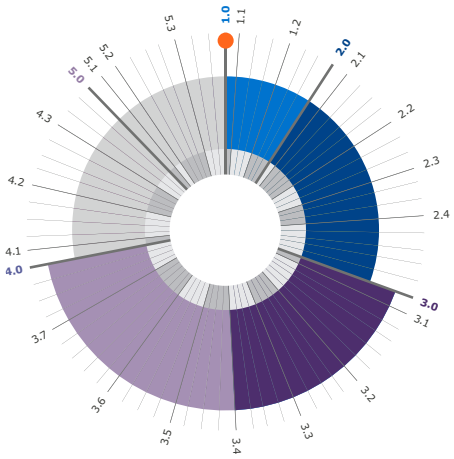
Participate in the schedule integration process

Schedule integration (only if part of a program)

- Project planning up through preliminary schedule
- Schedule integration with the program
- Continue with project planning







- Integrate the project schedules.
  - Combine each project schedule into one file.
  - Connect the interfaces to create a program (integrated project) schedule.
- Participate with the program manager and other program team members. The schedule integration workshop format is quite effective.

Who does this?

The project manager interfaces with the program manager in arranging for the participation in the schedule integration process. Selected members from the project team may be asked to participate as well.

Completion criteria

The project schedules have been integrated, with all interfaces matched and defined.

Process considerations

- Insist on best practices for integrating schedules.
- It is best practice to participate in the program optimization and risk management processes after the schedule integration.
- Understand what part, if any, of your project is on the program critical path.

3.3.2 Determine the impact on the project

Purpose

The project team determines impact of the schedule integration process on their project's plan. Some adjustments may be necessary in order to satisfy the program and project objectives simultaneously.

Definitions

Program critical path – The critical path of the program typically meanders through the projects within the program. An individual project within the program may or may not have tasks on the program critical path.

Best practices

Identify the specifics of the plan that have been impacted by the schedule integration process

- Note the areas of the project plan that will need adjustment once the schedule integration process is complete.
- Determine what portion of the program critical path, if any, is included in the project schedule.
- Become acquainted with how much float exists among the project tasks relative to the program critical path.

Who does this?

The project manager interfaces with the program manager in arranging for the participation in the program schedule integration process. Selected members from the project team may be asked to help.

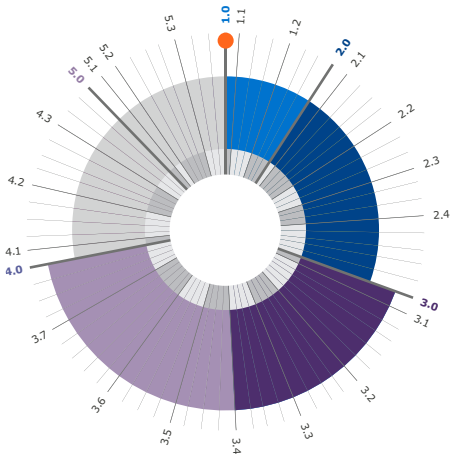
Completion criteria

The changes, if any, to the project documents or schedule have been recorded while at the schedule integration session. Significant changes have been discussed with the project sponsor.

Process considerations

- Insist on best practices for integrating the program schedule.
- Test your understanding of the project schedule for your project prior to leaving the program schedule integration session.

3.3.3 Update the project plan



Purpose

The project team makes any changes to the project plan as a result of the schedule integration process; and raises any issues to the project sponsor.

Best practices

Update all project documents to reflect the decisions made in the schedule integration sessions

- Changes to the project parameter documents are possible.
- Some dependencies may have been re-defined.
- Make sure that all copies of the old documents are replaced with updates.

Validate project objectives resulting from the program parameter definition process

- Meet with the project sponsor to validate the project documents and schedule.
- Resolve any issues that the project sponsor may have with the project documents and schedule.

Who does this?

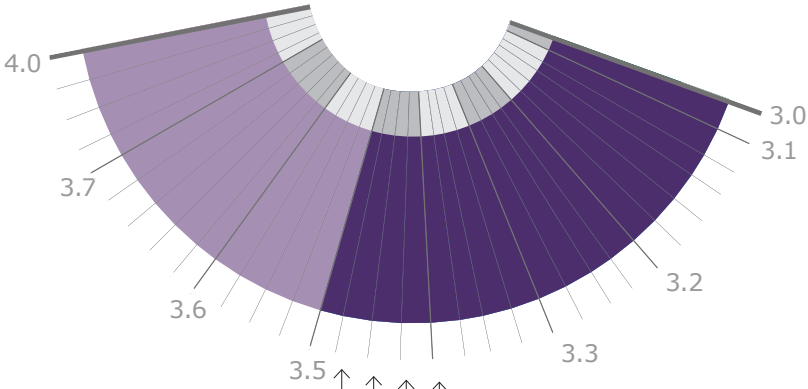
The project manager is responsible for assuring that the project documents are updated.

Completion criteria

All project documents have been updated and stored in the project file.

Do differently

3.4 Refine estimates & finalize resource commitments



3.4 Refine estimates and finalize resource commitments
3.4.1 Determine pure effort
3.4.2 Refine the task duration
3.4.3 Determine workload requirements

Purpose

The project team develops credible task duration estimates and resource requirements/commitments prior to beginning the plan optimization process. This activity improves the overall accuracy of the plan.

3.4.1 Determine pure effort

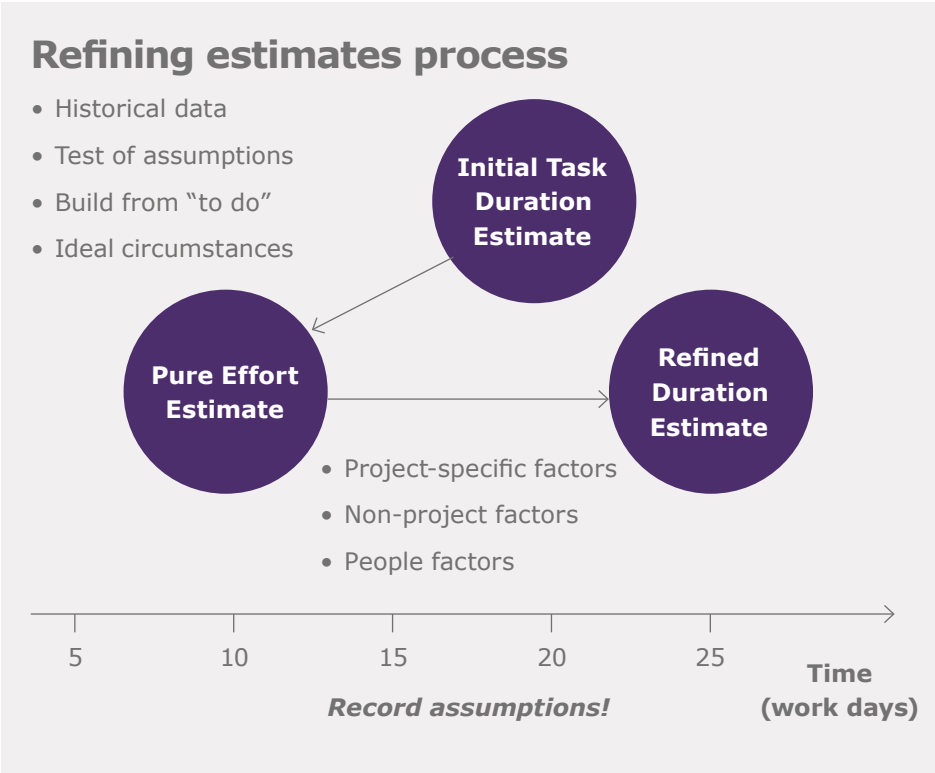
The task owner analyzes the person-hours of work required to complete the task. This helps to ensure that the task owner has a detailed understanding of the task effort prior to refining the duration.

3.4.2 Refine the task duration

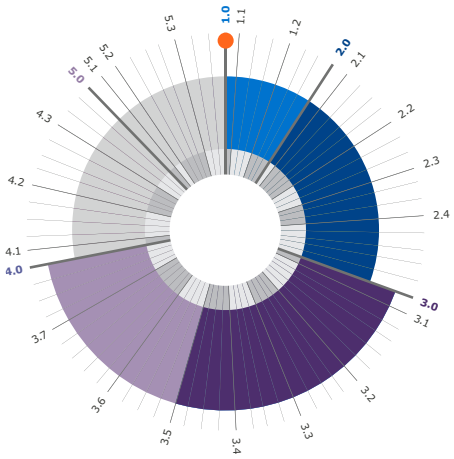
The task owner refines the task duration using the detailed analysis of the pure effort and of the factors that will impact productivity on the task. The re-estimated duration refines the prior duration estimate and helps to increase the confidence in the plan.

3.4.3 Determine workload requirements

The project team makes the final resource adjustments to the preliminary project plan prior to project optimization.


Refining estimates process
• Historical data
• Test of assumptions
• Build from "to do"
• Ideal circumstances
Initial Task Duration Estimate
Pure Effort Estimate
Refined Duration Estimate
• Project-specific factors
• Non-project factors
• People factors
5
10
15
20
25
Time (work days)
Record assumptions!

3.4.1 Determine pure effort



Purpose

The task owner analyzes the person-hours of work required to complete the task. This helps to ensure that the task owner has a detailed understanding of the task effort prior to refining the duration.

Definitions

Pure effort – The amount of person-hours it would take to complete a task if there were no interruptions nor other commitments.

Best practices

Follow proven process steps in determining the task pure effort

- A good quality estimate of effort is neither padded nor overly aggressive/ optimistic. Pure effort considers actual work required to complete a task. Other factors, such as interruptions or number of people working on the task, are not considered at this time.
- Team involvement in the estimate is critical.
  - Draw on their expertise and experience.
  - Gain their buy-in to the process and the estimate.
- Document assumptions including:
  - Understanding of the size of the task.
  - Skills of the team members doing the task.
  - Equipment, tools required.
- Rely on documented history.
  - Use history base or metric data if available to determine effort.
  - Talk to experts who have experience on similar tasks.
  - Consider your own experience.
  - Review prior project binders to determine actuals.

Who does this?

The task owner is responsible for breaking the task down to pure effort.

Completion criteria

Pure effort for each identified task has been documented.

3.4.2 Refine the task duration

Purpose

The task owner refines the task duration using the detailed analysis of the pure effort and of the factors that will impact productivity on the task. The re-estimated duration refines the prior duration estimate and helps to increase the confidence in the plan.

Definitions

Task duration – The number of work days or work weeks it takes to complete a task.

Best practices

Convert effort to duration

- The effort estimate is the basis for calculating duration.
- Schedules are based on work days or duration.
- Use the project-specific, non-project, and people factors in determining a refined estimate.
- Test for bias -- use DeMarco's 15% +/- rule.
  - The natural bias is to underestimate.
  - A good estimate has an equal chance of being 15% early or 15% late.

Consider project-specific factors

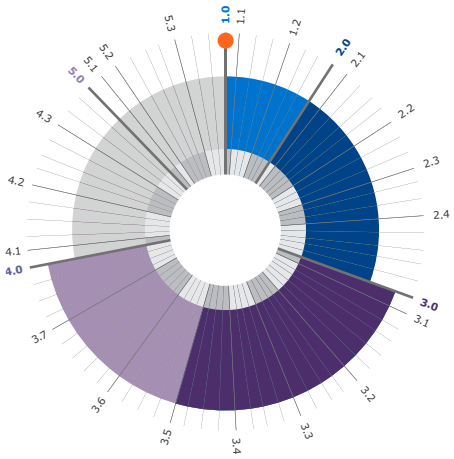
- These factors may impact the historical basis for your estimates:
  - Inadequate or unstable specification.
  - Complexity of the technical solution.
  - Ultra-high reliability requirements.
  - User and product interfaces require additional time and can create unforeseen problems.
  - The work is not well understood.
  - Longer projects increase uncertainty.
  - Geographic diversity of the project team.
  - Equipment availability.
  - Work environment.

Consider non-project factors

- These factors impact team member productivity or availability to work on tasks:
  - Vacations
  - Holidays
  - Meetings
  - Interruptions
  - Sick leave
  - Equipment downtime
  - Phone calls
  - Electronic mail

Consider people factors

- Productivity of team members will vary.
  - Relevant experience should increase productivity.
  - More than a 10:1 spread in individual productivity is possible.
- People may “burn out” if overtime is excessive.
- Plan for turnover of personnel.
- Teaching or acting as mentor for someone new impacts productivity.
- Consider the impact of contention (multi-tasking).
- Consider team size productivity factors. In general, four people working on the same task are not four times as productive.
  - Increases time spent communicating - N(N-1)/2.
  - Typically requires additional set-up and integration tasks.



Who does this?

The task owner is responsible for re-estimating the duration of the task.

Completion criteria

The durations for all identified tasks have been re-estimated. The re-estimated durations have been 1) updated in the WBS dictionary or on task post-its, and 2) entered into the project scheduling software, if used.

3.4.3 Determine workload requirements

Purpose

The project team makes the final resource adjustments to the preliminary project plan prior to project optimization.

Definitions

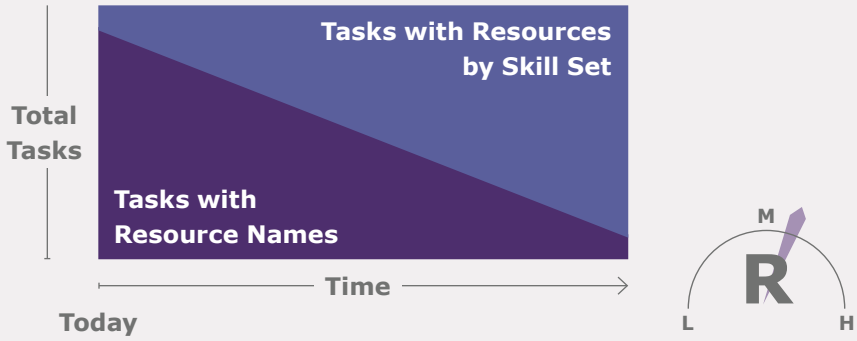
Resources – Any constrained asset, such as people, equipment, funding, etc.

Best practices

Identifying resources

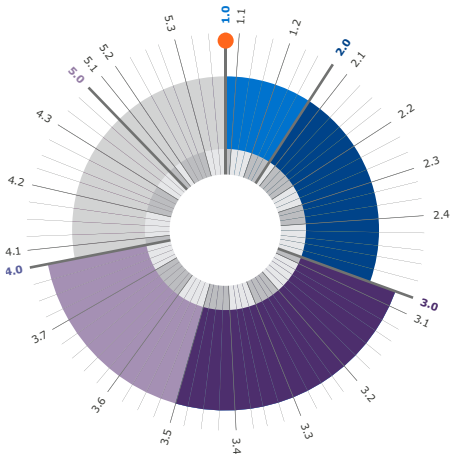
- Task owner identifies the resource needs – Functional Manager provides the resources
- Dependent on rigor
  - May only have titles or orgnizations later in the plan
- Occurs from the proposal phase through Track & Manage
  - Document assumptions that affect resources
  - Document/manage issues
  - Updates/communicate Team Roster when necessary

Identifying resources

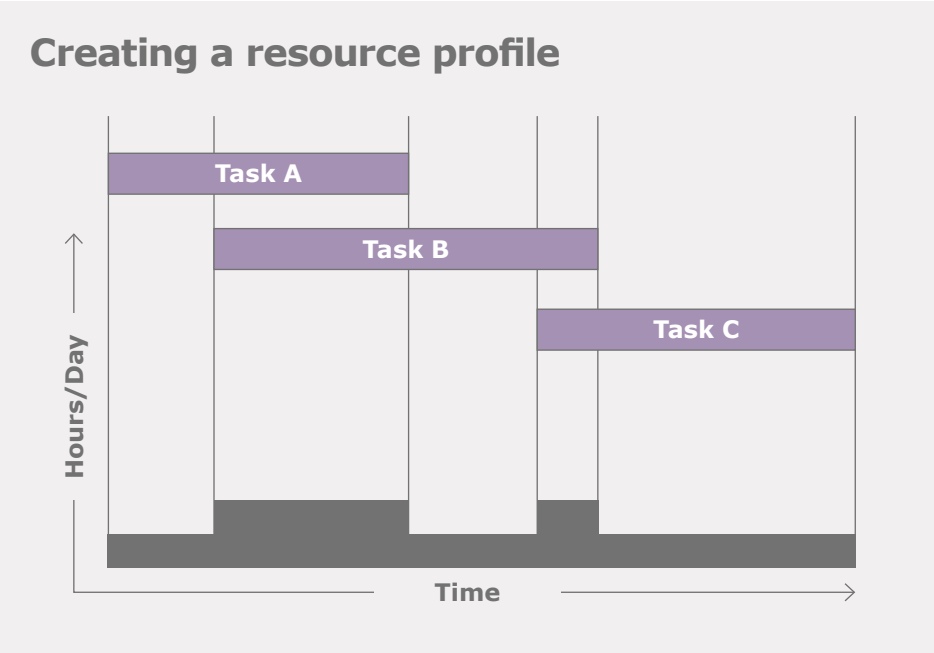


Resourcing tips

- Clarify expectations (Sponsor, Functional Manager, Project Manager)
  - How to assign resources (near/long term plan)
  - What tools to use in resource management
- No resource commitment – no plan
- Document assumptions about inputs that affect resource requirements
  - Team Roster, WBS Dictionary (name, skill set)
- Manage team members wisely:
  - Attitudes
  - Experience
  - Utilization constraints, etc.



Create resource analysis reports



- The resource plan format can be graphical and/or tabular.
- Graphical (histogram) resource plan gives a quick understanding of resource requirements.
- Tabular (spreadsheet) provides more detailed information on resource commitments.
- Reports can also include other resource requirements such as:
  - Equipment
  - Training
  - Funding (dollars) for travel, etc.
  - Software

Apply an appropriate level of accuracy

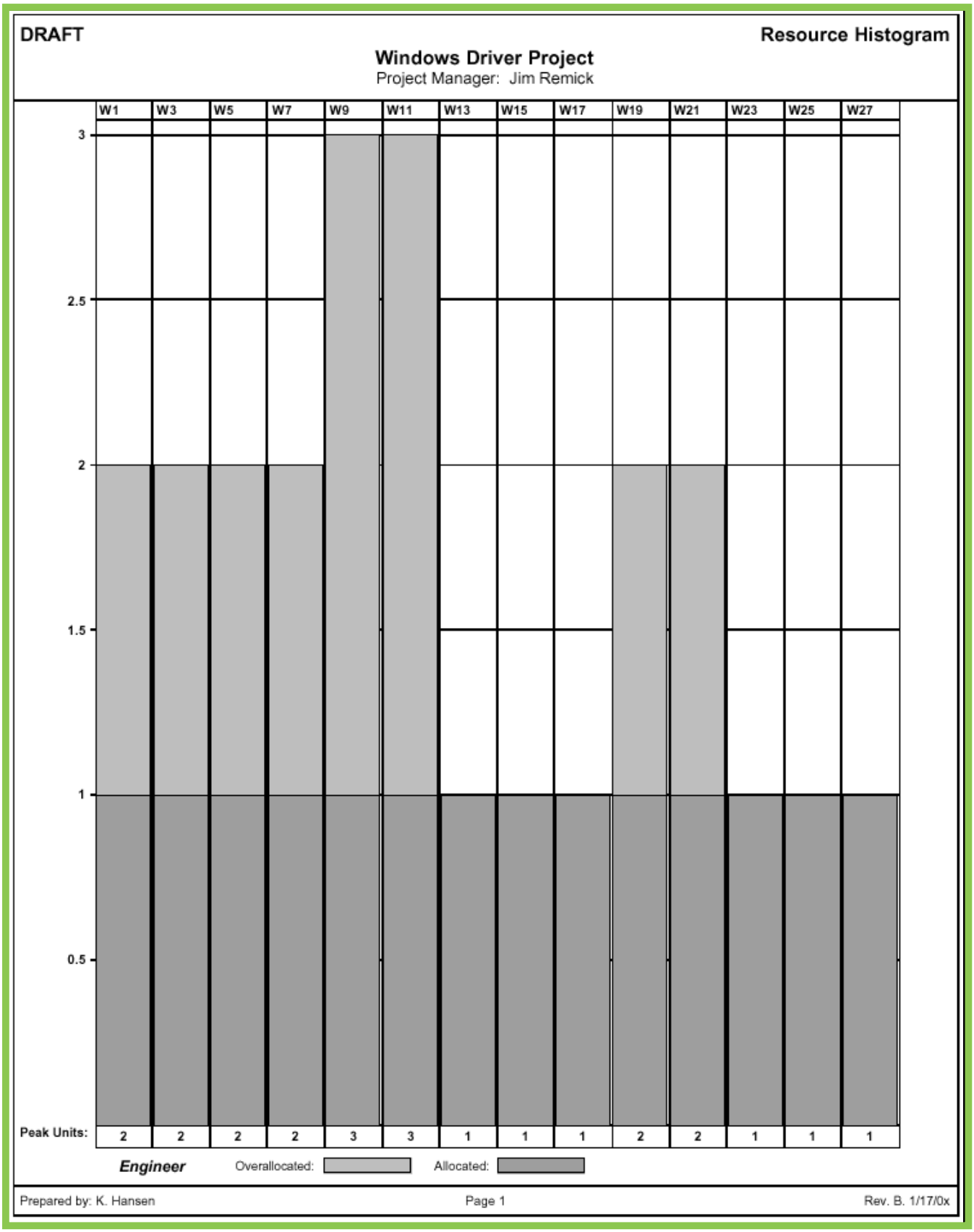
- The resource plan is only an estimate of the workload distribution.
- Try to use simple distributions of resources.
  - More complex distributions may give results which are only slightly better.
  - Complex distributions increase data input and analysis time significantly.
- People work in very complex, rapidly changing environments.

Make good use of automated tools

- Use automated tools to perform the necessary calculations.
- When the schedule changes, the resource plan can be updated automatically.
- Automated tools will help with the next part of the process.

Prepare the data for optimizing the plan

- Review overall profile to ensure that it makes sense.


DRAFT
Resource Histogram
Windows Driver Project
Project Manager: Jim Remick
W1 W3 W5 W7 W9 W11 W13 W15 W17 W19 W21 W23 W25 W27
3
2.5
2
1.5
1
0.5
Peak Units:
2 2 2 2 3 3 1 1 1 2 2 1 1 1
Engineer
Overallocated:
Allocated:
Prepared by: K. Hansen
Page 1
Rev. B. 1/17/0x

DRAFT **Resource Requirements by Function**

Windows Driver Project

Project Manager: Jim Remick

Resource Name	Group	Total Work	Cost	Peak Units
Engineer	Tech	1,448 hrs	$40,725.00	3

ID	Task Name	Units	Work	Delay	Start	Finish
4	Plan the Project Framework	1	32 hrs	0 hrs	Thu 1/5/95	Tue 1/10/95
5	Develop WBS, Schd. & Res. Plans	1	40 hrs	0 hrs	Wed 1/11/95	Tue 1/17/95
9	Develop External Specifications	1	160 hrs	0 hrs	Wed 1/11/95	Tue 2/7/95
11	Prepare Financial Analysis	1	80 hrs	0 hrs	Fri 2/10/95	Thu 2/23/95
12	Prepare Internal Specifications	1	160 hrs	0 hrs	Fri 2/10/95	Thu 3/9/95
15	Develop Driver	1	320 hrs	0 hrs	Fri 3/10/95	Thu 5/4/95
16	Identify Beta Test Sites	1	80 hrs	0 hrs	Fri 3/10/95	Thu 3/23/95
17	Develop Quality Plan	1	80 hrs	0 hrs	Fri 3/10/95	Thu 3/23/95
20	Conduct Beta Test	1	160 hrs	0 hrs	Tue 5/16/95	Mon 6/12/95
21	Modify Driver Based on Test	1	80 hrs	0 hrs	Tue 6/13/95	Mon 6/26/95
24	Develop Support Plan	1	160 hrs	0 hrs	Fri 5/5/95	Thu 6/1/95
26	Update Documentation	1	80 hrs	0 hrs	Tue 6/27/95	Mon 7/10/95
27	Sign off Product for Release	1	16 hrs	0 hrs	Tue 7/11/95	Wed 7/12/95
32	Project Complete (M)	1	0 hrs	0 hrs	Thu 7/20/95	Thu 7/20/95

Manager	**Tech**	**26 hrs**	**$893.75**	**1**

ID	Task Name	Units	Work	Delay	Start	Finish
6	Review & Approve Project Plan	0.5	4 hrs	0 hrs	Wed 1/18/95	Wed 1/18/95
17	Develop Quality Plan	0.5	4 hrs	0 hrs	Fri 3/10/95	Fri 3/10/95
25	Develop Final Financial Analysis	0.5	4 hrs	0 hrs	Tue 6/27/95	Tue 6/27/95
26	Update Documentation	0.5	6 hrs	0 hrs	Tue 6/27/95	Wed 6/28/95
30	Conduct Close Out Review	1	8 hrs	0 hrs	Thu 7/13/95	Thu 7/13/95

Support Staff	**Staff**	**672 hrs**	**$12,600.00**	**1**

ID	Task Name	Units	Work	Delay	Start	Finish
2	Start Project (M)	1	0 hrs	0 hrs	Tue 1/3/95	Tue 1/3/95
4	Plan the Project Framework	1	32 hrs	0 hrs	Thu 1/5/95	Tue 1/10/95
9	Develop External Specifications	1	160 hrs	0 hrs	Wed 1/11/95	Tue 2/7/95
12	Prepare Internal Specifications	1	160 hrs	0 hrs	Fri 2/10/95	Thu 3/9/95
15	Develop Driver	1	320 hrs	0 hrs	Fri 3/10/95	Thu 5/4/95

Programmers	**Tech**	**640 hrs**	**$16,000.00**	**1**

ID	Task Name	Units	Work	Delay	Start	Finish
9	Develop External Specifications	1	160 hrs	0 hrs	Wed 1/11/95	Tue 2/7/95
12	Prepare Internal Specifications	1	160 hrs	0 hrs	Fri 2/10/95	Thu 3/9/95
15	Develop Driver	1	320 hrs	0 hrs	Fri 3/10/95	Thu 5/4/95

Technical Writer	Doc	360 hrs	$7,875.00	2

ID	Task Name	Units	Work	Delay	Start	Finish
5	Develop WBS, Schd. & Res. Plans	1	40 hrs	0 hrs	Wed 1/11/95	Tue 1/17/95
9	Develop External Specifications	1	160 hrs	0 hrs	Wed 1/11/95	Tue 2/7/95
12	Prepare Internal Specifications	1	160 hrs	0 hrs	Fri 2/10/95	Thu 3/9/95

Project Manager	Staff	688 hrs	$20,210.00	2

ID	Task Name	Units	Work	Delay	Start	Finish
2	Start Project (M)	1	0 hrs	0 hrs	Tue 1/3/95	Tue 1/3/95
3	Determine Project Objective	1	16 hrs	0 hrs	Tue 1/3/95	Wed 1/4/95
4	Plan the Project Framework	1	32 hrs	0 hrs	Thu 1/5/95	Tue 1/10/95
5	Develop WBS, Schd. & Res. Plans	1	40 hrs	0 hrs	Wed 1/11/95	Tue 1/17/95

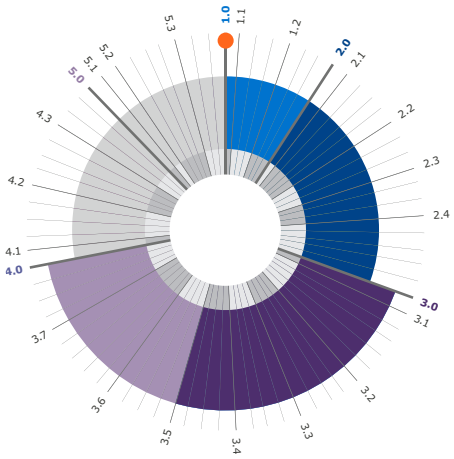
Prepared by: K. Hansen Page 1 Rev. B. 1/17/0x

Who does this?

As a minimum, the task owners identify the resources for their particular tasks. The project team may meet to review the total project resources.

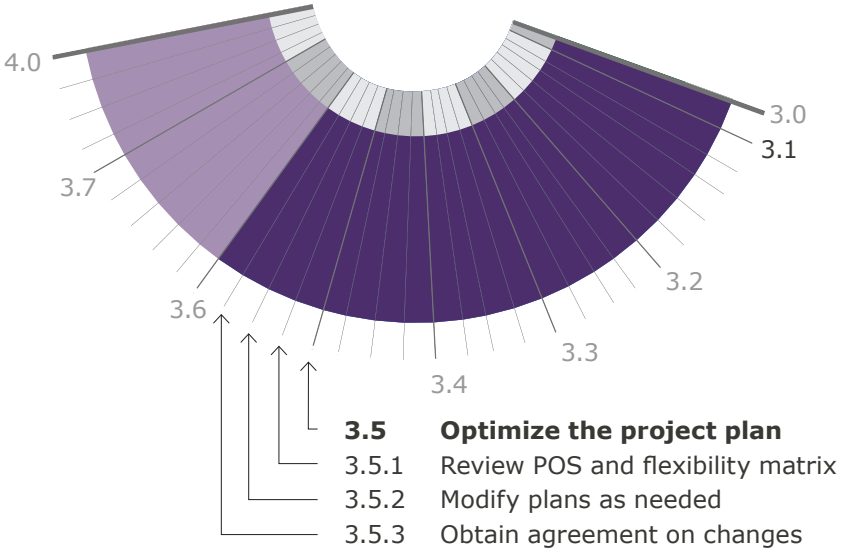
Completion criteria

All resource requirements have been documented in a resource histogram or spreadsheet.



Do differently

3.5 Optimize trade-offs



Purpose

The project team makes adjustments to the project plan in order to meet the project objectives as established in the POS. These adjustments help to ensure that the project is the right project at the time for the organization.

3.5.1 Review POS and flexibility matrix

The project team reviews the POS to center themselves on the objectives; and reviews the flexibility matrix to get guidance on how to make trade-offs, if necessary.

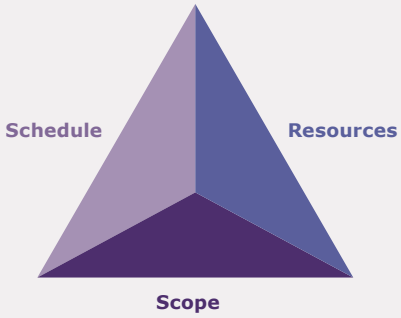
3.5.2 Modify plans as needed

The project team develops ideas to improve the plan, then applies the ideas to the plan. Some modifications may have to get the project sponsor’s approval.

3.5.3 Obtain agreement on changes

The project team presents the modified plan and presents the findings and recommendation to the sponsor. The sponsor approves, sends the team back for more work, or cancels the project.

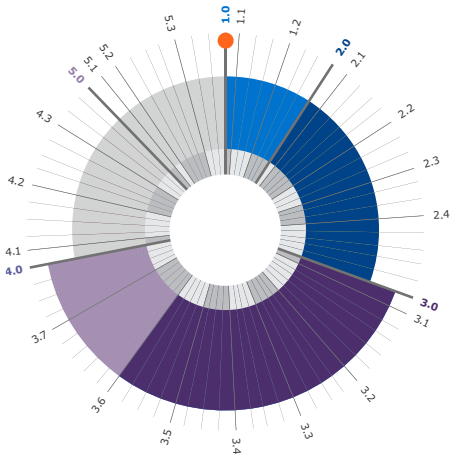
Goals of optimizing



Schedule			
Scope			
Resources			

- Meet POS
- Consider impact on team
- Good business sense
- Tradeoff among 3 parameters with guidance from flexibility matrix

3.5.1 Review the POS and flexibility matrix



Purpose

The project team reviews the POS to center themselves on the objectives, and reviews the flexibility matrix to get guidance on how to make trade-offs, if necessary.

Definitions

Confidence test – Questions designed to assess the readiness of the team to optimize the plan.

Best practices

Set up optimizing by asking these key questions

Confidence test

- What is your confidence in the accuracty of the information in your plan?
  - Look for issues
- What is your confidence you can achieve the POS?
  - 1-100

- Need to ask of all team members prior to optimizing.
- Look for issues.
- Look for differences in assumptions and perceptions.

Review the POS to determine if the current plan meets the objectives
- If the objectives are met, optimize to apply common sense to the plan.
- If the objectives are not met, optimize to attempt to meet established objectives.

Use the flexibility matrix as the basis for decision making
- The flexibility matrix is only a guide – “least flexible” does not imply a required consideration.

Who does this?

The project manager assures that the team follows the process in reviewing the POS and flexibility matrix prior to generating optimization ideas.

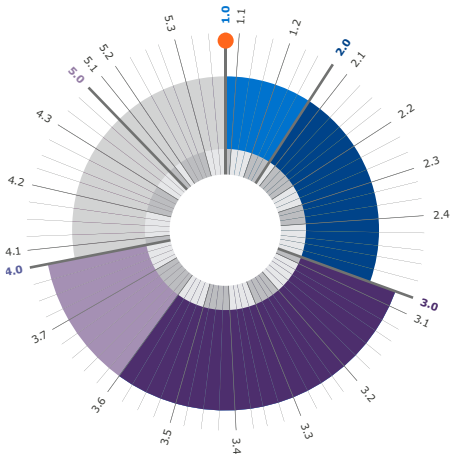
Completion criteria

The POS and flexibility matrix have been reviewed and any issues have been noted
by the project manager.

Process considerations

Stand alone project	Additionally, if part of a program
	The integrated schedule might indicate that an individual project might not need to be optimized even though as a stand-alone project, optimization would have been performed.

3.5.2 Modify plans as needed



Purpose

The project team develops ideas to improve the plan, then applies the ideas to the plan. Some modifications may have to get the project sponsor's approval.

Definitions

Tactics – Measures that could be taken to overcome plan issues.

Best practices

Use the process for optimizing the plan

Two steps to optimizing

Step one:

- Modify the preliminary plan to achieve the POS

Step two:

- Propose modifications to the project objectives if the POS is still not met

"Opportunities for creative inventiveness"

Two steps to optimizing

Step one:

- Modify the preliminary plan to achieve the POS
  - Stay within the boundaries of the POS
  - Act on ideas of which you have authority
  - Perform "what-if" analysis

First consider tactics that are within the authority of the project manager

- Make changes to schedule, resources, and scope to the extent of your authority while keeping the POS fixed.
- Make sound business decisions.
- Avoid "scorched earth".
- Use the project scheduling software to produce "what-if" analyses.

If the optimized plan at this point meets the POS,

- Document your decisions and get agreement.
- Ensure that all groups agree to changes.
- Include all changes in the project file.
- Distribute according to framework decisions made earlier.

Two steps to optimizing

Step two:

- Propose modifications to the project objectives if the POS is still not met
  - Modifications could be significant
  - Prepare three options and a recommendation
  - Provide "what-if" analysis
  - Present to the sponsor for approval

Only the sponsor can change the objectives

If the optimized plan at this point does not meet the POS, prepare a fact-based presentation for management

- Identify the issue specifically – the issue should only be about scope, schedule or resources.
- Include 3 specific options for responding to the issue.
- Include a recommendation for the sponsor's decision.
- Only bring to the sponsor options for which the project manager does not have the authority to decide.
- Include cost/benefit and risk for each alternative – be specific.
- Be prepared with back-up data.

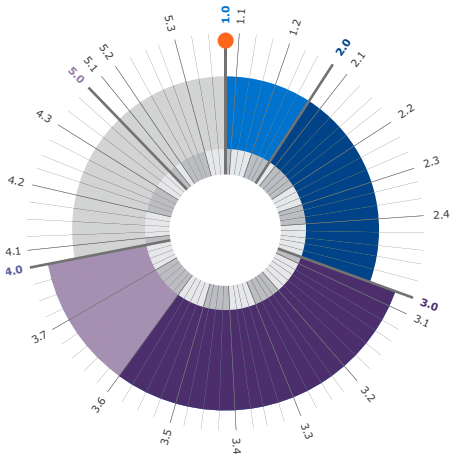
Two steps to optimizing

Optimization analysis

Issue: (Be Specific!)

Tactics:
1. (Be Specific!)
2. 3 options +
3. 1 Recommendation

Impact Benefits (+)	Tradeoffs (-)



Consider these tactics for schedule issues

- Reconcile your schedule with any high level deliverable dates.
- Re-evaluate logical dependencies and, as appropriate:
  - Break dependencies
  - Change dependencies from finish-to-start to start-to-start with a lag where practical. Warning: Running tasks in parallel may increase project risk!
- Break tasks into sub-tasks which can be done in parallel.
- Re-negotiate task start dates.
- Re-evaluate estimates.
- Look at time and technology issues.
  - Re-evaluate the use of new technologies (consider risk).
  - Usually causes a loss in productivity at the beginning.
- Reorder tasks (reassess dependencies).
- Reassign people from non-critical tasks to critical tasks to decrease the duration of the critical tasks.
- Re-negotiate deadline dates.
- Change non-workdays to workdays (remember – no "scorched earth"!).

Consider these tactics for resource issues

- Reconcile your resource requirements with availabilities.
- Identify areas of opportunity (resource under-commitments).
- Level resources by temporarily postponing non-critical work.
  - Minimizes (or eliminates) over-commitments during critical time frames.
  - Provides a more even distribution of work for team.

- Obtain other resources to relieve temporary peaks.
  - People from other groups
  - Temps
  - Contractors
  - Field organizations
- Consider technology being used.
  - State-of-the-art technologies may increase resource efficiency, but may also require additional training.
  - Traditional technologies may provide a better balance for short term, small budget projects.
- Decrease the requirement per day of the resource.
  - Increases the task duration.
  - Decreases peak demand.
- Increase skills efficiency by ensuring that team members are trained adequately.
- Improve productivity by maximizing the amount of time people work on continuous tasks.

Consider these tactics for scope issues

- Based on schedule and resource needs, reconcile your project scope with customer requirements.
- Negotiate a shift in features to a later release.
- Negotiate scope of roll-out, such as number of test sites.
- Analyze the business risk of scope related issues.
- Analyze the process and try to reduce complexity.
- Make/buy/leverage components.
- In general, reduce scope rather than quality where appropriate.
  - Get management agreement.
  - Get customer agreement.

Who does this?

The project manager leads the team through a process of developing options, selecting options and preparing materials to discuss the optimization results.

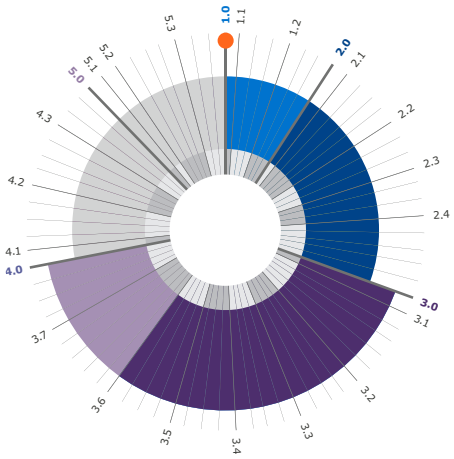
Completion criteria

The project plan has been adjusted within the authority of the project manager.
If the plan still does not meet the POS, a proposal has been developed for the project sponsor to discuss options in modifying the plan.

Process considerations

Stand alone project	Additionally, if part of a program
Use the project scheduling software as a "what-if" tool. Create files for each tactic showing the benefit of each.	Project optimization must be consistent with the program schedule, and reviewed with the program team.

3.5.3 Gain agreement on changes

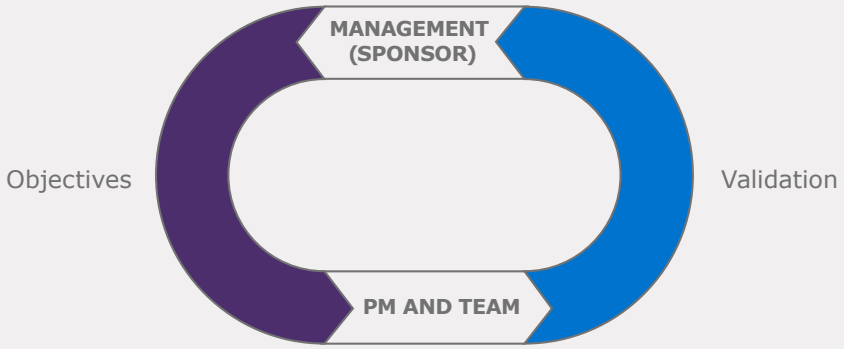


Purpose

The project team presents the modified plan and presents the findings and recommendation to the sponsor. The sponsor approves, sends the team back for more work, or cancels the project.

Best practices

Key validation point – optimization



- "What if" fact-based alternatives
- Multiples (3) options and a recommendation
- Present recommendation for management decision-making

Discuss the optimization analysis with the sponsor

- Provide an advance copy of the analysis to the sponsor.
- Include the core team in the discussion.
- Review the issues, the alternatives for overcoming the issues, and finally, your recommendation for modifying the plan to meet the POS, or for modifying the POS.
- Be open to new options raised by the sponsor.
- Expect that the final decision will be a combination of the team's options and the sponsor's ideas.

Request a decision by the sponsor

- The sponsor may decide:
  - To approve the continuation of the planning process by the project team (proceed to risk management).
  - To request the project team to complete additional work prior to an approval to move forward.
  - To cancel the project.
- This is the third key validation point with the sponsor. The is / is not list for this validation point follows:

Is	Is not
• A checkpoint after optimization to assure reasonable fit between the plan and the POS • A step that could indicate project cancellation is required • Required if plan vs. POS shows large variance in scope, schedule and/or resources • An approval necessary to continue planning through risk management • A step that may indicate iteration is necessary	• Required if plan vs. POS shows complete coverage • An approval to proceed with the entire project

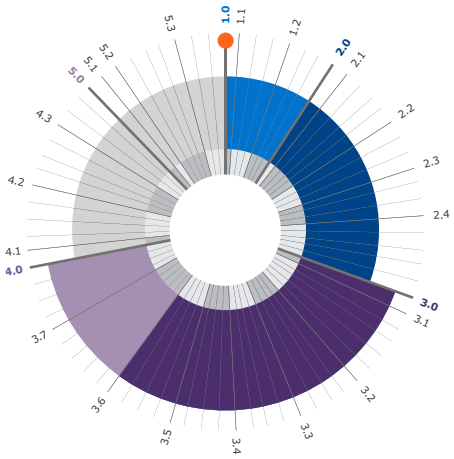
Who does this?

The project manager is responsible for setting up and leading sessions where the plan optimization is validated.

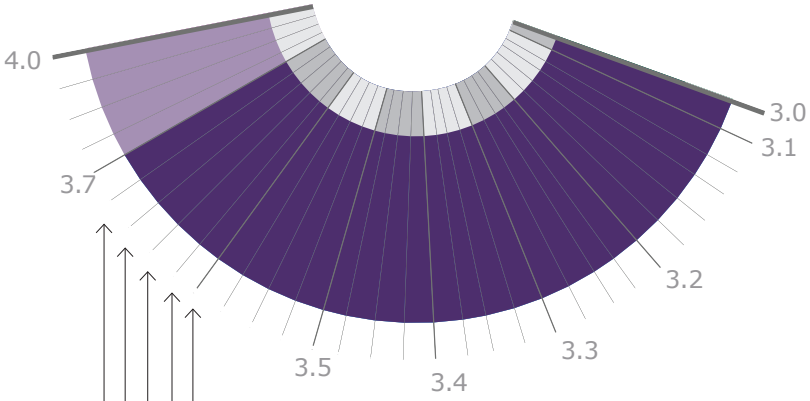
Completion criteria

An optimized project plan has been agreed to by all team members (including management and the customer), and distributed.

Do differently



3.6 Develop risk management plans



3.6 Develop risk management
3.6.1 Identify project risks
3.6.2 Assess project risks
3.6.3 Generate risk management plans
3.6.4 Obtain project plan validation

Purpose

The project team identifies areas of risk so that action can be taken to minimize or eliminate the impact and likelihood of occurrence. This helps to make the plan more robust and able to respond to future issues.

3.6.1 Identify project risks

The team identifies risks that threaten the success of the project. This helps to quantify the overall level of risk in the project.

3.6.2 Assess project risks

The team decides which of the risks most threaten the success of the project. This step helps the team to focus on the most important risks.

3.6.3 Generate risk management plans

The team creates risk management plans for each of the most threatening risks. The risk management plans include preventive actions (where possible) and contingency actions.

3.6.4 Obtain project plan validation

The sponsor approves the transition of the project from planning to managing the plan. This formal approval helps to ensure that the project stakeholders are clear that the transition is about to happen.

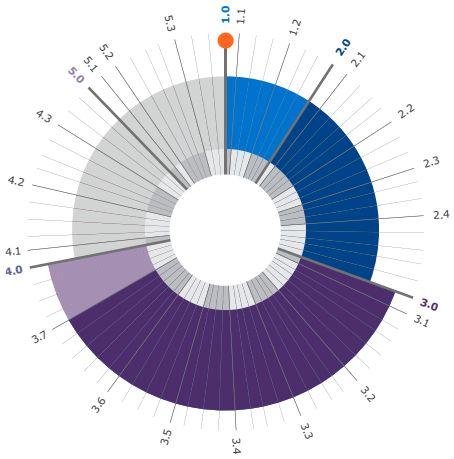
Overwhelming risk

- Changing requirements
- Long tasks
- Interfaces
- Technical problems
- Equipment failure
- Miscommunication
- Vendor deliverables
- Loss of key resources
- Reorganization

Risk management steps

- Identify risks
- Assess risks
- Create risk management plans

3.6.1 Identify project risks



Purpose

The team identifies risks that threaten the success of the project. This helps to quantify the overall level of risk in the project.

Definitions

Risk – An event that would threaten the success of the project if it were to occur.

Parking lot risks – Risks that have been identified during the project team's work to this point; but have yet to be assessed or managed.

Best practices

Risk management steps

- Identify risks
  - "Parking lot" risks
  - Scope, schedule, resource risks
  - General brainstorm
- Assess risks
- Create risk management palns

Create a list of risks

- Brainstorm a list of risks.
- Be careful to not filter the ideas.
- Listen to all participants as equals.
- Start with the "Parking Lot" risks on the flip chart in the team's work area.

Consider these typical schedule risks

- Suppliers may be late.
- Potential schedule delays due to multiple critical paths.
- Potential schedule delays due to high percentage of tasks on the critical path.
- Technology may not be ready/qualified on time.
- Customers may not respond to requests quickly enough .

Consider these typical resource risks

- Key resources may not be available when needed.
- Key resources may be applied to other projects when needed.
- Resources may not be skilled enough to complete the tasks.
- Training may not be available for resources.
- Reorganization may impact resource availability.

Consider these typical scope risks

- New technologies may not work.
- Customer requirements may change late in the project.
- Customer requirements may be unattainable.

Who does this?

The project manager and core team brainstorm the risks.

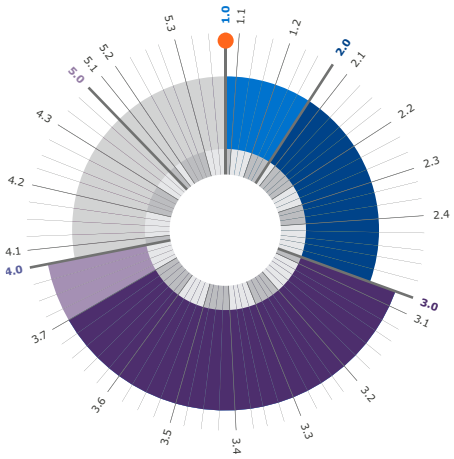
Completion criteria

List of risks has been created. If a word processor application will be used to document the risk management plan, risks have been listed on a table within the application.

Process considerations

Stand alone project	Additionally, if part of a program
Some project managers may have a tendency to filter the ideas during the brainstorming session. Use the risks that have been collected by the planning team to this point during the previous planning steps. Some teams have found it helpful to review documents that address scope, schedule and resources to uncover additional risks.	The project risks need to be shared with the program manager. Some risks identified here may really be program-level risks and should be escalated to the program team.

3.6.2 Assess project risks



Purpose

The team decides which of the risks most threaten the success of the project. This step helps the team to focus on the most important risks.

Definitions

Risk assessment matrix – A table used to sequentially evaluate the magnitude of each identified risk.

Best practices

Risk assessment matrix

Risk Area	Potential Impact	Likelihood of Occurrence	Difficulty of Timely Detection	Overall Threat
1				
2				
3				

Assess each risk

- Follow the risk assessment process steps.
- Use risk assessment matrix to compare and prioritize potential risks.
- Assess potential problems in terms of:
  - Likelihood of occurrence.
  - Potential impact in dollars, time or quality.
  - Likelihood of not being detected in time to take corrective action, or before the risk has adversely affected the project.
- Identify areas of highest risk using a simple high, medium or low grading scheme.

Base your assessment on:

- The experience of team members.
- A history of similar problems.

Who does this?

The core team and the project manager participate in the assessment session. It's important that everyone is heard.

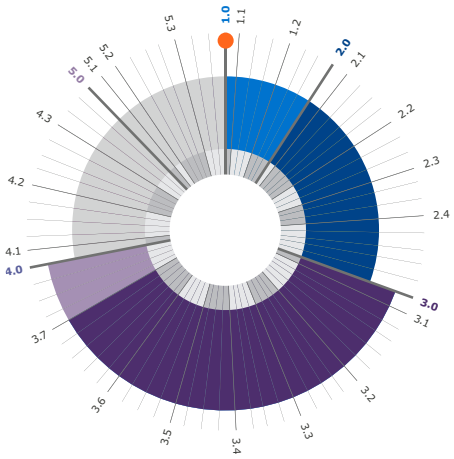
Completion criteria

A completed risk assessment matrix has been documented. The team has reached agreement on the highest risk issues.

Process considerations

Stand alone project	Additionally, if part of a program
Project managers sometime have a tendency to dominate the risk assessment session.	Project optimization must be consistent with the program schedule, and reviewed with the program team.

3.6.3 Generate risk management plans



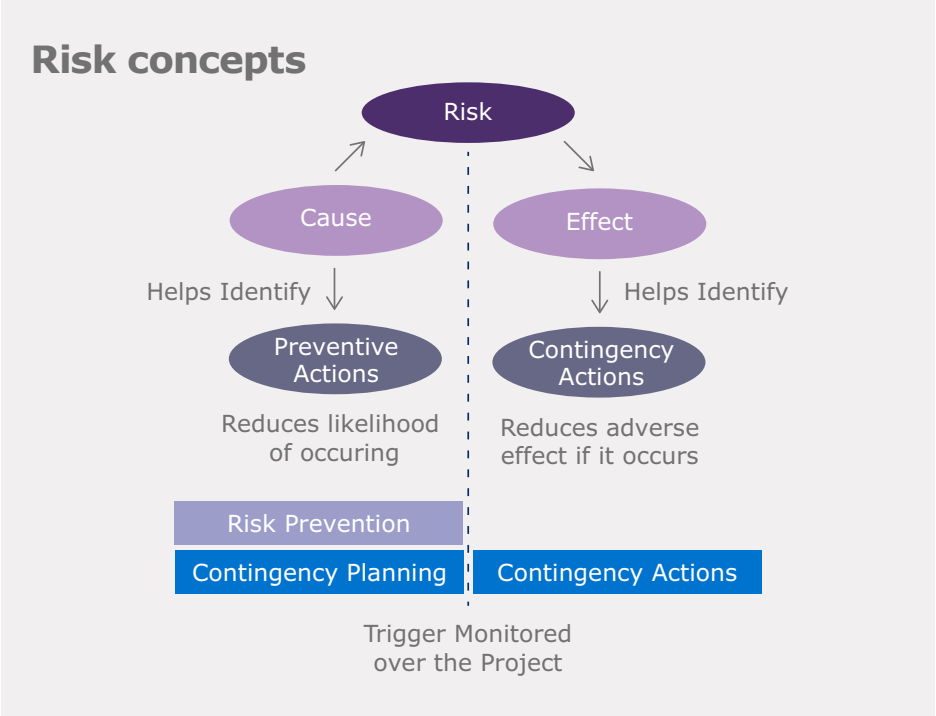
Purpose

The team creates risk management plans for each of the most threatening risks. The risk management plans include preventive actions (where possible) and contingency plans.

Definitions

Preventive action – Steps taken to prevent an identified risk.
Contingency action – Steps identified to be taken if a risk event were to occur in the future.
Trigger – A metric identified to signal the occurrence of a risk event.
Owner – The person who is responsible for recognizing that a specific risk trigger has occurred.

Best practices



Use these guidelines in developing risk management plans

- Each risk management plan should be clear and well defined.
- Make and document risk management plans including:
  - Preventive actions that will be taken to reduce the likelihood, or eliminate, a risk event.
  - Contingent actions that will be implemented should a risk event occur.
- Make sure that all parties involved agree to the risk management plans and have the authority to make commitments.

Create preventive actions

- Preventive actions reduce the likelihood that the risk will occur.
- Preventive actions are typically better than contingent actions.
- Determine preventive actions by focusing on the cause (vs. effect) of the risk.
- All preventive actions should be added to the project plan.

Create contingency actions

- Contingent actions minimize the impact of project risks, if they were to occur.
- Determine contingent actions by focusing on the effect of the risk.
- Each contingency plan must have a trigger which tells you when to put the contingent action into effect, and an owner for each trigger.

Consider these actions when planning for schedule risks

- Negotiate deadlines of high risk tasks to accommodate potential slippage.
- Schedule tasks which can be postponed later in the project.
- Conservatively estimate durations of tasks on critical path.
- Plan for "musts" rather than "wants".
- Do high risk tasks first if dependencies allow.
- Periodically revisit all assumptions.

Consider these actions when planning for resource risks

- Assign strong people to high risk tasks and critical path tasks.
- Assign a person, if only minimally, as a back-up to any tasks where the loss of a team member would be damaging.

Consider these actions when planning for scope risks

- Re-negotiate feature set.
- Plan for "musts" rather than "wants".
- Delay some features to later releases.
- Look at alternative technologies.
- Look at leveraging off existing products.
- Include prototype tasks to assess the risk.

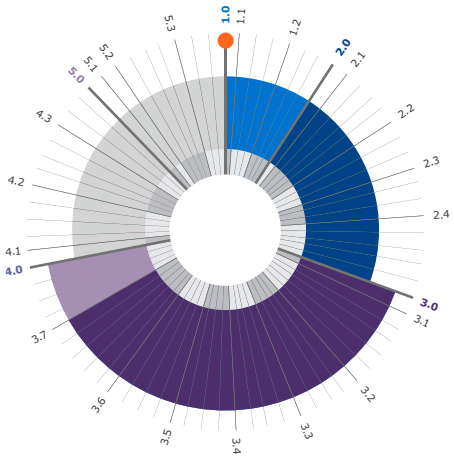
Develop trigger(s) for each risk

Two elements of a trigger

- The metric
- The metric value that triggers the contingency plan
  - Example:
  - Risk: Our supplier may be late
  - Trigger: Material has not arrived in 7 days (metric value) after the delivery date (metric)

Six characteristics of an effective trigger

- Specific
- Binary
- Automatic
- Functional
- Appropriate
- Timely

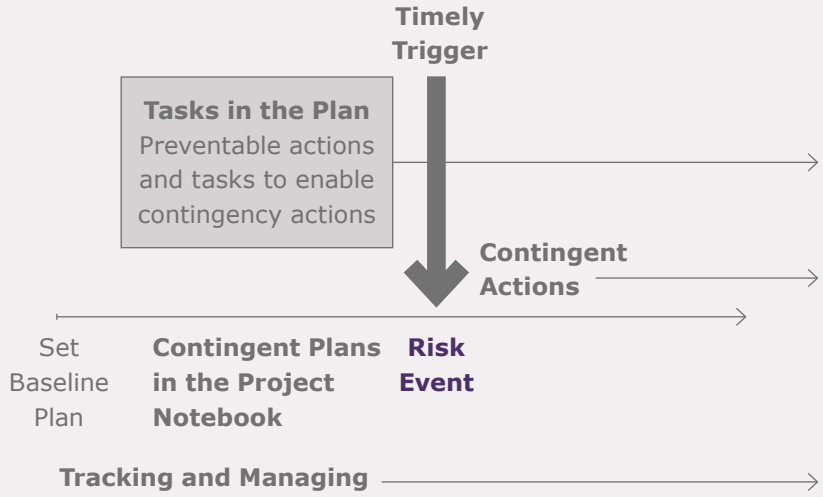


- A separate trigger may be required for each contingency action.
- Define the mechanism for detecting circumstances and variance/deviation limits that would trigger each contingency plan.
- Document and get agreement on the trigger point for each contingency plan.

Assign an owner for the contingency actions

- Person responsible for ensuring the contingency actions are initiated once the contingency action trigger occurs.

Risks during tracking and managing



Who does this?

Individuals or teams are assigned to develop the risk management plans. The project manager is responsible for assuring that the plans are completed.

Completion criteria

All preventive actions have been integrated into plan. Contingent action have been planned but not included in the project schedule. All plans have been documented
in the project description document and communicated to the team.

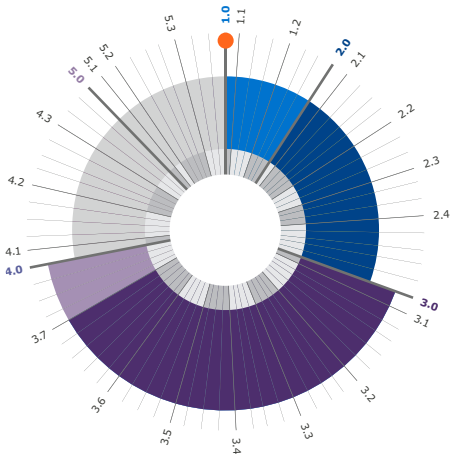
Summarize and document the risk management plans in a matrix

Risk assessment matrix

Risk Area	Preventative Action	Contingency Action	Trigger(s)	Owner(s)
1				
2				
3				

- Include preventive and contingency actions.
- Include trigger(s) and owner(s).
- Document the plan in the project notebook.

3.6.4 Obtain project plan validation

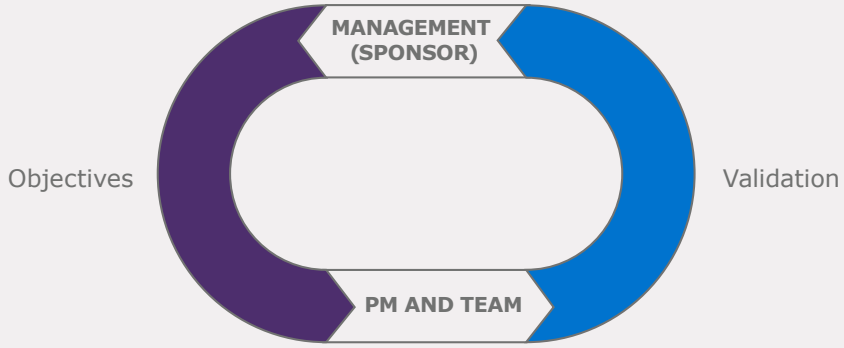


Purpose

The sponsor approves the transition of the project from planning to managing the plan. This formal approval helps to ensure that the project stakeholders are clear that the transition is about to happen.

Best practices

Key validation point – project plan



- "Can you meet POS? If no, 3 options and recommendation
- Major components of WBS
- Optimized schedule (Gantt with critical path)
- Major resource issues
- Significant risks and their management plans
- Open issues/key assumptions

Discuss the risk management analysis with the sponsor

- Provide an advance copy of the risk management plan to the sponsor.
- Include the core team in the discussion with the sponsor.
- Review the risk management plans and provide a general overview of the entire project planning results-to-date.

Request a decision by the sponsor

- The sponsor may decide:
  - To approve the plan (proceed to baselining, and track and manage).
  - To request the project team to complete additional work prior to an approval to move forward.
  - To cancel the project.
- This the fourth key validation point with the sponsor: The is / is not list for this validation point follows:

Is	Is not
• The final approval step before launch • Required before launch • A comprehensive project plan review • May result in cancellation of the project • A go-no go decision point	• An automatic "yes" or approval • A working session

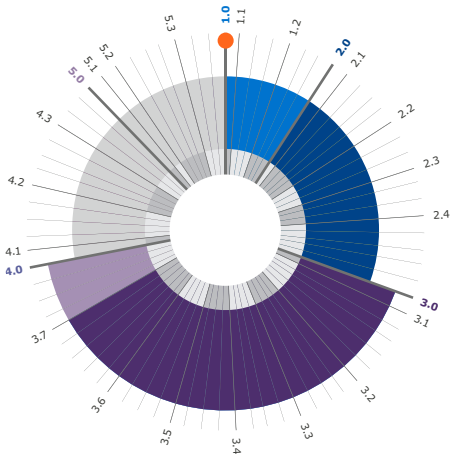
Who does this?

The project manager (and core team) meets with the project sponsor.

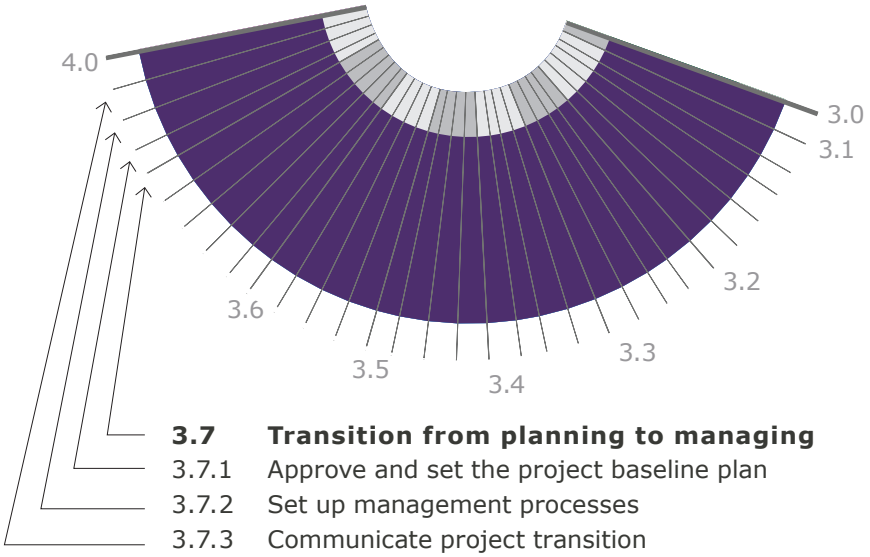
Completion criteria

The sponsor approves the plan and the transition from planning to managing the plan.

Do differently



3.7 Transition from planning to managing



Purpose

The project team prepares the project to move from planning to execution of the project. This step is essential to ensure that the project team has the ability to track and manage the project effectively.

3.7.1 Approve and set the project baseline plan

A "baseline" plan is the plan against which all project progress will be measured. The baseline plan is a "snapshot" of the approved plan and is set at the end of the project planning phase.

3.7.2 Set up management processes

The project team engages key management processes that were identified in 2.4 define the project infrastructure. Typically, the most visible of these processes is change management.

3.7.3 Communicate project transition

The project manager communicates to the project community that the project has transitioned out of the planning phase and into the management phase.

3.7.1 Approve and set the project baseline plan

Purpose

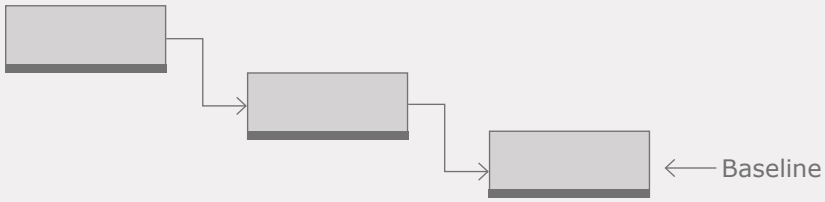
A baseline plan is the plan against which all project progress will be measured. The baseline plan is a "snapshot" of the approved plan and is set at the end of the project planning phase.

Definitions

Baseline – A snapshot of the planned start and planned finish of every task in the project. The baseline plan is used to help measure the progress of the project and to make more visible the areas that need attention.

Best practices

Project baseline



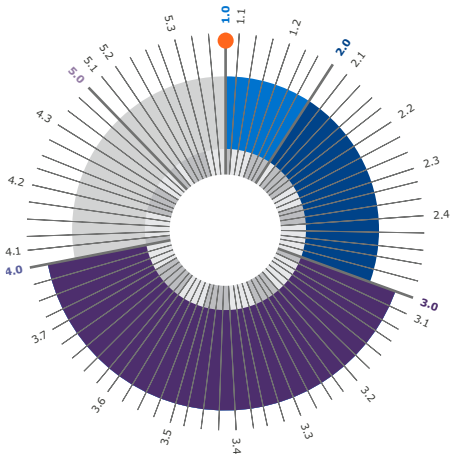
- Snapshot of approved plan
- Establish a target
- Provides something to measure progress against
- Makes project goals visible

Follow these process steps in setting the baseline

- Communicate the setting of the baseline to all groups that are impacted.
  - Distribute approved plans and supporting assumptions in accordance with project framework decisions.
- Archive a copy of the schedule and resource plans along with the assumptions.
- Ensure that any contracts with suppliers and customers are consistent with the baseline.

Change the baseline only when necessary

- Once set, it should not be easily changed.
- The sponsor must approve all baselines.
- The baseline plan should only be changed after:
  - Major events which cause change have been identified and communicated.
  - Impact of changes has been approved.
- If baseline is constantly revised there will be no point of comparison either during or after the project (regardless of the tool being used).
- Ensure that the process by which the baseline can be changed is consistent with appropriate change management processes.



Who does this?

The project manager is responsible for assuring that the baseline plan is set and for assuring that the team uses the baseline plan in managing the project. The project sponsor is the only one who can approve the setting or re-setting of the baseline plan.

Completion criteria

The project baseline plan has been approved and includes:

- POS and the flexibility matrix
- Schedule
- Resources
- Assumptions

The baseline has been set in the project scheduling software.

Process considerations

Stand alone project	Additionally, if part of a program
The baseline plan can be reset if the initial baseline no longer is close to the current plan. Only the sponsor can approve re-setting the baseline.	The setting or re-setting of the project baseline must be coordinated with the program manager.

3.7.2 Set up management processes

Purpose

The project team engages key management processes that were identified in 2.4 define the project infrastructure. Typically, the most visible of these processes is change management.

Best practices

Change management

- Review proposed changes
- Log all changes
- Validate if outside POS
- Announce changes

Engage the change management process

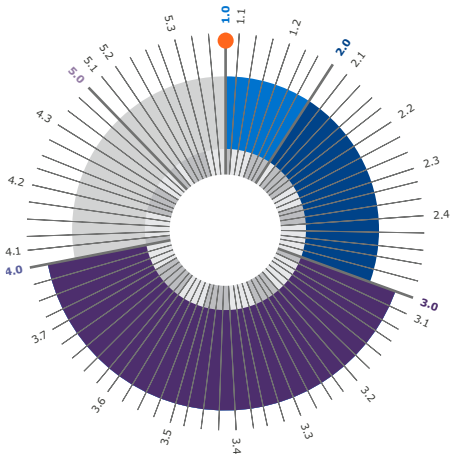
- Review (revise if necessary) and implement project change management process.
- A well defined process must be communicated to all people involved.
- The project manager is ultimately responsible for the process.
- The process should reflect the results of the framework discussions.
- The process should identify the source, describe the change, the impact, the consequences and reasons for approval/rejection.
- The process should be used to log all changes.
- This process is one of the PM's mechanisms for effectively controlling the project.

Communicate the status reporting process

- Publish calendar of status reporting periods.
- Status reporting frequency was determined during the framework process.

Tie up loose ends on the project file

- Ensure that the project file is in place and project planning outputs are complete and included in the file.



Who does this?

The project manager is responsible for making sure that any management processes are engaged, and clearly understood by anyone who needs to know.

Completion criteria

All management processes have been put in place and are ready for use.

Process considerations

Stand alone project	Additionally, if part of a program
Some project teams disregard the change management process while managing the project. It is very important that the project manager educate the project team on the necessity of following the process.	The project change management process needs to be consistent with that of the program. The processes and procedures decisions need to define how the project team will know when to raise a potential change to the program team.

3.7.3 Communicate project transition

Purpose

The project manager communicates to the project community that the project has transitioned out of the planning phase and into the management phase.

Best practices

Follow the process steps for communicating project transition

- Everyone involved with the project must be told in writing that the planning phase is complete and that management processes are in place.
- All parties should have been identified during framework discussions.
- An example of a transition letter is on the next page.

Transition letter

POPULATION
HEALTH PARTNERS

Population Health Partners
8 Sylvan Way
Parsippany, NJ 07054 USA

Month XX, 20XX

Jim Remick

Project Team Members (list by name)
Relevant Managers (list by name)
Others (as appropriate)

Planning for the Aries Project was completed today and implementation of the plan will begin on February 7, 20xx. The approved project objective statement, schedule plan and budget are attached. Status will be collected from contributors at the end of the month and all project progress will be measured against this plan and budget.

With the beginning of the implementation phase, change management processes agreed to by the project team are now in effect. Any changes from the agreed-upon project scope, schedule or budget must be requested on a Change Request Form (see attached) and approved by me prior to the change being made.

All project team members have agreed to manage their activites so that they are completed within the agreed-to schedule and cost commitments, and so that the deliverables meet specifications. Should any team member forecast that schedule, possible time so that corrective actions can be developed and implemented.

Thanks you all for your contributions to the project planning process. I am confident that our teamwork and technical expertise will enable us to successfully complete this project.

Sincerely,

Jim Remick
Project Manager
Aries Project

Attachment
(cc: All involved department heads, listed by name)

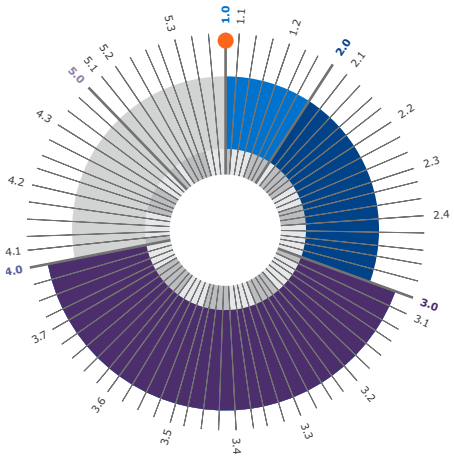
Who does this?

Just as in the appointment letter, it is recommended that the project manager author the transition letter for the sponsor's signature.

Completion criteria

Written notification of transition has been sent to all of the project community.

Do differently



1.0 Initiate the project
1.1 Review the project proposal
1.2 Validate proposed objectives

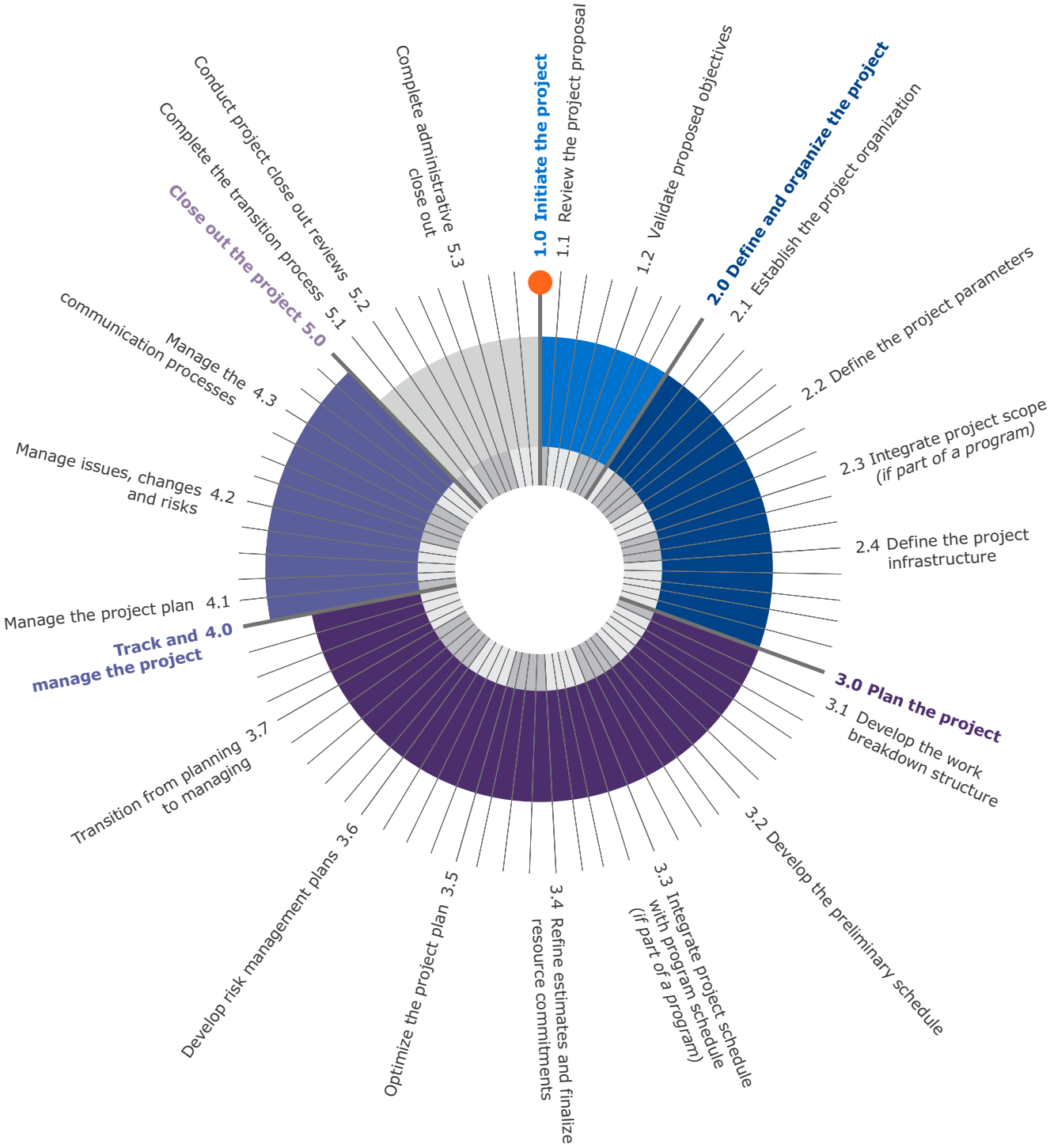
2.0 Define and organize the project
2.1 Establish the project organization
2.2 Define the project parameters
2.3 Integrate project scope *(if part of a program)*
2.4 Define the project infrastructure

3.0 Plan the project
3.1 Develop the Work Breakdown Structure (WBS)
3.2 Develop the preliminary schedule
3.3 Integrate project schedule with program schedule *(if part of a program)*
3.4 Refine estimates and finalize resource commitments
3.5 Optimize the project plan
3.6 Develop risk management plans
3.7 Transition from planning to managing

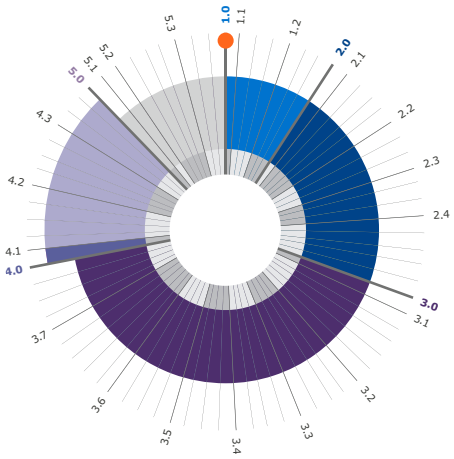
4.0 Track and manage the project
4.1 Manage the project plan
4.2 Manage issues, changes and risks
4.2 Manage the communication processes

5.0 Close out the project
5.1 Complete the transition activities
5.2 Conduct project close-out reviews
5.3 Complete administrative close-out

Track and manage the project



4.0 Track and manage the project



Definitions

Tracking intensity – The depth and frequency of the status collection on a project.
Status frequency – How often status is collected.
Status window – The range of weeks that defines which tasks will be statused. For example, the status window may be all tasks that start or finish plus or minus two weeks from today.

Overview

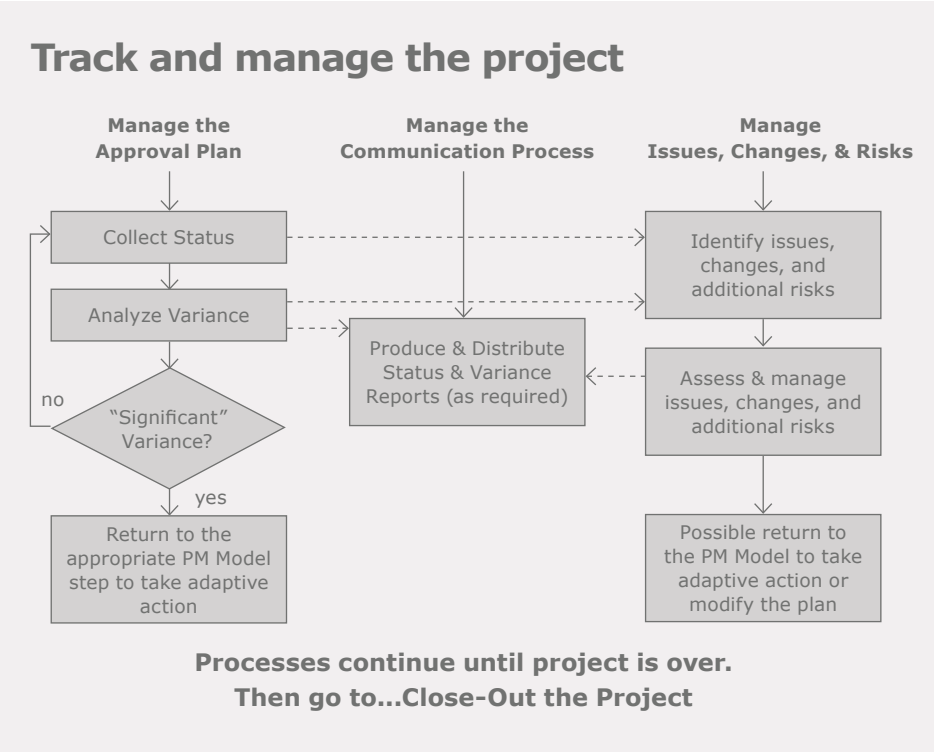
Benefits of tracking

- Provides clear indication of progress
- Keeps everyone informed
- Encourages the addressing of problems
- Provides credieble completion estimates
- Provides data for Organizational Mastery

Recognize the benefits of tracking and managing

- Tracking is critical to the project's success.
  - Encourages tackling of problems early on.
  - Communication vehicle for the team.
  - Demonstrates visible progress.
  - Iterative process to keep people informed.
- Helps to assure the successful completion of the project.
- The historical data helps to plan future projects.
- An up-to-date schedule is necessary in order to:
  - Analyze variances using hard data.
  - Adequately assess schedule and scope change requests.

Implement a broad, proactive track and manage approach

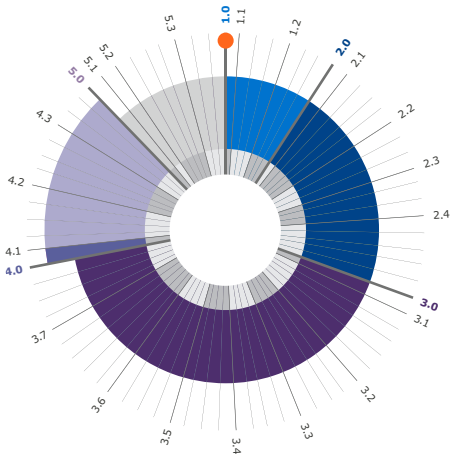


- The project manager will lead many processes at one time.
  - Manage the project plan.
  - Manage issues, changes and risks.
  - Manage the communication processes.
- These processes are integrated and rely on each other. They all begin together as soon as the project plan is baselined, and continue in parallel until the end of the project.
  - Manage the project plan includes collecting status and analyzing variance. The collection of status uncovers issues (soft data) that the project manager will manage. The variance analysis will also uncover issues (usually in the form of hard data), and might indicate a need to go back into the planning processes for re-planning.
  - Manage the issues, changes and risks includes the day-to-day management of those items that are outside the plan that may possibly threaten the success of the project.
  - Manage the communication processes includes producing reports, preparing for and leading reviews, and the day-to-day communications with the project team and stakeholders.

Determine where the project needs to fit on the tracking continuum

Tracking choices

Loose tracking	Intense tracking
Low control Low overhead	High control High overhead



- If planned well, projects do not need high intensity tracking.
- Task owners know when their tasks are due and manage to those dates.
- High intensity tracking could distract the attention needed to complete the project tasks.

Determine the appropriate project tracking intensity

Tracking intensity guidelines

Tracking Variables	Rigor Tier 1	Rigor Tier 2	Rigor Tier 3
Status frequency	4+ weeks	2-4 weeks	1-2 weeks
Status window	+2/-2 weeks	+3/-2 weeks	+4/-2 weeks
WBS tracking level	Summary tasks	Detailed tasks	Detailed tasks
Change management	Informal	Major changes	Comprehensive
Project reviews	Closeout	Phase completions	Monthly
Status feedback	Verbal	Formal, local	Formal, broad

- Use the rigor criteria in determining the appropriate intensity for project tracking.
- The tracking intensity will vary by project.

The tracking approach will be affected by a strong vs. weak matrix environment

- Quality of status information
  - Strong matrix: less filtering from teams
  - Weak matrix: potentially more filtering in the functional silos; hiding problems
- Speed of collecting status information
  - Strong matrix: quick
  - Weak matrix: slower
- Organizational support
  - Strong matrix: PMO, project staff
  - Weak matrix: tends to be less
- Use your knowledge of your organization as an input in selecting the tracking intensity for the project.

Be proactive

Key project manager characteristics in track and manage

- Responds quickly
- Holds team members accountable
- Deals with uncertainty
- Proactively resolves issues
- Escalates when appropriate
- Acknowledgement – sustains the momentum
- Leverages opportunities

- Take the initiative to keep the project on track to meet the POS.

Decision-making styles

Decision-making styles

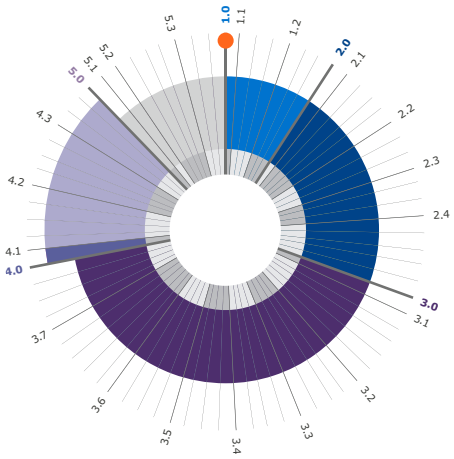
High

Need for quality decision

Low

Command *Leader decision* *Time may be critical* • Safety issues • Security issues • Legal issues • Ethical issues • Emergencies	**Consultative** *Leader and team make the decision* • Reorganizing the team • Changing the work team
Convenience *Arbitrary decision* • Type of coffee • When to go to lunch	**Consensus** *Team decision* • Work schedules • Defining options • Some changes

Low ← **Need for Acceptance** → High



- You will tend to have a dominant style.
- There is no one right style nor is one style right for every situation.
- Be ready to apply various management styles in dealing with issues.

Challenges for geographically dispersed projects

Challenges for geographically dispersed projects

- Communication delay
- Time mismatch
- Hardware/software mismatch
- Cultural differences
- Language differences

- Global issues
  - Communication delay
  - Time mismatch
  - Hardware/software mismatch
  - Culture
  - Languages
  - Address global issues early
- Collaborative tools

Collaboration

Internet tools

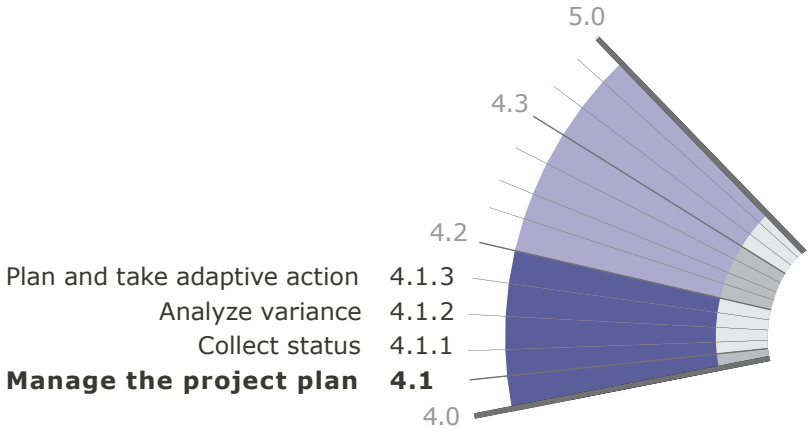
- Interactive meetings
- Central PM sites
- Combinations

Internet collaboration tips

- Limit sessions to less than 2 hours
- Complete tasks between sessions
- Educate, support

- Internet meeting types: Web-ex, placeware, net-meeting
- Shared database types: (e.g., e-room)
- Non-internet types: video conferencing, teleconferencing
- Tips
- Limit to 1-2 hours (fatigue)
- Geographic locations complete tasks between discussions, e.g., is / is not lists
- Need to educate -- skill development
- Tool support

4.1 Manage the project plan



Purpose

Once the project plan has been approved by the project sponsor, the project team manages the work planned in the project schedule. "Managing the plan" involves getting information on whether tasks are starting/finishing according to plan and also getting insight as to where the project team needs to focus their attention. This step helps to make sure that the project stays on target.

4.1.1 Collect status

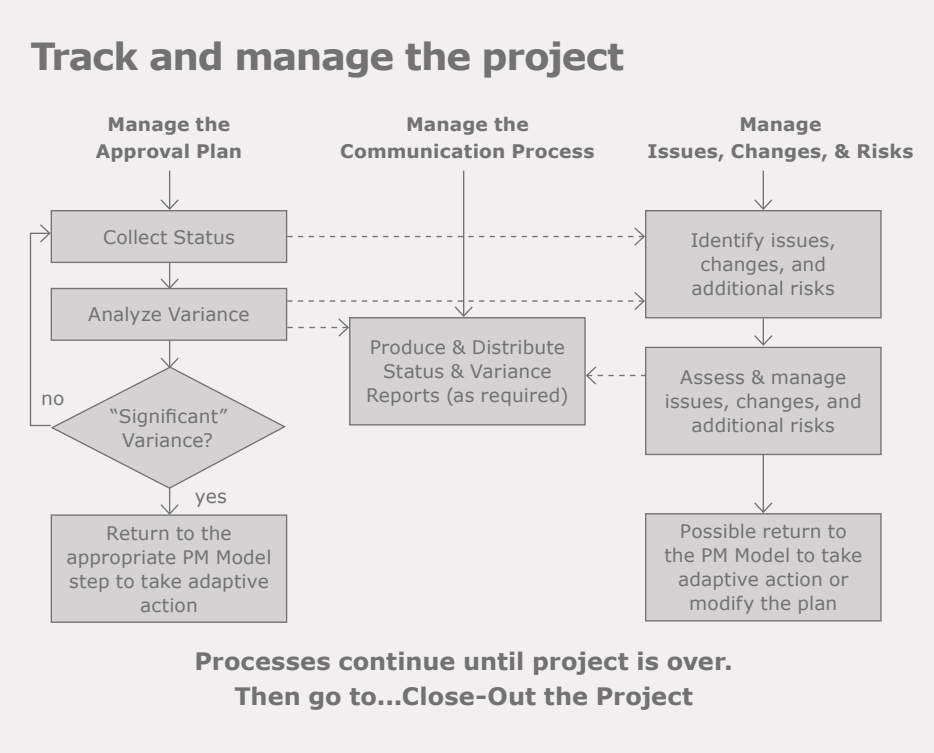
The project team solicits status on near term tasks, and updates the schedule with the resulting data. This step encourages the team to tackle problems early on, and provides an excellent means for communication within the organization.

4.1.2 Analyze variance

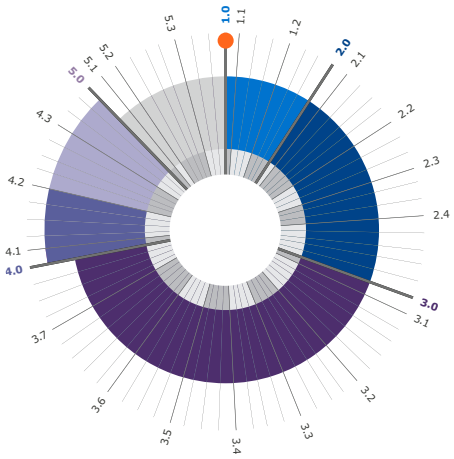
The project team analyzes the difference between the plan and the actual performance. This analysis includes determining the causes of the difference, and it alerts the team to where problems are emerging.

4.1.3 Plan and take adaptive action

When variance analysis uncovers a need to modify the plan, the project team proceeds to the appropriate model step for re-planning. At that point the plan may have to be validated once again with the sponsor.


Track and manage the project
Manage the Approval Plan
Manage the Communication Process
Manage Issues, Changes, & Risks
Collect Status
Analyze Variance
"Significant" Variance?
no
yes
Return to the appropriate PM Model step to take adaptive action
Produce & Distribute Status & Variance Reports (as required)
Identify issues, changes, and additional risks
Assess & manage issues, changes, and additional risks
Possible return to the PM Model to take adaptive action or modify the plan
Processes continue until project is over.
Then go to...Close-Out the Project

4.1.1 Collect status



Purpose

The project team solicits status on near term tasks, and updates the schedule with the resulting data. This step encourages the team to tackle problems early on, and provides an excellent means for communication within the organization.

Definitions

Hard data – Numbers generated as a result of status collection: new task start dates, days slipped relative to baseline schedule, etc.
Soft data – The information accompanying the hard data that relates to the issues around project progress and where the project manager needs to focus attention.

Best practices

Determine status collection intensity (review processes and procedures decisions)

Tracking tactics

Status collection frequency	1-3 weeks
Status collection window	2-3 weeks
WBS detail level	Not more than level 3
Status information collected	*Hard – Quantitative/ 4 questions* *Soft – Qualitative Focus on variances*

- Status collection effort, like tracking in general, varies in intensity depending on:
  - Size
  - Cost
  - Importance
  - Public visibility
  - Other relevant factors
- Higher intensity tracking efforts typically require:
  - More frequent status collection
  - Wider status collection window
  - Lower level detail
  - More project reviews
- The core team should determine tracking intensity.

**Select the appropriate frequency of collecting data (review processes
and procedures decisions)**

- At a minimum, once each month.
  - Collect hard data systematically.
  - Collect soft data continuously.
- Frequency will vary based on:
  - Length of the project
  - Geographic distribution of project team members
  - Number of interfaces with external work groups
  - Size of project team
  - Management requirements
  - Customer requirements
- The quality and detail of the progress data is related to the duration of the update cycle.
  - The longer the update cycle, the less detail and quality can be reported.
  - Progress data collected too frequently will cause a heavy workload.

Collect both hard and soft data

Hard vs. soft data

Hard quantitative data?
What is happening?

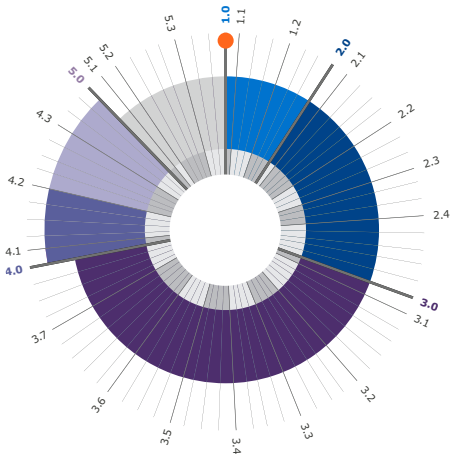
Soft qualitative data
Why is it happening?

Hard data – easily collected

Four questions:

- If started, on what date did the task start?
- If not started, on what date will the task start?
- If finished, on what date did the task finish?
- If not finished, on what date will the task finish?

2-3 week window, usually less than 15 tasks per status period
Efficient and routine status collection!



- Hard (quantitative) data
  - Dates and numbers
  - In person, email, or paper

Soft data – more difficult

- Listen
- Ask why
  - "Tell me more..."
  - "Help me understand..."
- Be alert to:
  - Requirement changes
  - Customer requests
  - Organizational issues, changes

- Soft (qualitative) data
  - Problems encountered and anticipated
  - Resources being threatened (people being pulled off projects)
  - Individual productivity
  - Inhibitors to productivity
  - Persistent problems and proposed actions to correct
  - Things needed to do the job effectively
  - Possibilities for continuous improvement (lessons learned)

Status collection methods

REPORTS
~~MEETING~~
E-MAIL
PLANNING SUPPORT

Solicit status data from the task owners

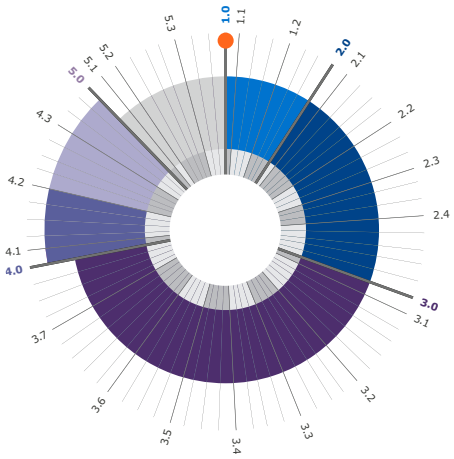
- Send out a request to all task owners for status data.
- Activity data
  - Planned and actual start dates
  - Planned and actual finish dates
  - Milestones complete or not complete
  - % complete (not recommended)
- Resource data
  - Actual effort and remaining hours (recommended)
  - % complete (not recommended)
- Performance and quality data
  - Current Mean Time Between Failures (MTBF)
  - Lines of code generated
  - Number of reworks and adherence to quality criteria
  - Number of changes put through change control
  - Actual unit costs
  - Actual cycle time
  - Number of component parts completed
- Status request forms should include the following columns, as a minimum:

Request status data from task owners

TASK NAME	WBS	TASK OWNER	PLAN START	PLAN FINISH	ACTUAL START	ACTUAL FINISH	WHY

ISSUES:

LESSONS LEARNED:



- Only collect status for tasks that start or finish plus or minus 1 to 3 weeks from the date of request.
- Very often "soft" data is collected by listening to conversations during the status collection.
- This request for status can use a vendor-supplied task filter included with project scheduling software.

Solicit progress data from the task owners – geographically dispersed teams

- May have to copy and paste data from the project scheduling software to a common spreadsheet tool, like Excel.
- E-mail the request for status to all task owners.
- Set the expectation for a one day turnaround.

Update project status

- Hard data
  - Combine all status information and resolve any conflicts.
  - Conflicts can occur because of:
  - Errors in data
  - Different status dates
  - Missing data
  - Enter the status data into the project scheduling tool.
  - The completeness of this step will impact variance analysis.
  - Note any changes in assumptions.
- Soft data
  - Soft data should be documented in the project notebook as appropriate.
  - Data specific to individuals (confidential information) should not be written down in the project file.
  - Hearsay should not be reported, but may warrant further investigation.
  - May initiate activity in the 4.2 manage issues, changes, and risks step.

Who does this?

The project manager is responsible to make sure that the plan is managed and may delegate this activity.

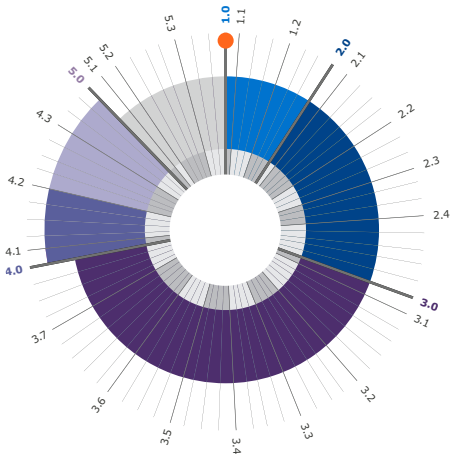
Completion criteria

Status reports or updated status spreadsheet (if data is collected verbally) have been collected from each task owner at the frequency specified in framework. The project schedule, resource profile, specs and quality data have been updated and filed in the project file. The appropriate soft data has been filed in the project file.

Process considerations

Stand alone project	Additionally, if part of a program
Some project managers have used the status information as a weapon. This behavior can result in poorer quality data long term.	

4.1.2 Analyze variance



Purpose

The project team analyzes the difference between the plan and the actual performance. This analysis includes determining the causes of the difference, and it alerts the team to where problems are emerging.

Definitions

Variance – The difference between the baseline plan and the actual results.

Best practices

Define the process for analyzing variance

- Compare actual data and estimates of remaining work to the baseline plan.
- Variances exist where this current data differs from the baseline.
- Positive variances are areas where the current data falls short of the baseline (e.g., the actual start date is later than the planned start date).
- Negative variances are areas where the current data exceeds the baseline (e.g., the actual start date is before the planned start date).

Identify variances of the status data relative to the plan

- Variances due to schedule
  - New activities on the critical path
  - Changes in milestone dates or the end date of the project
  - Reductions or increases in float for upcoming activities
  - Slips in the schedule of particular groups of activities
- Variances due to resources
  - Investments of more time than planned
  - Not investing enough time to get the task done on schedule
  - Conflicting requirements for common resources (now and in the future)
- Variances due to scope
  - Deliverables not meeting or exceeding specs
  - Deliverables not meeting or exceeding quality requirements

Determine causes versus symptoms

Detecting variance and cause

- Many standard reports show variance
- Backtrack slippage
- Variance tells "what" (hard data)
- More detective work for "why" (soft data)

- Combine soft data and hard data to understand the true cause of the variance.
- Look for the causes of the variance, not the symptoms.
  - Schedule, resources and scope are all interrelated.
  - Each one affects the other two.

Apply effective analysis approaches

- Use a trend analysis approach.
  - The impact might be a single occurrence or a consistent and repetitive pattern.
- Determine if the variance is a result of a change and review the change control process for continuous improvement.

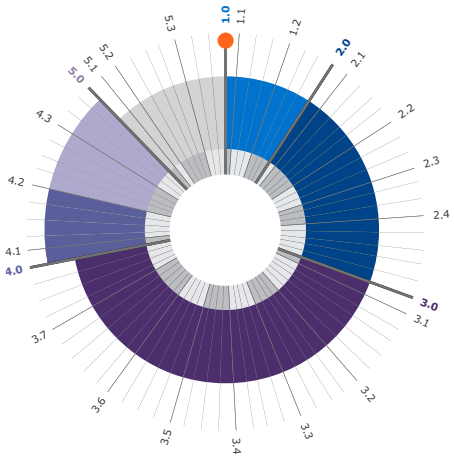
Make visible the variance analysis

- Confess problems and impacts as early and as often as possible.
- It is the project manager's responsibility to establish an environment open to problem solving.
- Analyze and document all significant variances.
  - Include both positive and negative variances.
  - Record what went right as well as what went wrong.

Analyze the impact of the variances

Variance analysis

- Check the accuracy of the data, data entry
- Focus on critical path tasks
- Review tasks with low float
- Determine the need for adaptive action
- Assess the viability of the project



- Impact of schedule variance
  - Evaluate key milestones and the project finish date for effects.
  - Notify team members of the potential effects on their upcoming tasks.
  - If trend continues, assess the impact on key milestones, project end date, resources and scope of work.
  - Reassess the reliability of other estimates provided by the same person.
  - Determine the effect (if any) of variance on the contingency plan(s).
  - Assess the variance effect on project risk.
- Impact of the resource variance
  - Identify drastic peaks or valleys in resource histogram.
  - Do not assume that more time and resources will always fix the problem.
  - If a resource is continuously over-utilized, plan for relief in the future.
  - If a resource is continuously underutilized, plan to use him/her for additional work in the future.
  - Resource problems are often overlooked because of “stackup” caused by working on multiple projects.
- Impact of the scope variance
  - Ultra high quality or performance may cause schedule delays or excess cost.
  - Low quality or performance will likely necessitate testing and rework.

Note: B=Baseline, A=Actual
Note: UPD=Update, Var.=Variance
F=Finish, S=Start, Calc.=Calculated

Tabular Variance Report

Windows Driver Project
Project Manager: Jim Remick

WBS/Task Name	B Start	A Start	Calc. Start	S Variance	B Finish	A Finish	Calc. Finish	F Variance
1 Plan the Project	**1/3**	**1/3**	**1/3**	**0 d**	**1/24**	**1/25**	**1/25**	**1 d**
1.1 Start Project (M)	1/3	1/3	1/3	0 d	1/3	1/3	1/3	1 d
1.2 Determine Project Objective	1/3	1/4	1/4	1 d	1/4	1/5	1/5	1 d
1.3 Plan the Project	1/5	1/6	1/6	1 d	1/10	1/11	1/11	1 d
1.4 Develop WBS, Schd. & Res.	1/11	1/12	1/12	1 d	1/20	1/18	1/18	-2 d
1.5 Review & Approve Project	1/23	1/19	1/19	-2 d	1/24	1/25	1/25	1 d
1.6 Planning Complete (M)	1/24	1/25	1/25	0 d	1/24	1/25	1/25	1 d
2 Develop Specifications &	**1/11**	**1/12**	**1/12**	**1 d**	**3/9**	**3/17**	**3/17**	**6 d**
2.1 Develop External Specs P1	1/11	1/12	1/12	1 d	1/24	1/26	1/26	2 d
2.2 Develop External Specs P2	1/25	1/23	1/23	-2 d	2/7	2/9	2/9	2 d
2.3 Obtain Approval of Ext.	2/8	2/10	2/10	2 d	2/9	2/15	2/15	4 d
2.4 Prepare Financial Analysis	2/10	2/17	2/17	5 d	2/23	2/22	2/22	-1 d
2.5 Prepare Internal	2/10	2/16	2/16	4 d	3/9	3/16	3/16	5 d
2.6 Design Complete (M)	3/9	3/17	3/17	5 d	3/9	3/17	3/17	6 d
3 Develop & Test Driver	**3/10**	**3/14**	**3/14**	**2 d**	**6/1**	**NA**	**6/12**	**7 d**
3.1 Develop Driver	3/10	3/21	3/21	7 d	5/2	NA	5/11	7 d
3.2 Identify Beta Test Sites	3/10	3/14	3/14	2 d	3/21	3/27	3/27	4 d
3.3 Develop Quality Plan	3/10	3/18	3/18	6 d	3/30	NA	4/7	6 d
3.4 Approve and Set-up Beta Test	3/28	3/29	3/29	1 d	4/6	NA	4/7	1 d
3.5 QA Driver Before Shipping	5/2	NA	5/11	7 d	5/9	NA	5/18	7 d
3.6 Ship for Beta Test	5/9	NA	5/18	7 d	5/11	NA	5/22	7 d
3.7 Conduct Beta Test	5/11	NA	5/22	7 d	5/25	NA	6/5	7 d
3.8 Modify Driver Based on Test	5/25	NA	6/5	7 d	6/1	NA	6/12	7 d
3.9 Development Complete (M)	6/1	NA	6/12	7 d	6/1	NA	6/12	7 d
4 Ramp Up for Commercial Release	**5/2**	**NA**	**5/11**	**7 d**	**6/19**	**NA**	**6/28**	**7 d**
4.1 Outline Support Plan	5/2	NA	5/11	7 d	5/12	NA	5/23	7 d

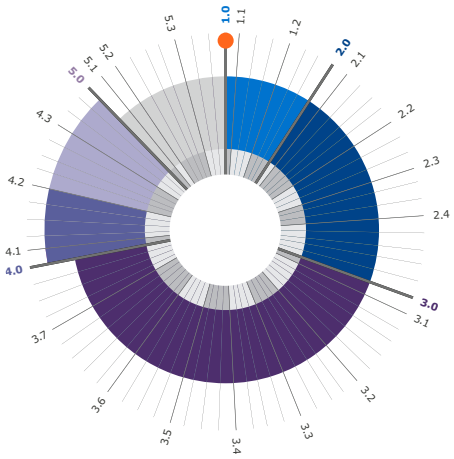
Prepared by: K. Hansen Page 1 Rev. 4. 3/31/0x

Who does this?

The project manager is responsible to make sure that the variance analysis is completed and may delegate this activity.

Completion criteria

Significant variances and the root cause of each variance have been identified and consolidated in a list. The ultimate impact of each variance has been determined and added to the list.

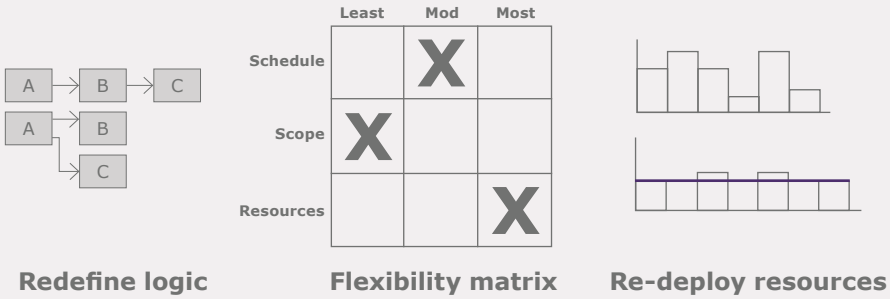


4.1.3 Plan and take adaptive action

Purpose

When analyze variance uncovers a need to modify the plan, the project team proceeds to the appropriate model step for re-planning. At that point the plan may have to be validated once again with the sponsor.

Adaptive action



- Same process as optimizing
- Might trigger contingency plans
- May require revalidation (3 options and 1 recommendation)

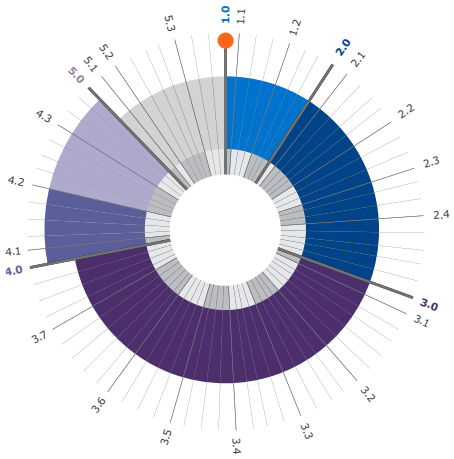
Best practices

Determine where in the project management model the team needs to go to plan and take adaptive action

- When the variance indicates that the current plan needs adjustment, the team moves to the appropriate step in the project management model to re-plan.
- Very often the team goes to 3.5 optimize the plan.
- Follow the process guide suggestions for whatever step the project team moves to.

Define and follow an effective process

- Systematically respond to changes in the project.
- Follow the process guide steps.
- Keep the focus on achieving project objectives.
- Involve team members in the planning process.
- Review the project framework to ensure that all actions are consistent with project decisions and processes.
- Review the project change control process.
- Review risk management plans developed in the project planning process.
  - Use those that make sense.
  - Revise or discard those that no longer fit the situation.



- Ensure that you're solving the problem, not the symptoms.
- Be creative.
  - Because the environment is dynamic, risk management plans can't anticipate all potential actions.
  - Revisit your assumptions.
  - Consider schedule, resource and scope.
  - Don't be afraid to make public the causes of problems.
- Negotiate changes in plans where beneficial to both the team and the customer.
- Spend a reasonable amount of time planning.
- Don't jump at the first alternative presented.
- Don't contract "analysis paralysis".

Consider many possible actions

- Some possible actions are (in suggested order):
  - Check status data for accuracy.
  - Implement contingency plan(s).
  - Hold key milestones while rearranging task schedules.
  - Implement appropriate actions detailed under optimize trade-offs, step 2.4.2 (modify plans as needed).
  - Re-plan/re-estimate the schedule and/or resource plans while deleting the original schedule (this action should be used only when absolutely necessary).
  - Others — don't be limited by these!

Communicate to the Portfolio Management Team (PMT), if necessary

- The degree of plan change may require re-assessment by the PMT.
- Engage the PMT as soon as possible in the process.

Take action on the plan

- Implement your plan!
- Communicate any changes to the team.
- Get buy-in from the project team and all appropriate others.

Document the results of the adaptive actions

- Document, document, document.
- This is especially critical when changes are made.
- Don't make assumptions without writing them down.
- Documenting changes is easy to overlook in the heat of the situation, but it will pay off in the long run.

Monitor the effects of the adaptive action plan

- Projects are undertaken in very complex environments — the most carefully planned actions do not always have the desired effect.
- Changes in one aspect of the project (scope, schedule or resource usage) will affect the others.
- Monitor any changes very carefully.
- Take additional action as needed.

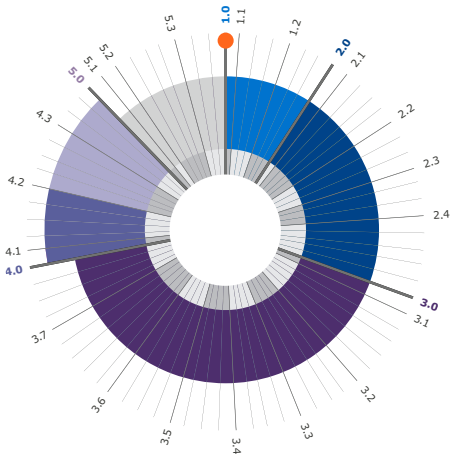
Who does this?

The project manager is responsible for making sure that the appropriate planning process steps are taken to respond to the project variance.

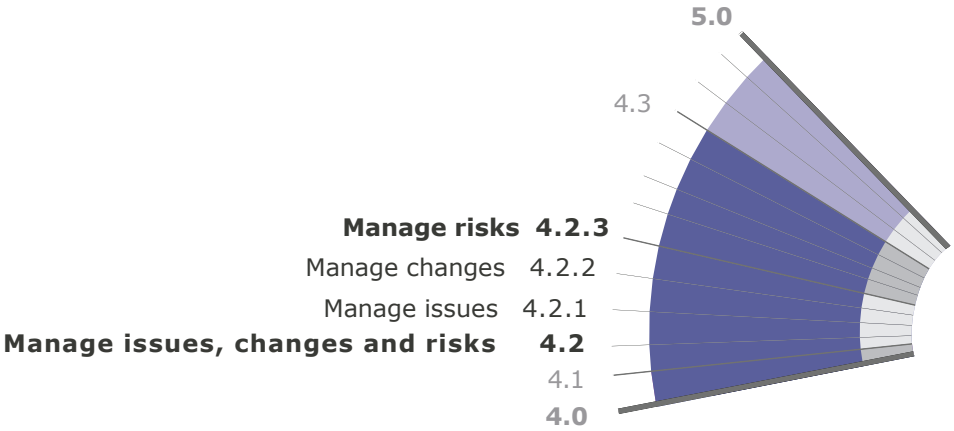
Completion criteria

The appropriate adaptive action has been identified for each variance and added to list developed in variance analysis section. Each action identified has been implemented and documented in the project file. Active follow up of each adaptive action has been taken and key learnings have been documented in the project file.

Do differently



4.2 Manage issues changes, and risks



Purpose

The project manager continuously identifies and responds to project issues, changes and risks. This helps the project team to keep the project on track and the plan up-to-date.

4.2.1 Manage issues

The project team identifies and manages issues to ensure that the project team continues to proceed toward a successful project completion.

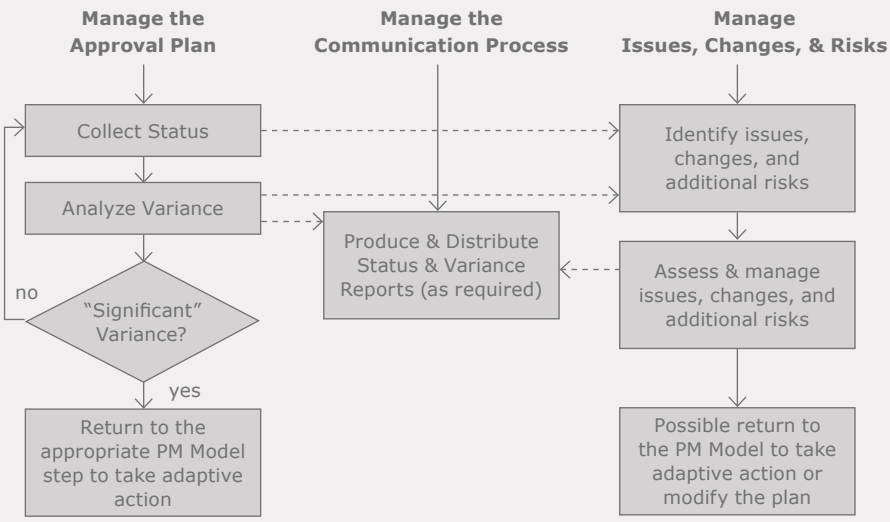
4.2.2 Manage changes

The project team identifies and manages potential changes to the project to ensure that the project objectives can still be met.

4.2.3 Manage risks

The project team identifies and manages new risks as they emerge to ensure that the project plan remains robust throughout the project.

Track and manage the project



Processes continue until project is over.
Then go to...Close-Out the Project

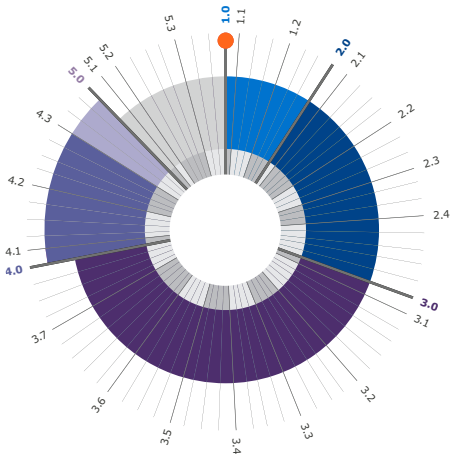
Definitions

Issue	A problem that is currently impeding the project
Risk	An event that would threaten the success of the project if it were to occur
Change	A modification in the scope, schedule or resources of a project

Managing issues, changes and risks

- Issue
  - From status data
  - From meetings, discussions
- Changes
  - In requirements, scope
  - In schedule targets
  - In resources
- Additional risks

4.2.1 Manage Issues



Purpose

The project team identifies and manages issues to ensure that the project team continues to proceed toward a successful project completion.

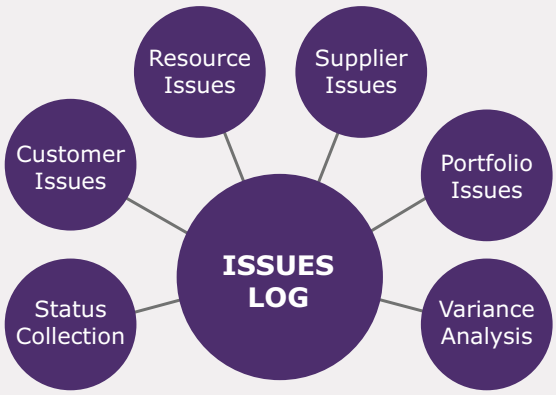
Definitions

Issue – A problem that is currently impeding the project.
Issue log – A table used to document and manage the project issues.

Best practices

Identify new/emerging issues

Identifying issues



What is currently impeding the success of the project?

- New issues arise mainly from one of three sources:
  - The soft data collected during status collection.
  - The hard data analysis performed in analyze variance.
  - Outside influences such as customers, competitors, suppliers, and other departments.
- Issues are existing threats to the success of the project, and can include:
  - Insufficient resources
  - Unclear/changing objectives
  - Demand for scope changes
  - Technology failures/shortcomings
  - Uncooperative stakeholders

Add issues to the issues log

Issues log

No.	Log Date	Issue	Owner	Due Date	Status or Resolution	Close Date
1						
2						
3						
4						
5						

- Document new issues and actions, including assigned owners and committed date.
- Make the issues/action log available to the project team.

Apply an effective mechanism for resolving issues

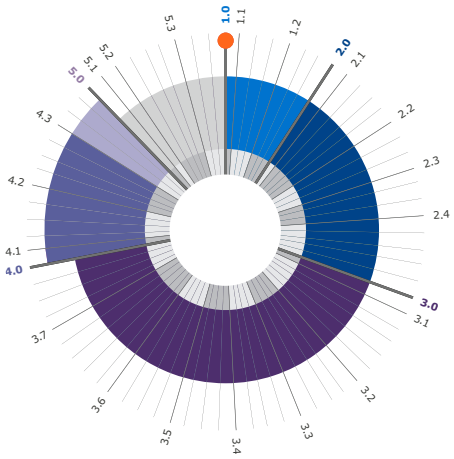
Respond to issues

- Manage the issues log
  - Issues resolution meetings
  - Hold issues owners accountable
- May affect scope, schedule, or resources
- May need to update the plan
- May need to escalate to the sponsor
- Communicate appropriately

- Immediately pursue issue resolution. Be proactive!!
- Some issues are handled solely by the project manager.
- Other issues require the team approach.
  - Periodic issue resolution meeting.
  - Ad hoc meetings for “show-stoppers”.

After issues resolution, modify the project plan, if necessary

- Project parameters
- WBS
- Schedule
- Resource commitments



Who does this?

The project manager assures, with the help of the project team and stakeholders, that issues are identified and managed.

Completion criteria

By the end of each status collection period, all new issues have been logged and the issue management process begun.

Process considerations

Stand alone project	Additionally, if part of a program
The project manager may have to remind the project team members to be cognizant of emerging issues.	If emerging issues would affect the program milestones, immediately escalate to the program manager.

4.2.2 Manage changes

Purpose

The project team identifies and manages potential changes to the project to ensure that the project objectives can still be met.

Change

"It's all a matter of perception"

Change is...

- An opportunity for new business
- An opportunity for organizational learning

Definitions

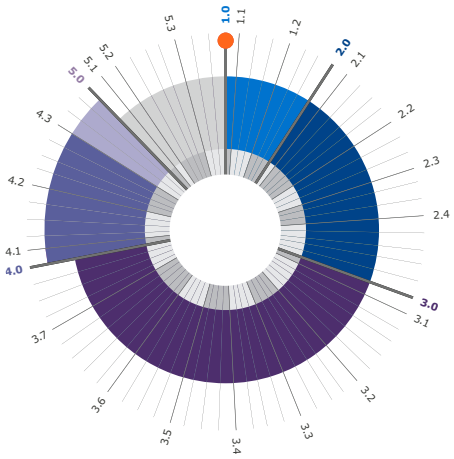
Change – A modification in the scope, schedule or resources of the project.
Change management process – A procedure used to ensure that proposed changes are merited and will not adversely affect other elements of this or any other plans.
Change request form – A formal mechanism for initiating the change management process.

Best practices

Identify potential project changes

Addressing change

- Document the need/request for change
  - Internal
  - External
- Follow the Change Management process
  - Change Requeset Form
  - Analysis
- Proceed to the appropriate step in the Project Management Model, if necessary



- Change requests from customers and suppliers
- Changes in organizational priorities, structure
- Loss of key resources
- Emerging news in the market
- Proposed changes are potential modifications to the plan, and can include:
  - Scope changes
  - Resource changes
  - Schedule changes
  - Interface changes

Apply the change management process to understand the proposed change

- Use the change management process defined in the processes and procedures decisions (see 2.4) in establishing the data necessary to determine if a proposed project change is warranted.
- Communicate the anticipated change according to the communication plan outlined in the change management process.

Use the change management process for assessing the merits of a proposed change

- Use data analysis, what-ifs.
- May lead to “plan and take adaptive action”.

Proceed to the appropriate project management model step to incorporate the change and modify the plan

- Project parameters
- WBS/scheduling
- Optimization

Take action once the plan changes have been developed

- Make sure the project plan is updated.
- Continue with the track and manage processes.

Managing change in the organization

- Consider the impact of the change on other organizational entities
  - Project Portfolio
  - Programs
  - Infrastructure
- Communicate change information and recommendations

Who does this?

The project manager assures, with the help of the project team and stakeholders,
that proposed changes are assessed and the appropriate actions taken.

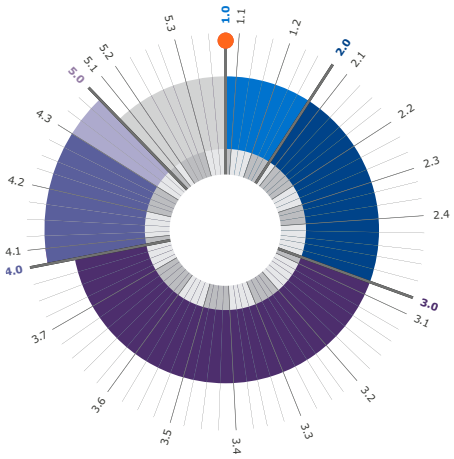
Completion criteria

By the end of each status collection period, all proposed changes have been documented.

Process considerations

Stand alone project	Additionally, if part of a program
The project manager may have to remind the project team members to be cognizant of situations to address change and apply the change management process. Be aware of the temptation to forego the change management process in favor of quickly applying a change.	If proposed project changes would affect the program milestones, immediately escalate to the program manager.

4.2.3 Manage risks



Purpose

The project team identifies and manages new risks as they emerge to ensure that the project plan remains robust throughout the project.

Definitions

Risk – An event that would threaten the success of the project if it were to occur.

Best practices

Managing risks in Track and Manage

- Identify new risks
- Follow the Project Management Model process steps in 3.6 Develop Risk Management Plans
  - Assess new risks on their own merit
  - Manage the risks
- Complete the PM process – make sure additional risks have not been created

Identify project risks as they emerge

- Status data analysis
- Information concerning developments at customers and suppliers
- Emerging news in the market

Complete the risk management process for new risks

- As new risks are identified, complete process described in 3.6 develop risk management plans:
  - 3.6.2 Assess the risks
  - 3.6.3 Develop risk management plans
  - 3.6.4 Validate with the sponsor, if necessary
- Once the risk management plans have been developed for the high risks:
  - Make sure the project plan is updated.
  - Continue with the track and manage processes.

Who does this?

The project manager leads the team in assuring that risks have been identified and managed.

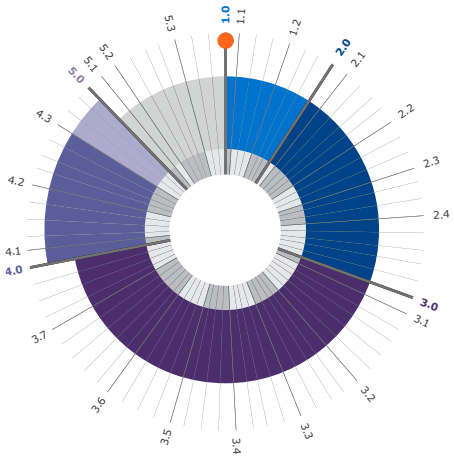
Completion criteria

Risk management plans have been documented for each high risk.

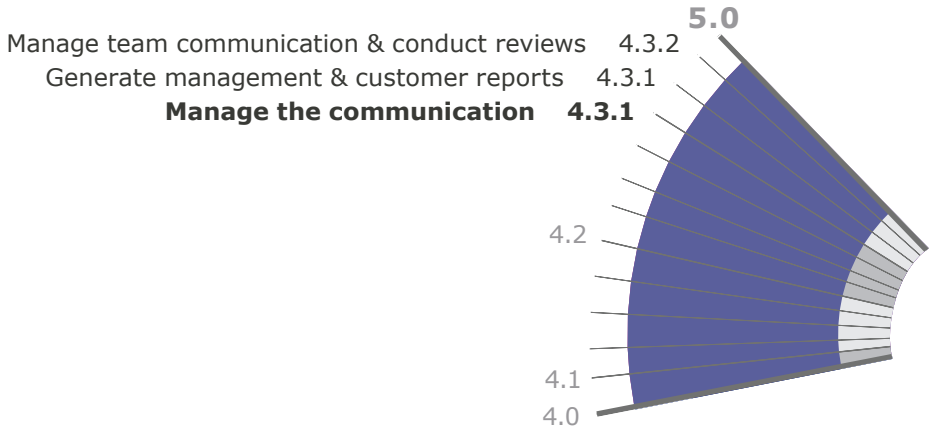
Process considerations

Stand alone project	Additionally, if part of a program
Be sure the risk is not really a current issue. Answer the question: does the problem exist now (an issue) or is it a potential problem for the future (risk).	The risk identified may really be a program-level risk. If that is the case, escalate the risk to the program manager.

Do differently



4.3 Manage the communication process



Purpose

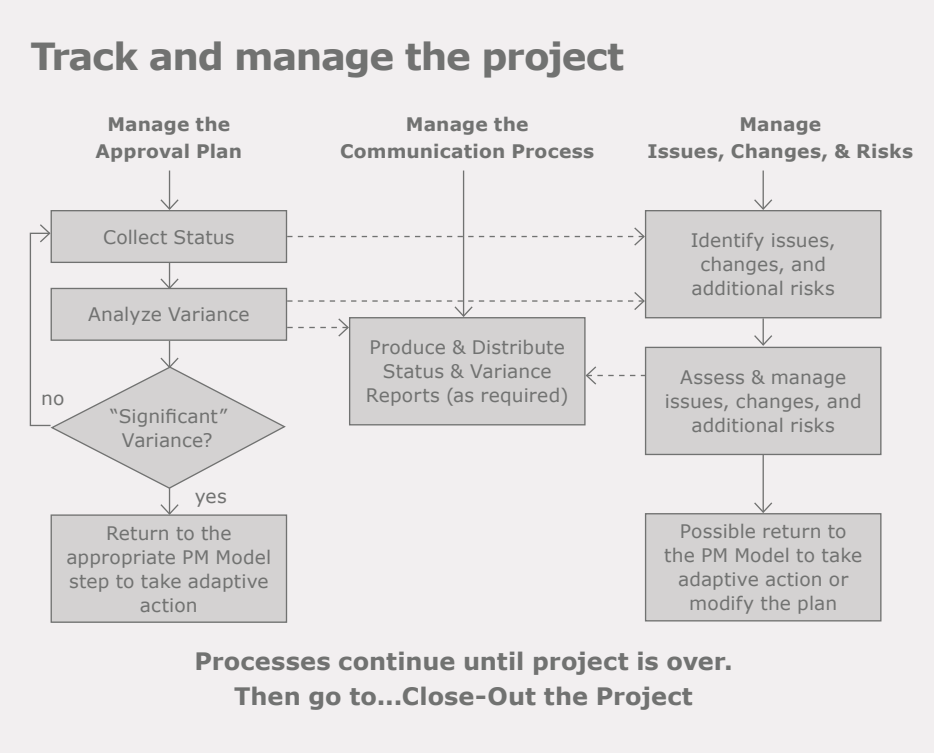
The project manager leads the communication processes to ensure that critical information is reported to, and discussed with, the project team and stakeholders clearly, accurately and in a timely manner. This focus on information is essential for successful project decision-making and work completion.

4.3.1 Generate management/customer reports

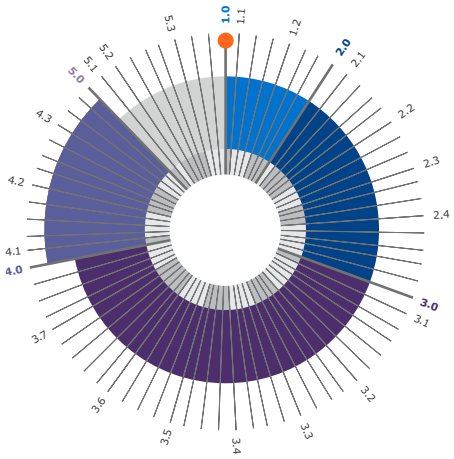
The project manager, with the support of the project team and the project management office, leads the regular generation of summary reports to management and customers. These reports provide a key component in the communicating project status and issues.

4.3.2 Manage the communication with the project team and conduct project reviews

The project manager maintains consistent interaction with the project team assuring clearly defined direction and uncovering new issues, changes and risks. Periodic project reviews are also conducted to validate that the project is meeting the objectives outlined in the project description document.


Track and manage the project
Manage the Approval Plan
Manage the Communication Process
Manage Issues, Changes, & Risks
Collect Status
Analyze Variance
"Significant" Variance?
no
yes
Return to the appropriate PM Model step to take adaptive action
Produce & Distribute Status & Variance Reports (as required)
Identify issues, changes, and additional risks
Assess & manage issues, changes, and additional risks
Possible return to the PM Model to take adaptive action or modify the plan
Processes continue until project is over.
Then go to...Close-Out the Project

4.3.1 Generate management/customer reports



Purpose

The project manager, with the support of the project team and the project management office, leads the regular generation of summary reports to management and customers. These reports provide a key component in the communicating project status and issues.

Volume of data reported

- "Need to know"
  - Little information
  - Easy to produce
  - Creates confusion
- Everything for everyone
  - Much information
  - Expensive to produce
  - Information overload

- Recommended
  - Schedule status
  - Open issues
  - Changes

Best practices

Assure that the reports are still appropriate

- Ensure that the framework decisions are still relevant.
- Be sure that all the reviewers and approvers of the project are still the same.
- Be sure that they still want to see the agreed upon data, in the agreed upon format, at the agreed upon frequency.
- Be sure you understand your manager's and sponsor's expectations.

Validate the distribution for reports

- Ensure that the correct people receive the appropriate status information.
  - Project team
  - Management
  - Customer
  - Other reviewers and approvers
  - Internal and external departments with dependencies on this project
- Use a project reporting matrix to help ensure proper distribution

Format the reports for your audience

Customized reporting

Highly customized

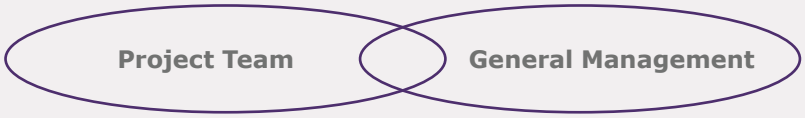
- Many report packages
- Meets individual information needs
- More work for PM

vs.

Minimally customized

- 2-3 report packages
- Easier to produce
- Less work for PM

Reporting categories



A Continuum

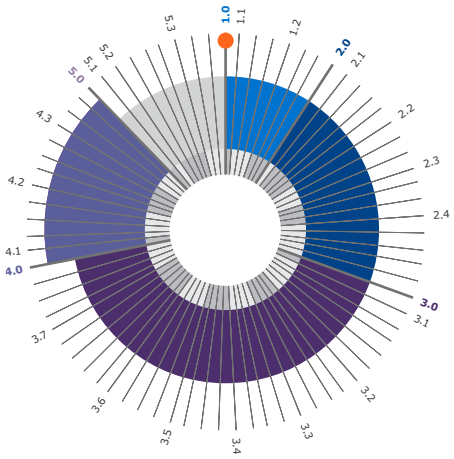
- Raw Data
- Tabular
- Automatic

- Information
- Analysis
- Graphical
- Manual

- Team reports into multi organizational levels
- Determine the appropriate type of reporting

Ensure that all information is substantiated

- Decide on the audience's key interests.
- Use a hierarchical structure when presenting the data.
- Send the reports on a regular and agreed upon frequency.
- Customize report data format based on the needs of the distribution list.
  - Different groups will want to see different information, at different levels of detail and using different formats.
- Different formats include:
  - Tabular
  - Gantt charts
  - PERT charts
  - Dashboards
  - Red-yellow-green
  - Histograms (resource profiles)
  - Cumulative curves (usually show costs)



- Different levels of detail can be:
  - All tasks in the schedule
  - Only key milestones
  - Only summary tasks
  - Other specialized reports

Create written status reports

- **Schedule summary (Overview)**
  - Include planned, actual and estimated dates of key milestones.
  - Present in a tabular format.
- **Resource summary (Overview)**
  - Include planned, actual and estimated resource amounts at a summary level.
  - Present in a tabular format.
- Accomplishments during the previous period
  - Include discussion of major milestones and any changes in the project.
  - One to two paragraphs maximum.
- Planned work for the coming period
  - General discussion of work on upcoming tasks.
  - Any items discussed here should be included in the "accomplishments" section of the next status report.
  - One paragraph maximum.
- Project analysis (detail)
  - Explanation of variances
  - Discussion of problems encountered and corrective action taken
  - Discussion of advantages presented and actions taken to incorporate them into project
  - Discussion of risk issues
  - List of unresolved issues, their owners and dates for resolution
  - General discussion of "how things are going"
  - No more than one page (can be much less for small projects)
- Attach additional detail as required by audience
  - Detailed Gantt chart
  - Individual resource histograms
  - Key milestone progress report
  - Other useful reports

Create exception reports as needed

- Exception reports can isolate the following data:
  - Tasks on the critical path
  - Milestone dates
  - Summary tasks
  - High risk tasks
  - Tasks which have slipped their scheduled start/finish dates
  - Tasks which have shifted and not yet started as result of the shift of a predecessor
  - Tasks with resources over or under utilized

Store the status reports

- Provides new team members or new project manager taking over an ongoing project with valuable information.
- Summarizes adaptive actions taken to date.
- Provides insight into project team structure.
- Provides a history of the project.
  - Useful for review analysis.
  - Provides feedback to estimators which facilitates continuous improvement.
  - Supports key learnings.
- A central repository facilitates organizational learning.
  - Sponsor-level data base
  - PMO

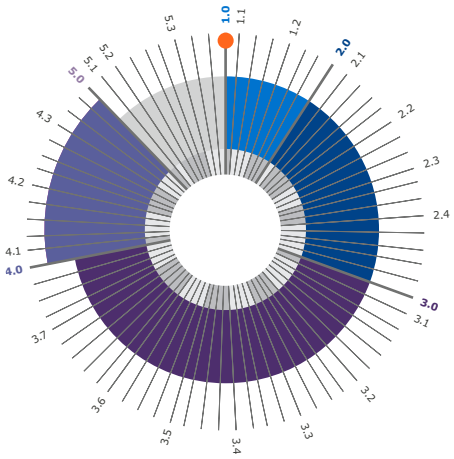
Who does this?

The project manager is responsible for assuring that all reports and meetings having to do with status are completed according to the framework decisions. In addition, the project manager assures that each of the project status reports are stored in the project file. The actual storing of the information may be delegated.

Completion criteria

At the end of each status collection period, the necessary reports have been generated and stored in the project file.

4.3.2 Manage the communication with the project team and conduct project reviews



Purpose

The project manager maintains consistent interaction with the project team assuring clearly defined direction and uncovering new issues, changes and risks. Periodic project reviews are also conducted to validate that the project is meeting the objectives outlined in the project description document.

Definitions

Project community – Anyone involved with the project, such as project team members, stakeholders within the organization, and customers/suppliers.

Best practices

Communicate reminders of upcoming key tasks – assure resources

- Use the latest updated schedule to identify upcoming key tasks.
  - Critical path tasks
  - Tasks with low float
  - Tasks that feed into critical path tasks
  - Testing tasks
- Communicate the need for resources to the task owners and their managers at least one week in advance – get assurance.
  - People
  - Equipment
  - Instruments
  - Facilities
  - Funding

Communicate the project status is at the appropriate level

Green–yellow–red summary

High level summary of status – typically, of scope, schedule and resources

Scope	🟢 Understand and buy into the scope 🟡 Understand but disagree with the scope 🔴 Don't understand or buy into the scope
Schedule	🟢 Plan on track for MM/YY launch 🟡 Plan within 2 weeks of MM/YY launch 🔴 Plan greater than 2 weeks of MM/YY launch
Resources	🟢 Sufficient resources to deliver scope on schedule 🟡 50%-80% of sufficient resources 🔴 Less than 50% of sufficient resources

Dashboard

POS				METRIC	STATUS	TREND	PROBLEM STATEMENT	CORRECTIVE ACTION
Deploy a xxx service and supporting information backbone infrastructure worldwide by April 30, 2xxx for $4M.				**SCOPE**	Off-track On-track At risk	Steady Improving Concerned		
FM	**SC**	**SCH**	**RE**	**SCHEDULE**	Off-track On-track At risk	Steady Improving Concerned	Schedule is exposed by 1 week.	Team is assessing ways to pull in the schedule weekly.
L		X		**RESOURCES**	Off-track On-track At risk	Steady Improving Concerned		
M	X			**QUALITY**	Off-track On-track At risk	Steady Improving Concerned		
MO			X	**OVERALL HEALTH**	Off-track On-track At risk	Steady Improving Concerned	On track to Go Live date of 5/1/xx, but due to potential schedule slips in the Test phase, date could be moved.	Have implemented daily tactical conference calls so that potential problems surface earlier and areas to bring the schedule back in are constantly discussed. As the project moves from development to testing, other team members will become involved. Each week a formal review of the schedule will be conducted to look for ways to insure a 5/1 Go Live date.

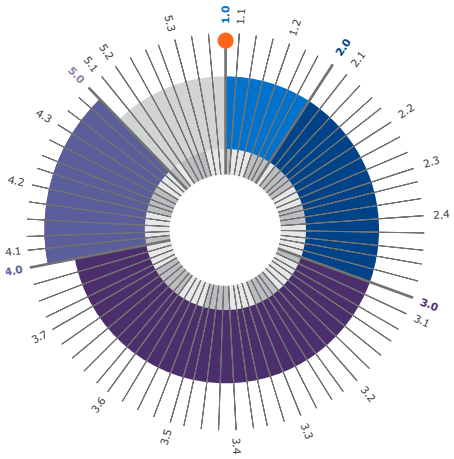
EXECUTIVE SUMMARY

RESULTS	- Integration has begun - Production Support Strategy milestone pulled in by 3 weeks to 5/3/xx - System Test Plan Rev 1.1 released - Package built for ABC Conector and ready for submittal to IT 1.4 Integration Testing - SAP Connector Moved to System Test Environment - Small set of test cases exist on 104. for opportunistic testing - Code Walkthru of the SAP WorkFlow Agents was done on 3/16/xx	**NEXT STEPS**	- Completion of all core components - Completion of Phase 1 of system test - Complete fail-over strategy - Schedule support training - Complete the ITRC connector
WORKING	- IT connector development - Performance assessment report - System test - Support deliverables	**CHALLENGES**	- Delivering to a tight schedule - Personnel transitions in two domain teams

Scorecard

Project Components Planning Scorecard

Project Component	Comp. Lead (Sponsor)	WBS	Del	Is/Is Nots	IDFs	Dep Diag	Overall Risk	Issues/Actions
C1	Name	5/25	5/25	5/25			Med	Needs help in the interface definitions
C2	Name						High	Help with dealing with other projects
C3	Name	X	X	X		5/25?	Med	
C4	Name	X					Med	
C5	Name	X	X	X		5/22	Lo	
C6	Name					5/26	Med	Needs help with Major Deliverable Is/Is Nots



Proactively pursue new issues, potential changes and emerging risks within the project community

- Set aside a significant portion of your day to discuss the project progress directly with members of the project community.
  - Communicate new information about the project.
  - Obtain as much data on-the-spot about new issues, changes and risks.
- Initiate the steps in 4.2 manage issues, changes and risks.

Schedule both intra-project team reviews and formal project reviews

Informal communication

- Check in, stay in touch
  - Provide/gather latest information
  - Uncover issues
  - Provide support, motivation
- Assure resources will be available (especially critical path tasks)
- Ad hoc meetings on hot issues

Intra-team meetings held once every 1 or 2 weeks
- Formal project reviews as specified in the plan.

Formal communication

- Project reviews
  - Internal (core team)—often
  - Major project reviews
    - Pre-determined, periodically
    - Life-cycle phases
- Use effective meeting practices

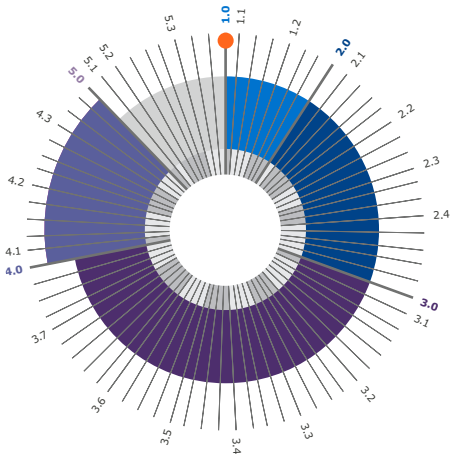
- Identify and request required data well in advance.
  - Let individuals know if they are expected to present.
  - Provide a multi-period schedule, if possible.
- Create a low-overhead review preparation methodology.
  - Establish a project data format that easily translates to the project review format.
  - Avoid the tendency to make presentations flashy – presentations can be effective without spending a lot of time in preparation.
- Send out the project review agenda and materials well in advance.
  - Agenda should include the standard review items as well as special topics.
  - Materials should include any information that the participants are requested to review prior to the meeting.

Plan an effective project review meeting with a strategy that ...
- Enables the project manager to maintain focus and control.
- Enables all team members to be heard.
- Has the best conclusions surface quickly and efficiently.
- Encourages agreement on action plan(s).
- Has the most important topics covered early.
- Has project manager proactively solicit contingency plans.
- Enables the project manager to maintain face-to-face contact between team members.
- Builds team spirit.
- Enables project manager to get commitments where needed.
- Creates an opportunity for the team to ask questions and get clarifications.
- Allows the project manager to facilitate group dynamics.
- Calls for documenting meeting minutes and action items.
- Tracks unresolved issues with their owners and due dates for their resolution.
- Keeps individual discussions outside meeting environment.

Conduct effective project reviews

Effective meeting management

- Send out agenda & supporting materials beforehand
- Start on time
- Cover the agenda items
  - Major accomplishments
  - Schedule
  - Resources
  - Issues, changes, risks
- Leave 10 minutes for assigning actions itms
- End on time



- Review and adjust the agenda according to the meeting purpose.
- Major accomplishments since last review
- Schedule (current and forecast) relative to baseline
- Resources (current and forecast)
- Explanation of variances, any corrective action(s) taken, and results of the actions (if any)
- Issues, changes, risks
- Project communication assessment
- Lessons learned

Update the plan and issues log as a result of the project review

- Follow the steps in 4.2 manage issues, changes and risks

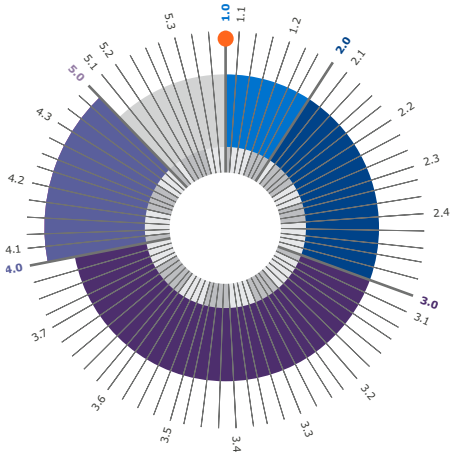
Who does this?

The project manager is responsible for assuring that non-report communication is effective and consistent.

Completion criteria

At the end of each status collection period, the necessary reports have been generated and stored in the project file.

Do differently


4.0
4.1
4.2
4.3
5.0
5.1
5.2
5.3
1.0
1.1
1.2
2.0
2.1
2.2
2.3
2.4
3.0
3.1
3.2
3.3
3.4
3.5
3.6
3.7

1.0 Initiate the project
1.1 Review the project proposal
1.2 Validate proposed objectives

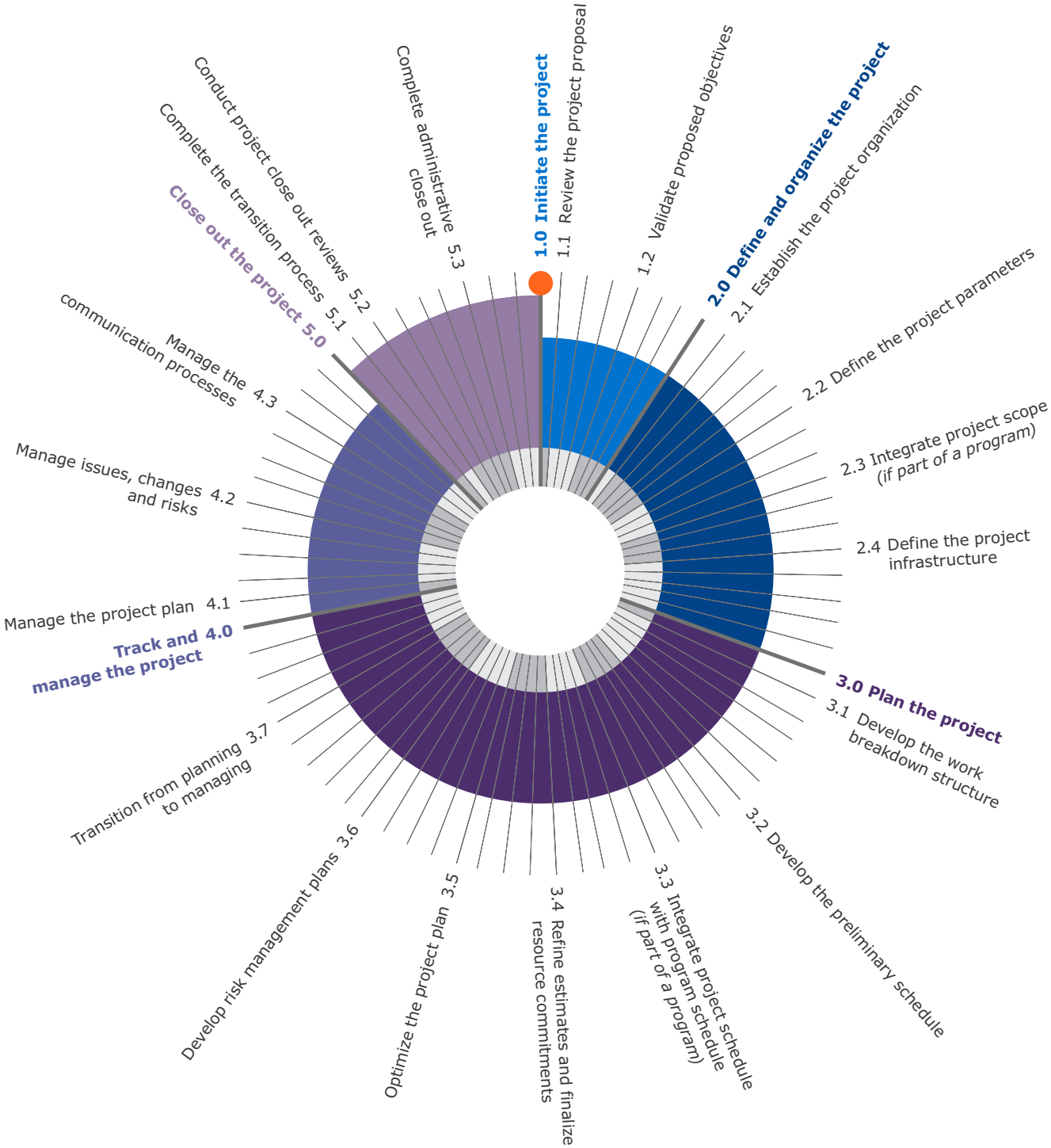
2.0 Define and organize the project
2.1 Establish the project organization
2.2 Define the project parameters
2.3 Integrate project scope *(if part of a program)*
2.4 Define the project infrastructure

3.0 Plan the project
3.1 Develop the Work Breakdown Structure (WBS)
3.2 Develop the preliminary schedule
3.3 Integrate project schedule with program schedule *(if part of a program)*
3.4 Refine estimates and finalize resource commitments
3.5 Optimize the project plan
3.6 Develop risk management plans
3.7 Transition from planning to managing

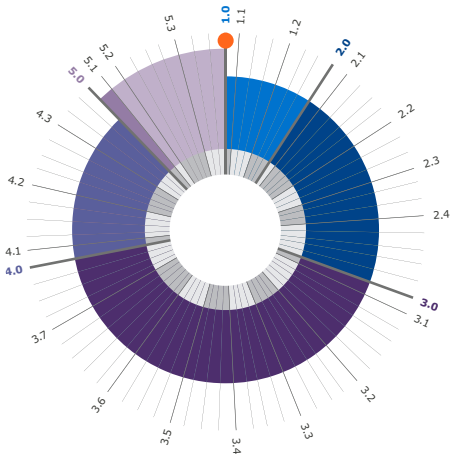
4.0 Track and manage the project
4.1 Manage the project plan
4.2 Manage issues, changes and risks
4.2 Manage the communication processes

5.0 Close out the project
5.1 Complete the transition activities
5.2 Conduct project close out reviews
5.3 Complete administrative close out

Close out the project



5.0 Close out the project



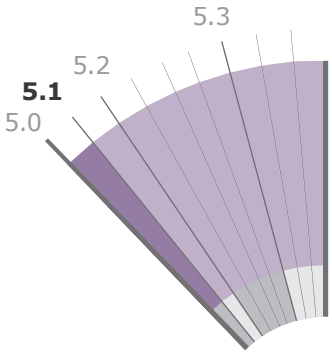
- Announce end of project
- Complete paperwork
- Closing ritual
- Acknowledge and reward
- Covert key learnings to organizational mastery

Overview

With organizational mastery, the project community assures that projects are closed out well. All activities relating to the transition to maintenance or production are completed. The learning generated in one project is passed along to future projects. All key project documentation is archived. Information about the closing of the project is communicated.

5.1 Complete the transition activties

Complete the transition activities



Purpose

The project manager assures that all tasks and preparations necessary to transition the project to a completed state are performed. This helps to ensure that no lingering closing tasks remain after the project is pronounced finished.

Definitions

Transitional activities – The final tasks and "loose ends" necessary to close down the project.

Best Practices

Complete transition activities

- Logistics
- Borrowed equipment
  - Sensitive documents
  - Infrastructure
- Administrative
  - Close contracts
  - Establish metrics
- Sustaining/maintenance agreements

Perform logistical tasks required in order to close the project

- Return or appropriately store confidential information.
- Return equipment borrowed from the supplier or customer.
- Recover equipment loaned to the supplier or customer.

- Breakdown the project infrastructure, as appropriate.
  - Work areas
  - Special communication links
  - Web-sites

Perform any administrative tasks required in order to close the project

- With the contract manager, negotiate or otherwise settle the contract price of items.
- With the contract manager, audit the contract for completion of all requirements.
- Assess actual project cost and other metrics.

Prepare for any continuance or sustaining by another organization

- Identify the persons/organizations responsible for sustaining engineering or on-going maintenance.
- Determine the sustaining organization's readiness and needs for the transition.
- May need a process including surveys, reviews, and checklists.

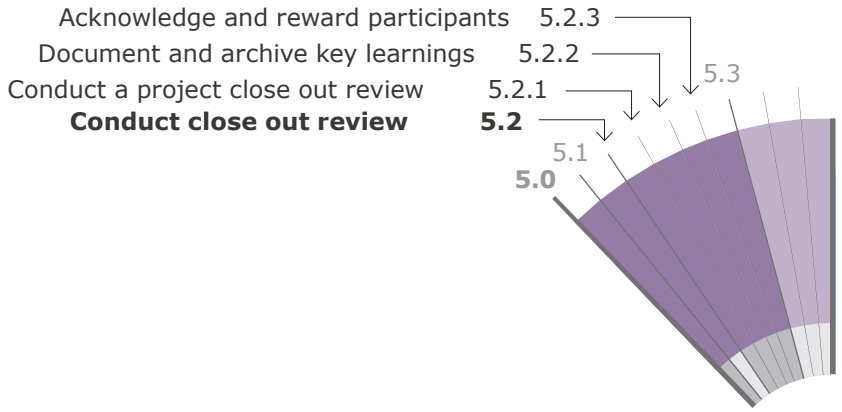
Who does this?

The project manager initially makes sure to include each of the closing activities in the project's WBS and schedule plan. During the close out phase, the project manager follows up and ensures that all closing activities have been completed.

Completion criteria

All transitional activities identified in the project plan have been completed.

5.2 Conduct project close out reviews



Purpose

Project reviews are held at close out to make sure that all the loose ends have been tied and that the project team's key learnings have been captured and archived in such a way as to positively affect future project teams.

5.2.1 Conduct a project close out review

The project team and stakeholders review the results of the project. This review produces information that can be used to improve the quality of future projects as well as the organization in general.

5.2.2 Document and archive key learnings

The project manager consolidates all of the key learnings developed during the project close out review and then follows organizational procedure in communicating and archiving.

5.2.3 Acknowledge and reward participants

The project manager recognizes the contribution of participants with public and/or private acknowledgements and, when possible, awards.

5.2.1 Hold a project close out review

Purpose

The project team and stakeholders review the results of the project. This review produces information that can be used to improve the quality of future projects as well as the organization in general.

Definitions

Key learnings – Knowledge and wisdom developed during the course of managing the project.

Best practices

Project close out review

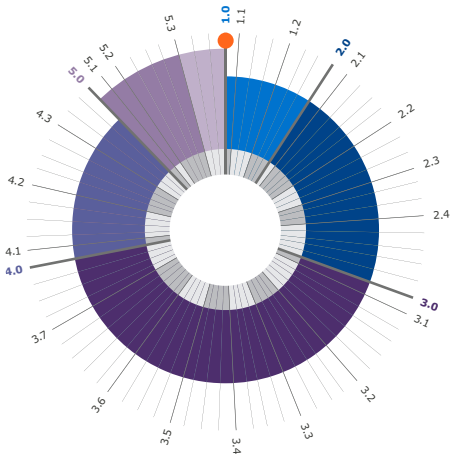
- Specific agenda
- Worked well/do differently
  - Lessons learned
  - Reward/recognition
- May hold a close out review at the end of each phase

Communicate the purpose of the close out review

- A close out review should highlight both what went right and what went wrong.
  - Both are essential for continuous improvement.
  - Exploit the successes and identify the elements which contributed to the success.
  - Avoid the problems in the future and identify processes that need to be defined, refined and improved.
- Don't let the project knowledge walk out the door.
- Key learnings can be invaluable when planning the next project.
- The review should not be used as a club, but rather to enhance the process.
  - If managers use the review results as a source of information for discipline, bad news will not be reported.
  - The purpose of the review is to minimize problems in the future, not to point fingers.

Invite the appropriate participants

- All core members should participate in the close out review.
- It is advisable to have an outsider [such as a member of the Project Management Office (PMO)] act as the facilitator of the close out review meeting.



Follow a specific agenda for the close out review

- Include the following agenda items:
  - Program success overview – compare to success criteria
  - What worked
  - Areas of improvement and what can be done about them
  - Brainstorm how to incorporate key learnings into process and tribal knowledge of the organization
  - Action items
  - Next steps
  - Provide reward and recognition to all team members
- A workshop format can prove useful in generating depth in the topics

Decide how often to hold a close out review

- Close out reviews can be done frequently.
  - Close out a major project phase
  - Close out a month

Who does this?

The project manager is ultimately responsible for scheduling the project close out review. If a Project Management Office (PMO) exists, they will sometimes take the lead in the scheduling and leading of the review.

Completion criteria

- A list and explanation of the key learnings generated during the review has been documented.

Process considerations

Stand alone project	As part of a program
Solicit and document key l earnings during the planning phase and at each status collection so that creating the key learnings document at the end of the project will be richer, and at the same time, simpler.	

5.2.2 Document and archive key learnings

Purpose

The project manager consolidates all of the key learnings developed during the project close out review and then follows organizational procedure in communicating and archiving.

Definitions

Key learnings – Empirically gained processes, procedures and tips about how to successfully plan and manage projects within the organization.

Best practices

Use a standard format across all projects for key learnings

- A standard format allows for simpler integration with organizational-level consolidation.
- Include at least these categories:
  - Processes
  - People/management
  - Hardware/software tools
  - Technology

Archive the key learnings in a central organization (e.g., PMO)

- Make sure that the location of the key learnings is such that the next projects are apt to review them when starting up.

Who does this?

The project manager assures that the key learnings are documented and archived.

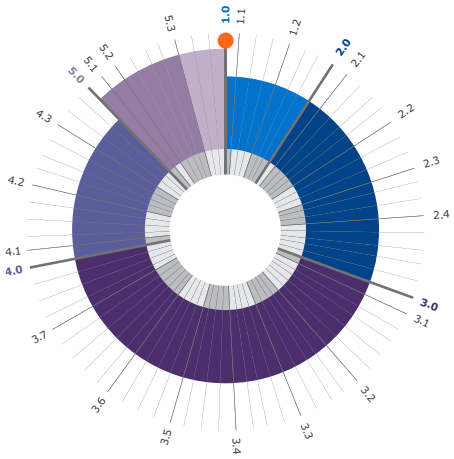
Completion criteria

The key learnings have been documented and archived in the appropriate location.

Process considerations

Stand alone project	Additionally, if part of a program
Start collecting key learnings during project planning and continue periodically throughout tracking. The key learnings step can be as simple as printing out the file that has been maintained throughout the project.	Share the project key learnings with the program team as soon as possible.

5.2.3 Acknowledge and reward participants



Purpose

The project manager recognizes the contribution of participants with public and/or private acknowledgements and, when possible, awards.

Best practices

Determine the appropriate recognition for the project participants

- Match the recognition to the contribution.
- Match the recognition to the individual and/or team.
  - Everybody is different.
  - Some prefer days off of work versus theater tickets, for example.
- Assess whether the rest of the organization would recognize the validity of the recognition.

Present the recognition/award with dignity

- Humor is okay, but be clear that the contribution was sincerely appreciated.

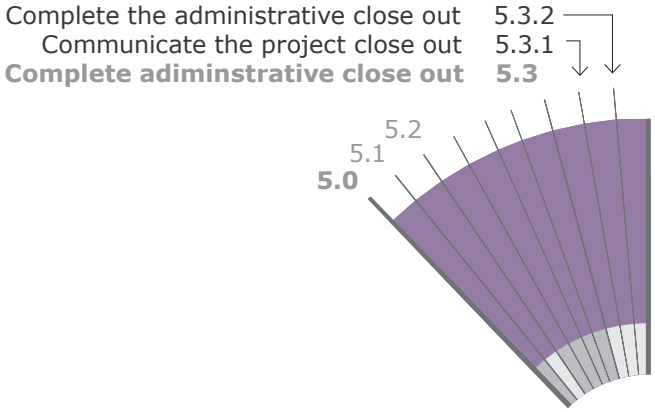
Who does this?

The project manager assures that the appropriate level of recognition is bestowed on participants.

Completion criteria

The recognition/rewards have been bestowed.

5.3 Complete administrative close out



Purpose

The final steps of the project are communicating the end of the project and making sure all of the project data is completed and stored.

5.3.1 Communicate the project close out

The end of the project is communicated to all stakeholders. This helps to ensure that everyone knows that the project is indeed over.

5.3.2 Complete administrative close out

The final step of the project is making sure all of the project data is completed and stored. This helps to ensure that any future discussion on the project is well supported, and it also provides an information base for future projects.

5.3.1 Communicate the project close out

Purpose

The end of the project is communicated to all stakeholders. This helps to ensure that everyone knows that the project is indeed over.

Best practices

Identify the project completion

- A project ends when one of the following has happened:
  - All requirements have been satisfied and the customer approves all project deliverables.
  - The customer agrees to something less than the complete set of project deliverables.
  - Management has decided to terminate the project before the planned completion.

Communicate the end of the project

- Send or e-mail a letter to all stakeholders.
- Include attachments with final project data/reports, key learnings.
- This is an opportunity to publicly extend acknowledgements.

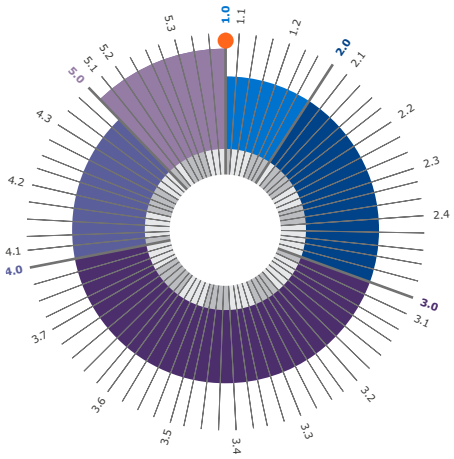
Who does this?

The project manager authors the letter. The project sponsor may sign it, depending on the organization.

Completion criteria

The close out letter has been sent to all stakeholders.

5.3.2 Complete administrative close out



Purpose

The final step of the project is making sure all of the project data is completed and stored. This helps to ensure that any future discussion on the project is well supported, and it also provides an information base for future projects.

Best practices

Process

- Complete all final review documents.
- Put similar reports (hard copy or soft copy) in folders and label the folders.
  - Facilitates later research.
  - Helps ensure that data isn't lost.
- Use the approved file structure if one has been defined.
- When completed, a copy of all project files should be sent to the central organization (e.g., the project management office) for archival and future project use.

Close out letter

POPULATION HEALTH PARTNERS

Population Health Partners
8 Sylvan Way
Parsippany, NJ 07054 USA

Month XX, 20XX

Project Manager

Project Team Members (list by name)
Relevant Managers (list by name)
Others (as appropriate)

Thank you all for your contributions to the Clinical Trial Management System (CTMS) Build Project. It is because of your efforts that the program was completed on time, within budget and to specifications. A final project schedule and cost summary are attached, along with a description of the final project deliverables for your records.

I have also attached a copy of the project closeout review report. Although this project was successful, there were still areas which could be improved. The project review is an opportunity to learn from our experience and provide for continuous improvement. I have separated the findings into two sections. The first section discusses project and process management issues and the second focuses on technology issues. If you have any questions, or would like to discuss any of the findings, please let me know.

Again, thank you all. It has been a pleasure working with each and every one of you.

I look forward to working with you again in the future.

Sincerely,

Jim Remick
Project Manager
Clinical Trial Management System (CTMS) Build Project

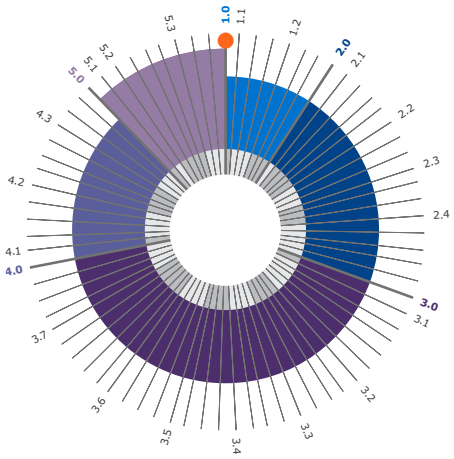
Attachments
(cc: All involved departments heads, listed by name)

Who does this?

Ensuring that the files are stored properly is the project manager's responsibility. In some organizations the PMO stores the files.

Completion criteria

Project file has been properly catalogued.



Do differently

Purpose Statements

1.0 Initiate the project

1.1 Review the project proposal

Purpose

The project manager compiles and reviews the high level project information prior to the initiation of the define and organize phase. This helps to ensure that the business case has been clearly articulated and the project team has a clear high-level target for their project planning.

1.1.1 Review the existing project information

The project manager reviews all of the existing high-level project information for gaps in required data. This helps to ensure that the project starts with the documentation deemed appropriate for initiation.

1.1.2 Test the project information

The project manager checks to make sure that the existing project information is still valid and then identifies any additional assumptions, issues, and risks. This helps to ensure that the project team will be using the best data available when commencing with the define and organize the project phase.

1.2 Validate proposed objectives

Purpose

The project sponsor approves or disapproves the project prior to moving forward into the define and organize phase. This helps to ensure that the project team will be working on a viable, valuable project.

1.2.1 Discuss the project information

The project manager presents the current project information as well as the assumptions, issues, and risks to the project sponsor. The discussion that follows results in the decision of whether to go ahead with the project.

1.2.2 Obtain approval to proceed

The project sponsor decides on the project: approved, sent back for more development, or cancelled.

2.0 Define and organize the project

2.1 Establish the project organization

Purpose

The first step in organizing the project is to clearly identify the project team. This helps to ensure that everyone understands their roles and responsibilities. Once the project team is defined, the project manager will communicate the project team roster.

2.1.1 Identify the project sponsor

Identify the individual who will approve and authorize the work of the project. The sponsor champions the project through the rest of the organization and provides the strategic and project portfolio connection.

2.1.2 Appoint the project manager

Identify the individual who will achieve the project objectives by leading the project team.

2.1.3 Identify the project team

Establish a multi-functional project team responsible for working with the project manager in the planning, managing, and operation of the project. The project team members play different roles which need to be defined and documented.

2.2 Define the project parameters

Purpose

Once the project team is defined, their first task is to develop and ensure a common understanding of the project and objectives among all team members and with the project sponsor. The documents created need to include sufficient information about the project to support the subsequent planning process.

2.2.1 Create the project definition

Document the project team's understanding of the sponsor's project expectations. This documentation is used to clarify expectations with the sponsor and also to guide the project planning process later on.

2.2.2 Obtain approval to proceed

Gain the sponsor's approval to proceed to the planning phase of the project.

2.3 Integrate project scope

Purpose

Note: This project management model step is performed only when the project is part of a program.

When the project is one of other projects in a program, the project team makes sure that their project definition is consistent with the program scope prior to working on the detailed project planning. This ensures that the project team will be using the appropriate targets for their plan.

2.3.1 Integrate project parameters into program parameters

Once completed with the project parameters (section 2.2), the project team works with the program team in ensuring that the project parameters are consistent with the program parameters.

2.3.2 Update and finalize project parameters

The project team makes any changes to the project parameters documents and validates the project parameters with the project sponsor.

2.4 Define the project infrastructure

Purpose

The project manager and team establish the project infrastructure that will provide an effective environment for maximum project success. The infrastructure requirements will vary based on the unique project needs and whether a centralized project management office exists.

2.4.1 Define the planning and managing rigor

The project manager defines the "rigor" with which the project team will plan and manage the project. The rigor is determined by factoring in a number organizational, business and project forces.

2.4.2 Define the project processes and procedures

The project processes and procedures define the planning, tracking, practices and relationship decisions made by the project team. The project team needs to contribute to these decisions and the decisions then need to be documented and communicated throughout the project community.

2.4.3 Establish physical and automated resource requirements

Establishing the physical resources is essential to the success of the project. Facilities and office equipment, computer-based infrastructure, and any other unique requirements need to be identified and installed.

2.4.4 Establish the project office

If necessary, a project office is created to provide the administrative aspects of planning, tracking, and communication within the project community.

3.0 Plan the project

3.1 Develop the Work Breakdown Structure (WBS)

Purpose

All of the tasks necessary to achieve the project objectives are identified, defined in detail, and assigned owners. A Work Breakdown Structure (WBS) is a comprehensive, systematic means of defining project work. The process facilitates the team in understanding the magnitude of the total effort, as well as each individual's effort, to complete the project.

3.1.1 Break the project down

The tasks required to achieve the project objectives are identified and organized in a hierarchical format. This forms the basis for understanding all of the work in the project.

3.1.2 Assign ownership

An owner is assigned to each task. This reduces the potential confusion of who is responsible/accountable for making sure that work is accomplished.

3.1.3 Document completion criteria

The task owners specify the definition of completeness for each task for which they are an owner. The completion criteria ensure that the tasks are well thought out and provide a way for the task owners to communicate to the task customers.

3.1.4 Establish the work breakdown structure dictionary

The project manager creates a single document that contains key information about each task in the project. The work breakdown structure dictionary provides a single source of task information and helps to assure that the appropriate information is defined for each task.

3.2 Develop the prelimary schedule

Purpose

The team creates and analyzes the first-pass schedule, using analysis techniques such as critical path and late schedule. This ensures that the preliminary schedule has no obvious errors and is ready for consideration of resource and time constraints.

3.2.1 Determine logical dependencies

The tasks in the WBS are laid out in their logical sequence – indicating when tasks can start based on task dependencies, without regard to perceived resource or time constraints. This assures that schedule concessions are not made before it is appropriate (resource and time constraints are considered later on the in the project planning process).

3.2.2 Approximate duration
The task owners estimate the duration of each of their tasks. This helps to ensure that the task owners buy into the task duration estimates.

3.2.3 Analyze Network
The project manager and core team analyze the resulting network of tasks, usually in the form of a Gantt chart, to determine the overall length of the project (preliminary) and to uncover issues needing attention in subsequent planning steps.

3.3 Integrate project schedule with program schedule

Purpose
Note: This project management model step is performed only when the project is part of a program.

At this point, when the project is one of other projects in a program, the project team integrates their preliminary schedule with the preliminary schedules of the other projects in the program to create the program schedule.

3.3.1 Integrate the project schedules
Once the preliminary project schedule is completed (section 3.2), the project team meets with the rest of the program team to integrate all of the project schedules to create an overall program schedule.

3.3.2 Determine the impact on the project
The project team determines the impact of the schedule integration process on their project's plan. Some adjustments may be necessary in order to satisfy the program and project objectives simultaneously.

3.3.2 Update the project plan
The project team makes any changes to the project plan. They raise any issues to the project sponsor.

3.4 Refine estimates and finalize resource commitments

Purpose
The project team develops credible task duration estimates and resource requirements/commitments prior to beginning the plan optimization process. This activity improves the overall accuracy of the plan.

3.4.1 Determine pure effort
The task owner analyzes the person-hours of work required to complete the task. This helps to ensure that the task owner has a detailed understanding of the task effort prior to refining the duration.

3.4.2 Refine the task duration

The task owner refines the task duration using the detailed analysis of the pure effort and of the factors that will impact productivity on the task. The re-estimated duration refines the prior duration estimate and helps to increase the confidence in the plan.

3.4.3 Determine workload requirements

The project team makes the final resource adjustments to the preliminary project plan prior to project optimization.

3.5 Optimize trade-offs

Purpose

The project team makes adjustments to the project plan in order to meet the project objectives as established in the POS. These adjustments help to ensure that the project is the right project at the time for the organization.

3.5.1 Review POS and flexibility matrix

The project team reviews the POS to center themselves on the objectives; and reviews the flexibility matrix to get guidance on how to make trade-offs, if necessary.

3.5.2 Modify plans as needed

The project team develops ideas to improve the plan, then applies the ideas to the plan. Some modifications may have to get the project sponsor’s approval.

3.5.3 Gain agreement on changes

The project team presents the modified plan and presents the findings and recommendation to the sponsor. The sponsor approves, sends the team back for more work, or cancels the project.

3.6 Develop risk management plans

Purpose

The project team identifies areas of risk so that action can be taken to minimize or eliminate the impact and likelihood of occurrence. This helps to make the plan more robust and able to respond to future issues.

3.6.1 Identify project risks

The team identifies risks that threaten the success of the project. This helps to quantify the overall level of risk in the project.

3.6.2 Assess the project risks

The team decides which of the risks most threaten the success of the project. This step helps the team to focus on the most important risks.

3.6.3 Generate risk management plans

The team creates risk management plans for each of the most threatening risks. The risk management plans include preventive actions (where possible) and contingency actions

3.6.4 Project plan validation

The sponsor approves the transition of the project from planning to managing the plan. This formal approval helps to ensure that the project stakeholders are clear that the transition is about to happen.

3.7 Transition to management

Purpose

The project team prepares the project to move from planning to execution. This step is essential to ensure that the project team has the ability to track and manage the project effectively.

3.7.1 Approve and set the project baseline plan

A "baseline" plan is the plan against which all project progress will be measured. The baseline plan is a "snapshot" of the approved plan and is set at the end of the project planning phase.

3.7.2 Set up management processes

The project team engages key management processes that were identified in 2.4 define the project infrastructure. Typically, the most visible of these processes is change management.

3.7.3 Communicate project transition

The project manager communicates to the project community that the project has transitioned out of the planning phase and into the management phase.

4.0 Track and manage the project

4.1 Manage the plan

Purpose

Once the project plan has been approved by the project sponsor, the project team manages the work planned in the project schedule. "Managing the plan" involves getting information on whether tasks are starting/finishing according to plan and also getting insight as to where the project team needs to focus their attention. This step helps to make sure that the project stays on target.

4.1.1 Collect status

The project team solicits status on near term tasks, and updates the schedule with the resulting data. This step encourages the team to tackle problems early on, and provides an excellent means for communication within the organization.

4.1.2 Analyze variance

The project team analyzes the difference between the plan and the actual performance. This analysis includes determining the causes of the difference, and it alerts the team to where problems are emerging.

4.1.3 Plan and take adaptive action

When variance analysis uncovers a need to modify the plan, the project team proceeds to the appropriate model step for re-planning. At that point the plan may have to be validated once again with the sponsor.

4.2 Manage issues, changes, and risks

Purpose

The project manager continuously identifies and responds to project issues, changes, and risks. This helps the project team to keep the project on track and the plan up-to-date.

4.2.1 Manage issues

The project team identifies and manages issues to ensure that the project team continues to proceed toward a successful project completion.

4.2.2 Manage changes

The project team identifies and manages potential changes to the project to ensure that the project objectives can still be met.

4.2.3 Manage risks

The project team identifies and manages new risks as they emerge to ensure that the project plan remains robust throughout the project.

4.3 Manage the communication processes

Purpose

The project manager leads the communication processes to ensure that critical information is reported to, and discussed with, the project team and stakeholders clearly, accurately and in a timely manner. This focus on information is essential for successful project decision-making and work completion.

4.3.1 Generate management/customer reports

The project manager, with the support of the project team and the project management office, leads the regular generation of summary reports to management and customers. These reports provide a key component in the communicating project status and issues.

4.3.2 Manage the communication with the project team and conduct project reviews

The project manager maintains consistent interaction with the project team assuring clearly defined direction and uncovering new issues, changes and risks. Periodic project reviews are also conducted to validate that the project is meeting the objectives outlined in the project description document.

5.0 Close out the project

5.1 Complete the transition activities

Purpose

The project manager assures that all tasks and preparations necessary to transition the project to a completed state are performed. This helps to ensure that no lingering closing tasks remain after the project is pronounced finished.

5.2 Conduct program close out reviews

Purpose

Project reviews are held at close out to make sure that all the loose ends have been tied and that the project team's key learnings have been captured and archived in such a way as to positively affect future project teams.

5.2.1 Conduct a project close out review

The project team and stakeholders review the results of the project. This review produces information that can be used to improve the quality of future projects as well as the organization in general.

5.2.2 Document and archive key learnings

The project manager consolidates all of the key learnings developed during the project close out review and then follows organizational procedure in communicating and archiving.

5.2.3 Acknowledge and reward participants

The project manager recognizes the contribution of participants with public and/or private acknowledgements and, when possible, awards.

5.3 Complete administrative close out

Purpose

The final steps of the project are communicating the end of the project and making sure all of the project data is completed and stored.

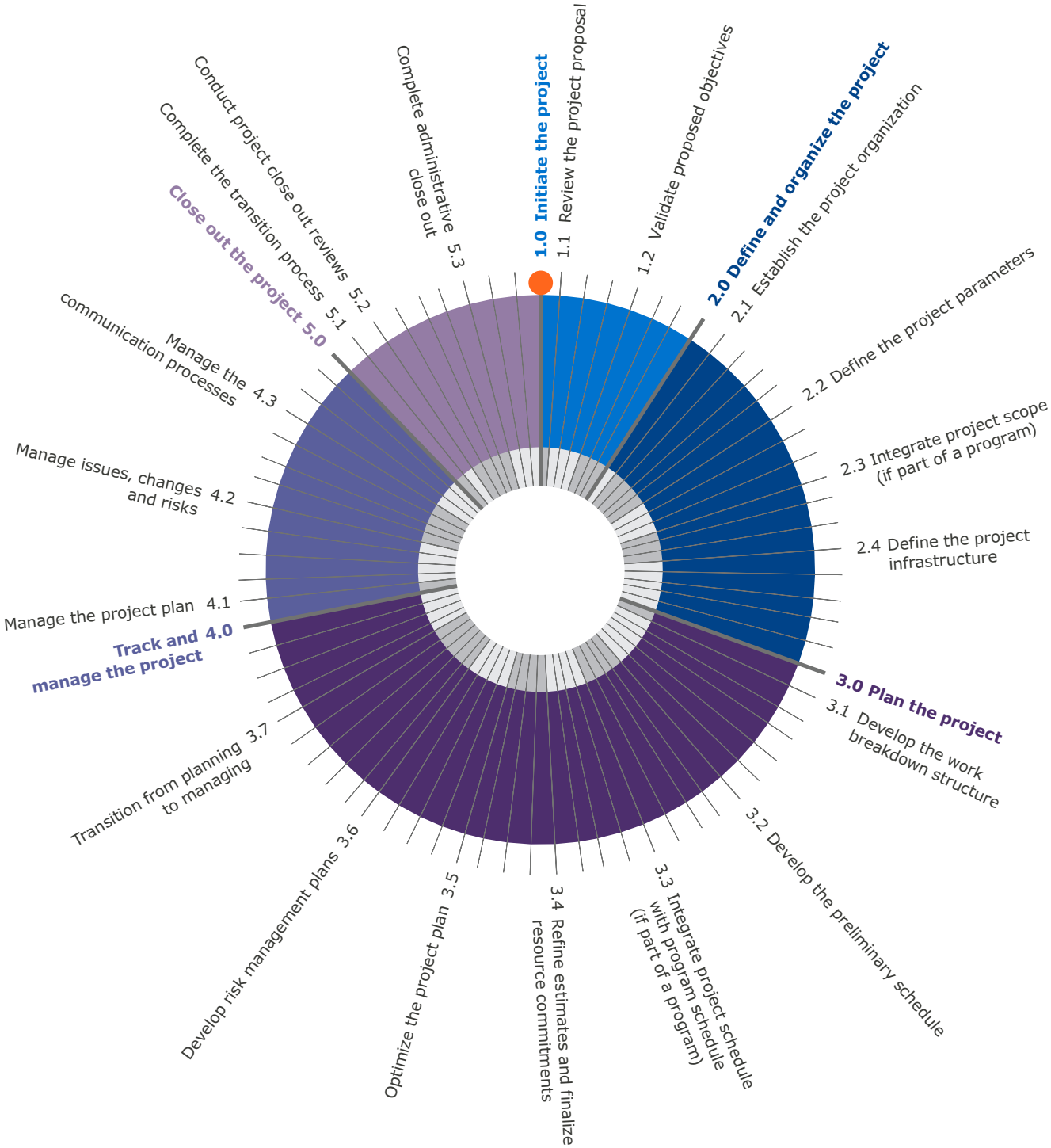
5.3.1 Communicate the project close out

The end of the project is communicated to all stakeholders. This helps to ensure that everyone knows that the project is indeed over.

5.3.2 Complete administrative close out

The final step of the project is making sure all of the project data is completed and stored. This helps to ensure that any future discussion on the project is well supported, and it also provides an information base for future projects.

Templates


1.0 Initiate the project
1.1 Review the project proposal
1.2 Validate proposed objectives
2.0 Define and organize the project
2.1 Establish the project organization
2.2 Define the project parameters
2.3 Integrate project scope (if part of a program)
2.4 Define the project infrastructure
3.0 Plan the project
3.1 Develop the work breakdown structure
3.2 Develop the preliminary schedule
3.3 Integrate project schedule with program schedule (if part of a program)
3.4 Refine estimates and finalize resource commitments
3.5 Optimize the project plan
3.6 Develop risk management plans
3.7 Transition from planning to managing
Track and manage the project 4.0
4.1 Manage the project plan
4.2 Manage issues, changes and risks
4.3 Manage the communication processes
Close out the project 5.0
5.1 Complete the transition process
5.2 Conduct project close out reviews
5.3 Complete administrative close out

Proposal validation checklist project proposal

Proposal team

- ☐ Involvement
  - Who participated in the assessment of the proposal?
  - Which groups are impacted?
  - Were impacted groups adequately represented?
  - Who participated in the validation of this proposal?
  - Who is likely to sponsor the project, if approved?

Background

- ☐ Purpose
  - Why is the project important?
  - Why is it important now?
  - What is the business opportunity or need?
  - Who requested the proposal?
  - Who are the customers?
- ☐ Scope
  - What are the boundaries?
  - What is included in this project?
  - What is not included in this project?
  - Is this project a phased approach?
  - Is the scope flexible?
- ☐ Business objectives
  - What are the desired results? Are they stated in measurable terms?
  - What are the objectives?
  - What business objectives are supported by this project (strategic, financial, positioning, marketing, long-term, etc.)?
- ☐ Success criteria
  - How will the project's success be judged?
  - Who will judge the project's success?
  - How will we know when the project is complete?

Proposal plan

- ☐ Schedule
  - Are there any date constraints?
  - How flexible is the schedule?
  - What is the proposed time frame?
  - What are the major components of work?
  - How does the work lay out over time?
  - How realistic is the high-level schedule?
- ☐ Resources
  - What are the costs associated with producing each major deliverable?
  - What are the resource implications Full-Time Equivalents (FTE)?
  - What other non-labor costs were considered?
  - What are the capital requirements?
  - What ongoing operating costs can be identified?
- ☐ Risk
  - What risks are associated with this proposal?
  - What steps will be taken to mitigate the risks?
  - How well is the proposal understood (e.g. does it involve new technology)?

Recommendation

- ☐ Alternatives
  - What alternative solutions were considered?
  - Why were the alternatives rejected?
  - Does the alternative selected represent the best balance of schedule, benefit, cost and risk?
- ☐ Benefits
  - Were short and long-term benefits considered?
  - What is the potential revenue or savings?
  - Company or product positioning?
  - Improved quality or productivity?
  - Other tangible or intangible benefits?
- ☐ Recommended proposal
  - On what basis was the recommendation made?
  - Was there a dissenting opinion?
  - Who participated in the decision making?

Workshop agenda

Day 1

Time	Activity
8:30 - 8.35	Workshop introduction (given by project manager and/or sponsor)
8:35 - 9:20	Workshop agenda and process overview
9:20 - 10:00	Overview of program (given by program manager or sponsor)
10:00 - 10:15	Break
10:15 - 10:45	POS, flexibility matrix, & success criteria process overview
10:45 - 11:30	Review & validate POS & flexibilty matrix, and generate success criteria
11:30 - 12:00	Revise and share POS and flexibility matrix, and consolidate success criteria
12:00 - 1:00	Lunch
1:00 - 1:15	Major deliverables process overview
1:15 - 2:15	Identify major program deliverables
2:15 - 2:30	Deliverable definition process overview
2:30 - 2:45	Break
2:45 - 3:45	Create deliverable definitions (is / is not lists)
3:45 - 4:00	Break
4:00 - 4:45	Gallery walk validation of deliverable definitions
4:45 - 5:00	Close out day / feedback

Appointment letter

POPULATION
HEALTH PARTNERS

Population Health Partners
8 Sylvan Way
Parsippany, NJ 07054 USA

Month XX, 20XX

Ron Woods
General Manager

All Users (list by name)

Effective January 2, 20xx, jim Remick will service as Project Manager of the Aries Project. Jim continues to report to Nicol Cellis during this assignment.

I will sponsor this project, and in that capacity, will approve the project plans. Jim is authorized by me to coordinate and manage this work. he is also authorized to issue directives relating to the project. His full responsibilities and authorities are outlined in the attachment.

Project team members in your departments will be responsible for managing their project activities so that they are completed under Jim's direction within the agreed-to scope, schedule and resource commitments. It is their responsibility to inform Jim if they forecast that schedule, cost or deliverable agreements will not be met. This must be done continually and communicated as early as possible so that adaptive actions can be developed and implemented.

Please join me in welcoming Jim to this assignment. I know you will give him your full cooperation during all phases of this project and the support required to successfully complete the effort.

Sincerely,

Ron Woods

Attachment
(cc. Project Stakeholders, listed by name)

Project team roster

Name & Title	Role(s)	Orgnization Phone & Fax No.	Email Address	Location/Mail Drop

Success criteria

Includes	Does not include

Is / is not list

Is	Is not

The processes and procedures planning checklist

Plannning decisions

Development

- ☐ Who is responsible for developing the project plan?
  - If more than one person, who should be involved?
  - What are the specific roles and responsibilities of each participant?
- ☐ What does the plan include?
  - Does it meet customer's/management's needs?
  - What product or service life cycle will it follow?
- ☐ Will meetings/workshops be needed to define the project plan?
  - When and where should they be held?
  - Who will attend?
- ☐ Who needs to be informed of decisions made?
  - How will they be kept informed?
  - Will a list of terms be distributed for better comprehension?
- ☐ Is there a plan to continuously improve our management of the project?
  - Is there past experience on similar projects?
  - How can we use it?

Planning output

- ☐ What are the outputs from the planning process?
  - In what format will they be presented?
  - How detailed should they be?
  - Who needs to receive them?
  - Who is responsible for them?
- ☐ How will we know that each output is completed?
  - Who will assess the quality of each output?
  - Who needs to approve and sign off at the completion of each output?
  - How will we know that it has been signed off?

PM tools

- ☐ What project management tool(s) are we going to use?
- ☐ What equipment is required to support the tool(s)?
  - Will all sub-projects use the same tool?
- ☐ Who will operate the chosen tool?
  - Who will enter planning and tracking information?
  - Who will need training to operate the tool?
  - Who will provide technical support for the users of the tool?
- ☐ What additional software do we need in order to support the project management tool?
  - For financial related issues?
  - For action items, follow-up, etc.?
  - For documentation?

Technology

- ☐ How does the proposed technology meet the organization's needs?
  - Business needs
  - Mastery needs
  - User needs
- ☐ How would the proposed technology promote and support best practices?
- ☐ What specific efficiency or productivity gains can be expected?
  - Collaboration
  - Execution
  - Resources
- ☐ How would the proposed tool enable individuals and teams to perform their tasks better?
- ☐ How do you access, maintain, and analyze:
  - Data
  - Information
  - Knowledge
- ☐ What implementation support should we seek?
  - Systems integration
  - Customization
  - Scalability
  - Security
- ☐ How will this technology enable us to generate additional revenue?

Tracking decisions

Tracking

- ☐ How will we assess progress?
- ☐ How will we get data from the project team members and others about the progress of each activity?
- ☐ How often will we get this data?
- ☐ At what level of detail will we track the project?
- ☐ Who will assess the impact of each variance?

Progress review meetings

- ☐ What types of meetings will we hold? (e.g., general, top level, activity specific, etc.)
  - Where will they be held?
  - How often will they be held?
- ☐ Who will define the strategy and method for managing meetings effectively?
  - Who will run these meetings?
  - Who will produce an agenda to be distributed before each meeting?
- ☐ Who should be included in each type of meeting?
  - In what format should the meeting information be presented?
- ☐ Who will keep minutes of the meetings?
  - Who will produce them?
  - To whom should they be distributed?

Reporting

- ☐ What reports will be generated?
  - Who will generate, analyze and distribute them?
  - To whom should they be distributed?
- ☐ What content is appropriate for each audience?
  - How detailed should status reports be for each audience?
  - What formats (tabular, narrative, graphic) communicate best to each audience?
- ☐ What criteria will we use to define an exception for exception reporting (e.g., deviation, spot light, urgent action, etc.)?
  - Who initiates these reports?
  - Who will receive and analyze exceptions reports?

Note: Exceptions may be defined differently depending on the roles and levels of people to whom they are addressed.

Practices decisions

The project file

- ☐ What should the project file contain?
  - How will all project information be kept?
  - Who will create the project file?
  - Who will update and maintain it? Will changes to the file be allowed?
  - If so, by whom? Has a filing system been set up for all documents?
  - Where will the file be located (on-line, paper copy, library, etc.)?
  - Who will have access to the file (to update, change for information only, etc.)?
- ☐ For how long will the file be kept after project completion?
  - Who will keep it after project completion?
  - How will it be used?
  - Where will it be stored?

Managing change

- ☐ When will the plan baseline be frozen?
  - Who will make the decision to freeze the plan?
  - What will the decision to freeze it be based on?
- ☐ What criteria will we use to define change (e.g., design changes, baseline changes, schedule changes, etc.)?
  - Who will define the change management process we will use?
  - Who will maintain the change log?
- ☐ Who will have change approval authority?
  - What documents will be presented for change approval?
  - How will we document approved plan changes?
- ☐ How will we assess the impact of changes?
  - Who will set adaptive actions?
  - How will we track the effectiveness of these adaptive actions?
- ☐ How will we decide whether to update the baseline plan?
  - How much deviation from the plan are we willing to accept before doing a total reschedule?
  - How will we link revision to the change management process?

Continuous improvement/project assessment

- ☐ Will a project assessment meeting be held?
  - Who will attend?
  - What subjects will be addressed?
  - How often during the project life will an assessment be done?
- ☐ How will we document the project assessment so that others can learn from our experience?
  - What information should be kept to provide a historical basis for continuous improvement?

Project lifecycle

- ☐ Which lifecycle will be used?
  - Is there a standard (common) lifecycle?
  - Are we going to define one for this project?
  - Who is responsible for defining it?
  - By when should it be fully defined?
- ☐ What is the release plan process for this project?
  - Is the product release part of this project?
  - Who owns the release plan?
  - By when should the plan be fully defined?
  - Who has the authority to approve it?

Relationship decisions

Ownership

- ☐ What departments or organizations will we need to interact with during the life of the project?
- ☐ What are the roles and responsibilities of each organization (reviewer, approver, creator, etc.)

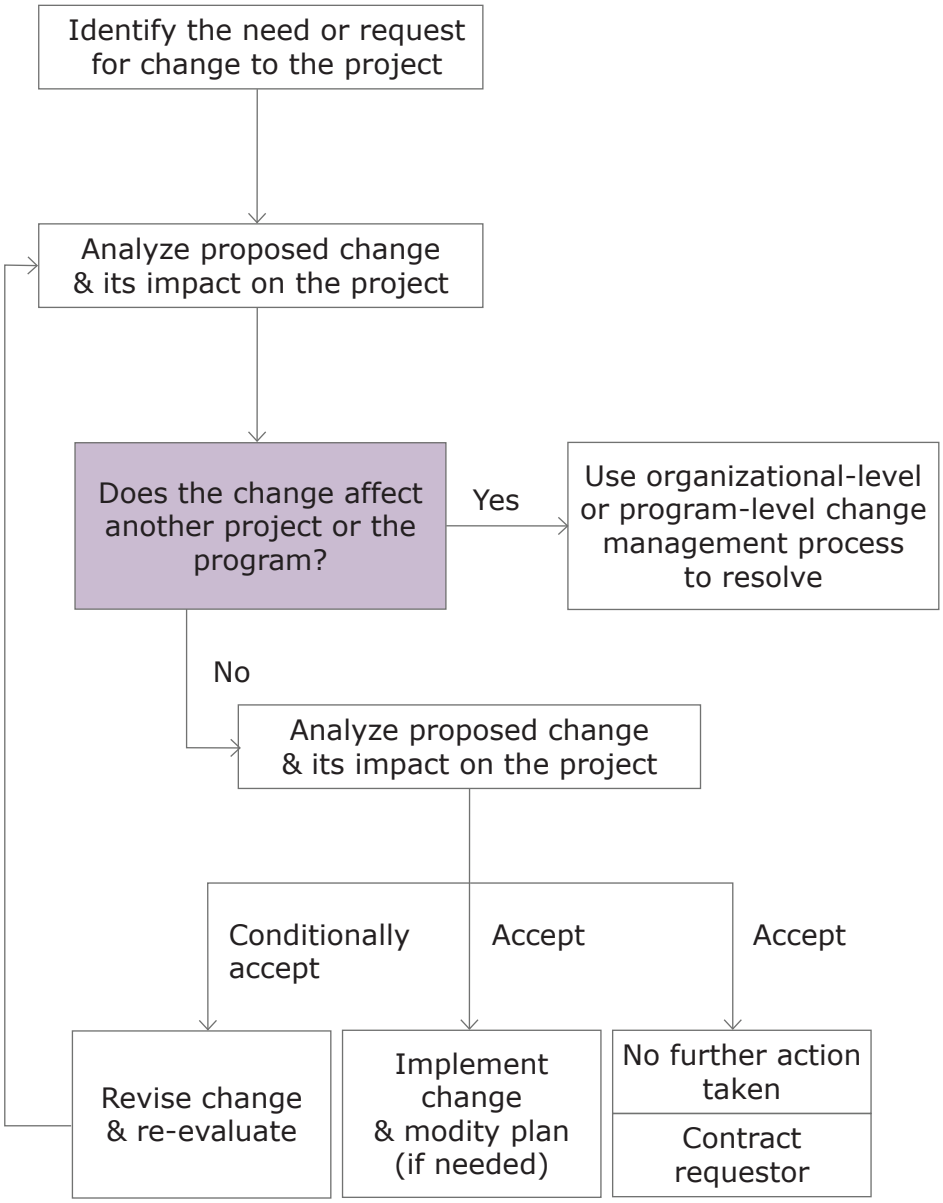
Communication

- ☐ How do we communicate?
  - Among ourselves (project team) and with others outside the team?
  - How frequently do we need to communicate?
- ☐ How will we keep all involved parties informed of deliverables, schedule dates, expectations, problem areas, etc.?
  - Are there specific communication milestone dates or intervals?
  - What information will and will not be exchanged?
- ☐ How will we resolve geographical communication problems?
  - Will we make use of video conferencing?
  - Will we need collaboration tools; i.e., Internet viewing of meeting documents?
  - How will we resolve any issues around different languages and cultures?

Escalation

- ☐ What is the process we will use to resolve disagreement?
  - What is the standard decision making process?
  - What is the conflict resolution process?
- ☐ What is the escalation process we will use for making decisions?
  - Who has final decision making authority?
  - Who decides when to escalate a problem?

Project change management process



Change request notices

Project Name: Date:

Description of Change:

Reason for Change:

Cost / Benefits Impacts:

Scope of Change: ☐ Project ☐ Program ☐ Other

Other Comments:

Metrics:

Originator:

Recommended by Program Manager:

Disposition Date:

WBS alternatives

Alternative	Example WBS	Advantages	Disadvantages
Functional	• Electrical, Mechanical, Documentation, Manufacturing, Field Support, etc.	• Can easily mirror most corporate management structures • Fairly easy to assign responsibility • Makes life cycle based reporting difficult	• Reinforces autonomy of functional groups • Discourages cross-functional teams • Integration of individual components can be complex and difficult to reflect in schedule
Life Cycle	• Design, Code, Test, Launch, etc.	• Can mirror product development life cycle • Easy to include standard life cycle milestones • Encourages cross-functional teams • Integration issues minimized	• Beacuse it supresses functional focus, sometimes difficult to assign responsibility • Reflecting iterative development cycles in the schedule can be difficult
Geographical	• Euorpe, Far East, North America, South America, etc.	• Provides autonomy for geographically dispersed teams • Retains accountability for major program components within regions and/or divisions	• Reinforces autonomy of region/division • If each region/division is not responsible for an entire product, it makes integration between regions and/or divisions difficult
Release	• Release 1, Release 2, Release 3, etc.	• Tends to focus work on completing the next release • Encourages cross-functional teams	• Sometimes difficult to identify end of program • Difficult to use when multiple releases are in progress concurrently • Top level WBS not very descriptive of program deliverables
Deliverable	• Mother Board, Case, Display, Internal Drives, etc. • Kernal, Commands, Networking, etc.	• Encourages cross-functional teams • Tends to surface technical issues quickly because of visibility • Can mirror functional organization in some cases • Summarization and reporting of progress by deliverable straight forward	• Because it supresses functional focus, sometimes difficult to assign responsibility • Integration of individual deliverables sometimes complex

Optimization model

Issue: (Be Specific

Tactics: (List 3 specific options that could help you achieve your goal)

1.

2.

3.

Impact: (List 2 or more benefits for each suggested tactic and 2 or more tradeoffs)

Benefits (+)	Tradeoffs (-)
1.	1.
2.	2.
3.	3.

Risk matrix

Risk assessment matrix

Risk area	Potential impact	Likelihood of occurence	Difficulty of timely detection	Overall threat
1				
2				
3				

Risk management planning matrix

Risk area	Preventative action	Contingency action	Trigger(s)	Owner(s)
1				
2				
3				

Transition letter

POPULATION
HEALTH PARTNERS

Population Health Partners
8 Sylvan Way
Parsippany, NJ 07054 USA

Month XX, 20XX

Jim Remick

Project Team Members (list by name)
Relevant Managers (list by name)
Others (as appropriate)

Planning for the Aries Project was completed today and implementation of the plan will begin on February 7, 20xx. The approved project objective statement, schedule plan and budget are attached. Status will be collected from contributors at the end of the month and all project progress will be measured against this plan and budget.

With the beginning of the implementation phase, change management processes agreed to by the project team are now in effect. Any changes from the agreed-upon project scope, schedule or budget must be requested on a Change Request Form (see attached) and approved by me prior to the change being made.

All project team members have agreed to manage their activites so that they are completed within the agreed-to schedule and cost commitments, and so that the deliverables meet specifications. Should any team member forecast that schedule, possible time so that corrective actions can be developed and implemented.

Thanks you all for your contributions to the project planning process. I am confident that our teamwork and technical expertise will enable us to successfully complete this project.

Sincerely,

Jim Remick
Project Manager
Aries Project

Attachment
(cc: All involved department heads, listed by name)

Close out letter

POPULATION HEALTH PARTNERS

Population Health Partners
8 Sylvan Way
Parsippany, NJ 07054 USA

Month XX, 20XX

Project Manager

Project Team Members (list by name)
Relevant Managers (list by name)
Others (as appropriate)

Thank you all for your contributions to the Clinical Trial Management System (CTMS) Build Project. It is because of your efforts that the program was completed on time, within budget and to specifications. A final project schedule and cost summary are attached, along with a description of the final project deliverables for your records.

I have also attached a copy of the project closeout review report. Although this project was successful, there were still areas which could be improved. The project review is an opportunity to learn from our experience and provide for continuous improvement. I have separated the findings into two sections. The first section discusses project and process management issues and the second focuses on technology issues. If you have any questions, or would like to discuss any of the findings, please let me know.

Again, thank you all. It has been a pleasure working with each and every one of you.

I look forward to working with you again in the future.

Sincerely,

Jim Remick
Project Manager
Clinical Trial Management System (CTMS) Build Project

Attachments
(cc: All involved departments heads, listed by name)

Bibliography
“The Greatest Hits”

Bennatan, E.M. 1992. **On Time, Within Budget – Software Project Management Practices and Techniques.** McGraw-Hill International.

Brooks, Frederick P. 1995. **The Mythical Man-Month: Essays on Software Engineering.** Addison-Wesley Publishing Co.; ISBN: 0-20-183595-9

Demarco, Tom. 1986. **Controlling Software Projects: Management, Measurement and Estimation.** Yourdon Press. ISBN: 0-13-171711-1.

Demarco, Tom and Timothy Lister, 1999. **Peopleware: Productive Projects and Teams, 2nd Ed. Dorset House.** ISBN: 0-93-263343-9.

Doyle, Michael and David Straus, 1993. **How to Make Meetings Work: The New Interaction Method.** Berkley Publishing Group. ISBN: 0-42-513870-4.

Fisher, Roger and William Ury, 1991. **Getting to Yes: Negotiating Agreement Without Giving In.** Penguin Books USA. ISBN: 0-14-015735-2.

Goldratt, E.M. 1997. **Critical Chain.** North River Press

Graham, Roger J> 1989. **Project Management As If People Mattered. Primavera Press.** ISBN: 0-92-628200-X.

Gray, Clifford F. & Erik W Larsen. 2000. **Project Management (The Management Process).** ISBN: 0-07-365812-X

Kerzner, Harold. 1997. **Project Management: A Systems Approach to Planning, Scheduling, and Controlling, 6th Edition.** John Wiley & Sons. ISBN: 0-47-128835-7.

Moore, Geoffrey. **1995. Crossing the Chasm. Harper Business.** ISBN: 0-88-730717-5

Smith, Preston and Donald Reinersten. 1998. **Developing Products in Half the Time: New Rules, New Tools, 2nd Edition.** Van Nostrand Reinhold. ISBN: 0-47-129252-4

Yourdon, Edward. 1997. **Death March: The Complete Software Developer's Guide to Surviving "Mission Impossible" Projects.** Prentice-Hall

Walton, Mary. 1986. **The Deming Management Method.** Putnam Publishing Group.

Wheelwright, Steven C. and Kim B. Clark. 1992. **Revolutionizing Product Development: Quantum Leaps in Speed, Efficiency, and Quality.** Free Press. ISBN: 0-02-905515-6

Case study: The 5-P enhancement project

"LASERCON-CUTTING IT FINER"

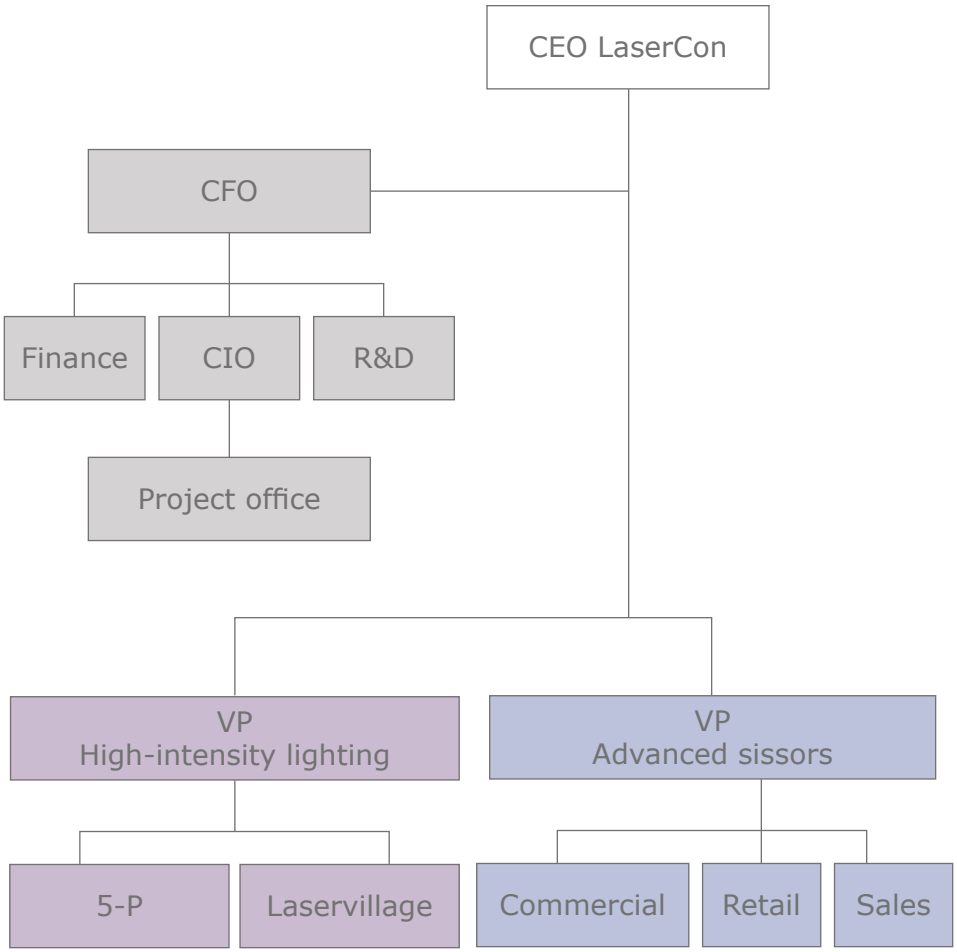
Executive briefing

Brief history

LaserCon was founded in 1966 after being spun off by the Songster Sewing Machine Company. Originally created as their high-intensity lamp division, LaserCon had become responsible for research and development in two critical areas: (1) high intensity lighting and (2) advanced scissors technology. While neither business line excelled in the marketplace, both established strong footholds in well-entrenched industries.

As laser technology advanced, so did LaserCon's opportunities, but the core business remains focused on the all-encompassing vision of the corporate founder Andrea D'Oria. "LaserCon is the premier provider of high intensity lighting and advanced scissors technology – we will light the way to the future and cut straight to the core of our customers' needs."

Current organization chart



Current corporate strategy

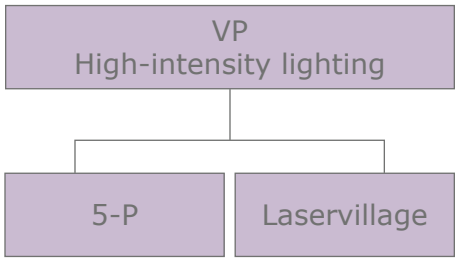
LaserCon's corporate mission is to provide high-intensity lighting and advanced scissors cutting technology to its clients. To serve that mission, LaserCon maintains a task force of corporate and retail marketers to "light the way" for the diverse customer base. Just last month, a major reorganization came on the heels of the recent appointment of the new CEO, Pinking Shearson. Sensitive to the Board of Directors' perceptions of inefficient operations, Ms. Shearson has introduced a realignment of the CFO organization elevating it above the VP's of the Advanced Scissors and High Intensity Lighting Groups. In addition, the CIO and R&D organizations have been placed under the authority of the CFO, Ms. Doe Laar. A newly created project office chartered to provide expert project planning support has been added to the CIO organization.

All project plans will be coordinated through this office. There has been some confusion throughout the organization about how the new leadership might affect the long-standing success of LaserCon. From the very beginning Ms. Shearson's blending with the LaserCon culture has been a concern. Her corporate background of leadership dependent on tight controls may have a limited effectiveness in an organization that has traditionally placed a high value on individual spirit and collaborative innovation. Sensing a need to clarify the new corporate direction, Pinking Shearson recently sent out a letter to the organization. In this letter, the new CEO clearly defined the business strategy for LaserCon through seven key directives:

- Of greatest importance, "bursting on to the e-commerce scene with the launch of LaserCon.com and our innovative e-Laser electronic purchasing system."
- Expansion into the home retail market with products derived from commercial successes
- Maintaining profitability will continue to be important to LaserCon, "… all corporate investments would be judged carefully in light of their profit potential or improvement of existing margins"
- Using the existing sales force and ensuring that the cost of sales would not minimize profitability
- Taking advantage of our existing technical expertise and clear technological superiority over our competitors
- Solidifying existing business infrastructures to accommodate our dramatic growth
- Preserving our legacy of good world citizenship and quality of life for our employees and their communities

After this letter, each VP and the CFO made announcements to their respective groups hoping to place emphasis on those areas of the corporate business strategy important to each individual organization.

High intensity lighting group



Key group strategies

Parker Monteblanc, Group VP of the High Intensity Lighting Group echoed his support for the new strategy and placed special emphasis on the successful history of LaserCon's hallmark product, the 5-P. Enhancing that product's success and growing new products based on the 5-P are clearly important to the HIL group. Mr. Monteblanc went on to suggest that expansion into the retail market was not critical to their success and doubted the promise of internet sales. Coming from a strong product development/technical background with little sales experience, he defended his oft criticized decentralized sales approach, insisting that each division needs its own separate sales staff managed by his division heads. He voiced support over his group's development of new contract manager software, designed to support both divisions, aimed at keeping sales costs down. Expressing grave concern over corporate accusations of mismanagement of his group's large budget, Mr. Monteblanc also announced a centralized budgeting process under his direct authority designed to help keep control of costs.

Group dackground

The High Intensity Lighting Group is responsible for the development, sales, and support services of LaserCon's high intensity lighting products. The HIL group consists of two divisions. The 5-P division manages the successful 5-P product line and all related products. The LaserVillage division manages lighting products associated with home and community uses. Each division manages its own sales staff.

Like any organization with mature product lines, the HIL group is confronted with the challenge of extending the life of successful products with enhancements and upgrades while creating innovative new products for the future. The VP recognizes the delicate balance of maturity and innovation, but few others in the organization have the same appreciation. His lack of confidence in the leadership abilities of his division heads has convinced him to approve all funding/resource decisions himself.

Besides the 5-P, the HIL product lines include the mature LaserTour and LaserStop (described later). A few innovative product derivatives have been proposed, but Mr. Monteblanc has not decided which will be submitted to R&D for development. There are also some important infrastructure needs, especially the Contract Manager software. Although the development of the software is part of the CIO budget, ensuring the software developers in the CIO organization understand the user needs has been time consuming for the HIL project manager.

Product information

5-P (Precision Pin Point Penmanship Product): The 5-P product is the hallmark of the LaserCon organization's success. This special illumination product sheds light on good penmanship, both literally and figuratively. By affixing the 5-P adapter to the end of any high-quality writing implement, the writer is enabled to both illuminate the writing surface as well as program in any of a series of pre-programmed guides to facilitate high-caliber, businesslike penmanship.

LaserTour: Piggybacking on widespread internet access and GPS satellite links, LaserTour provides real-time tour facts, colloquialisms, and side-stories as people drive down the road by historical events and places. A light-sensitive laser reads permanently placed markers and then provides audio information to the driver and the passengers.

LaserStop: LaserStop is the premier product of the LaserVillage division. Sold directly to garage door manufacturers, this high intensity laser beam is used to detect any obstruction at the base of the door that would prevent its safe closing.

Other strategic initiatives

HIL contract manager: The HIL Group has expressed interest in a software package that creates initial contracts, documents support agreements, manages product upgrade programs, and provides contract termination support. The HIL sales staff is convinced that HIL contracts are "different than those simple agreements the scissors guys use." Persuading the CIO organization of the HIL priorities will not be an easy task. It will be necessary to do so, since the development resources come from the CIO budget. There is some discussion of producing the package internally with the limited HIL software development resources.

Project information sheet

"LASERCON-CUTTING IT FINER"

Project Sponsor: Stephen Quill
Project Manager: Ty Tannick

Background information

This project enhances the highly successful 5-P product, by providing the user with the ability to fine-tune the beam and the resultant writing to the desired level of precision.

The 5-P and this enhancement will be prominently featured on the LaserCon.com web page and sales over the internet have been projected to be very big. It is anticipated that as a result of this enhancement the 5-P product's retail business will outstrip commercial sales 2 to 1. The manufacturing department already uses the tuning devices that are used for this project as a means to calibrate the laser beam on the basic 5-P model – it is just a matter of making the device available for public consumption. Because of the storied success of the basic line and the existing customer base for this product, it is anticipated that the cost of sales will be minimized. The 5-P division has a long-standing tradition of supporting local charities and is particularly proud of its "Young Writers" program for inner city youths, where free 5-P devices are added to all premium writing instruments currently in use in public schools.

Project projections are as follows:

5-P enhancement project projections

Division	Sales (units)	Revenues (USD)	Sales Costs (G&A inc)	Built Costs (G&A inc)	Profit
Retail	4,000,000	110,000,000	42,000,000	55,000,000	13,000,000
Commercial	2,000,000	50,000,000	21,000,000	25,000,000	4,000,000
Total	**6,000,000**	**160,000,000**	**79,000,000**	**80,000,000**	**17,000,000**

Project sponsor's project objectives: In order to strike quickly, Mr. Quill has targeted this enhancement to be released to manufacturing in 2 months; and doesn't want more than 2 full time people applied to it.

Most important to Mr. Quill is that the full scope of the product be met since he wants to make sure that once the enhanced product hits the market, it will present a significant entry barrier to any would-be competitor. Secondarily, the project team should strive to meet the 2 month product release target, since a quick entry of this product would positively impact the sales of other products in the LaserCon product portfolio.

Available people in LaserCon for this project

Product designer (Herr Gonomic)
Laser engineer (Tu Le'Pointe)
QA engineer (Anna Lytick)
Document control specialist (Lotta Files)
Manufacturing engineer (Makim Wright)
Handwriting specialist (Grace Phullee)
Marketing engineer (Mark Eter)
Human resources specialist (P. Pull)
Layout designer (Ike Andraw)

Deliverables:

Functional spec: Includes a definition, from a marketing perspective, of what features the enhanced 5-P needs to provide. The functional spec defines the key performance and cosmetic requirements from the user's standpoint.
Design spec: Includes a definition, from a technical design perspective, of how the features defined in the functional spec would be implemented. The design spec lists anticipated performance achievement on each requirement. Key design issues and risks are identified.
Prototype: An actual 5-P that mechanically performs all the functions identified in the design spec. The prototype is expected meet all functional requirements of the design spec; but not expected to be cosmetically ready for shipment.
Focus group teport: The focus group report contains all of the salient feedback from the focus group concerning the design of the 5-P enhancement product. The focus Group report should be organized and written in such a way so that the design engineers understand
Final test report: The test report provides the data collected during the testing of the 1st lot of 5-P enhancement products. The test report will be used to decide if the 5-P enhancement product is ready for release. It is one of the requirements for release.

Product life cycle

The product life cycle for this project includes the following:

1. **Prototype development:** The prototype development phase includes transforming the laser-tuning device from a crude manufacturing calibration tool into a slick, commercially attractive add-on to a pen. This prototype development effort will involve writing a target spec, modifying the current design, and designing, building, and testing the prototype.
2. **Manufacturing:** The manufacturing phase for this project includes the development of the manufacturing plan and manufacturing the 1st lot of enhanced 5-Ps.
3. **Test:** The test phase includes developing the final test plan and performing final test
4. **Packaging:** The packaging phase includes the development of the commercialized package and the actual packaging of the enhanced 5-Ps.
5. **Final release:** The final release phase includes boxing up the packaged units for shipment and assuring that all manufacturing steps have been completed.

Tasks, owners, and task durations for this type of project in LaserCon include (not necessarily in sequence):

Task Name	Task Owner	Duration (Work Days)
Create the functional spec	Mark Eter	5
Modify the current design	Herr Gonomic	20
Analyze the focus group report	Herr Gonomic	3
Apply final modifications to the design after the focus group meetings	Herr Gonomic	5
Create the design spec	Herr Gonomic	5
Set up logistics for focus group meetings	Mark Eter	10
Prepare materials and agenda for the focus group meetings	Mark Eter	5
Lead focus group meetings	Mark Eter	5
Analyze focus group data resulting from the focus group meetings	Mark Eter	2
Create focus group report/recommendations	Mark Eter	2
Develop packaging approach	Mark Eter	20
Prepare marketing material	Mark eter	20
Create prototype test plan	Anna Lytick	6
Test prototype	Anna Lytick	5
Write prototype test report	Anna Lytick	3
Write the final test plan	Anna Lytick	10
Perform final test	Anna Lytick	5
Complete release requirements	Anna lytick	7
Build the prototype	Makim Wright	10
Develop manufacturing plan	Makim Wright	15
Manufacture pilot run of 5-Ps	Makim Wright	3
Final assembly of pilot run of 5-Ps	Makim Wright	3